Value Creation for Audio Learning Service of Working Age Population in Bangkok

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Abstract

The purposes of this research were as follows; 1) To study personal data on audio learning service, beneficial perception, cost-advantage perception, perception of other factors and value perception towards working age population in Bangkok; 2) To study and develop the causal model, value perception and value creation of service users of audio learning service of working age population in Bangkok; 3) To examine the correlations between latent variables as well as develop a Parsimonious Model; and 4) To study the problems, obstacles and suggestions for the improvement and development of audio learning service. This study was a descriptive and semi-qualitative research. The study was conducted from June to July 2008. The samples of the study consisted of 400 persons of working age population in Bangkok. The instrument used for the study was a questionnaire which consisted of a check list, five-point Likert scale and open-ended questions. The statistics used for the data analysis were descriptive statistics such as frequency distribution, percentage, arithmetic mean, standard deviation and inferential statistics; for example, Structural Equation Model Analysis.

The major findings were as follows:
1. Most of the respondents perceived the value of using audio learning service at a high level especially for product value and personal value. The perception of the benefits was considered to be at a high level, especially for personal benefit and experience benefit. The perception of the cost advantages was considered at a high level, especially for time saving and energy saving. The perception of other factors was also at a high level, especially for quality of content and time constrain.
2. The causal model of value perception for audio learning service, resulting from factors and paths analysis, was valid and fitted the empirical data. All variables of the model accounted for 65.9% of the variance. Whilst there were hypotheses under the cost-benefit model, there was no positive correlation between perception of cost-advantage and value perception.
3. From testing the six hypotheses, there was positive correlation between characteristics of audio learning service and perception of functional benefit, perception of cost-advantage, and perception of other factors. Moreover, there was positive correlation between perception of functional benefit and value perception, and positive correlation between perception of other factors and value perception. However, there was negative correlation between perception of cost-advantage and value perception.
4. Most of the respondents advised that the problems and obstacles were related with personal problems due to limitations in background knowledge and concentration. Suggestions to enhance the audio learning service comprised the suggestions that listening periods should be offered for 11-15 minutes, that there should be contents related with personal development and the narration should be simplified to assist understanding.

1. Introduction

For the years 2001-2010, the Thai government aims to promote self-learning through ICT technology in order to develop careers and improve the quality of life. Through common interest offers of learning media nowadays, the development of communication technology has created ways of self-learning. A lot of modern learning media were being developed using computer technology as a means of improving the quality of learning and teaching (Milliken and Barnes, 2002) as well as a requirement of institutes to become more efficient through teaching large numbers of students while at the same time reducing time unit cost (Sneddon & Kremer, 1994). Audio learning is a form of mobile learning in which a device is used to listen to audio media. Through all portable devices such as iPod, MP3 player, CD player, PC/Laptop and portable radio, audio media files can be transferred to learners or device holders conveniently. Audio Learning means using audio books, courses and podcasts to become more knowledgeable and fulfilled. Digital media with audio recording can be produced easily with low cost (Ractham and Zhang, 2006). Especially in context of educational purposes, audio learning seems to be one of the best instruments to improve self-learning capability (Evans, 2007). For this reason, audio learning or podcasting (from ipod and broadcasting) has become popular as learning aid for campus-based students especially in leading US universities such as Berkeley, Stanford, Harvard, Penn State and Michigan State University (Copley, 2007).

Working age population (15-65 years) equaled to 67 percent which was greater than that of child and aged population in the total population structure of Thailand (National Statistical Office, 2003). For the population in this group, self-learning becomes more popular since people wish to learn more for their own capability and future career. Therefore, to develop the human capability of this group of population will have a direct impact on the benefit of the country. As per value creation concept, value can be created by differentiation along every step of value chain; through activities resulting in products and services that lower buyer/user's cost or raise buyer/user benefit and performance. With respect to the marketing concept of value creation under cost-

benefit scheme, the research question is: How valuable is audio learning service to working age population in Bangkok?

Table 1 Attributes related pertinent variables and references

Pertinent variables	Attribute	Adapted from
Personal data	Gender, Age, Marital status, Education, Occupation, Career position, Work experience, Income, Language, Gadgets	
Forms of Audio Learning Service	Service forms, Learning devices, Content, Duration, period of time used	Warren Longmire. Designing and developing learning objects, 2000
Beneficial perception	Functional benefit, Social benefit, Personal benefit, Experiential benefit	Philip Kotler, Marketing Management, 2000 George S. Day, The Marketing Driven Organization, 1999
Perception of cost-advantage	Monetary cost, Time cost, Energy cost, Psychic cost	Philip Kotler, Marketing Management, 2000 George S. Day, The Marketing Driven Organization, 1999
Perception of other factors	Content quality, Physical surroundings, Social surroundings, Time constrain, Task and momentary condition	Sukhothai Thammathirat Open University, Educational technology and development of human resource, 1998
Value perception	Product value, Service value, Personal value, Image value	Philip Kotler, Marketing Management, 2000 George S. Day, The Marketing Driven Organization, 1999 Siriwan Serirat, Marketing Management, 2003

Extending the performance of audio learning service to enhance self-learning capability of working age population is the subject of study in this research. The purpose is to develop and offer as an alternative self-learning channel by creating value under the marketing concept (Kotler, 2003) and value perception model (Day, 1999). From the usage of audio learning service, description of perceived benefit such as functional benefit (Chan & Lee, 2005) and personal benefit (Gribbins, 2007), perceived cost-advantage such as time saving (Evans, 2008) and psychical cost (Chan & Lee, 2005) and other related factors such as quality of content and physical surrounding (Sukhothai Thammathirat Open University, 1998) were formulated in the form of value perception model of audio learning service. Apart from description in percentage, Mean and SD of all latent variables, there was inferential statistics of Structural Equations Model: SEM, in order to hypothesize the correlations between latent variables and to examine the model validity by testing the goodness-of-fit with variance of its empirical data.

This was a descriptive and semi-qualitative research. From June to July 2008, the samples of the study consisted of 400 persons of working age population in Bangkok. The instrument used for the study was the questionnaire which consisted of a check list, five-point Likert scale and open-ended questionnaire. The statistics used for data analysis were descriptive statistics: frequency distribution, percentage, arithmetic mean, standard deviation and inferential statistics, for example, Structural Equation Model Analysis. The purposes of this research were as follows; 1) To study personal data on audio learning service, benefit perception, cost-advantage perception, perception of other factors and value perception of working age population in Bangkok; 2) To study and develop the causal model, value perception and value creation of service users of audio learning service of working age population in Bangkok; 3) To examine the correlations between latent variables as well as to develop a Parsimonious Model, whilst six hypotheses were formulated as follows:

H1: There was correlation between audio learning service and perception of benefit
H2: There was correlation between audio learning service and perception of cost-advantage
H3: There was correlation between audio learning service and perception of other factors
H4: There was correlation between perception of benefit and value perception
H5: There was correlation between perception of cost-advantage and value perception
H6: There was correlation between perception of other factors and value perception

And, 4) To study problems, obstacles and suggestion for the improvement and development of audio learning service.

Table 2 The relationship between independent variables shows no multi-colinearity (r < 0.80) which suit to the value creation of audio learning service model

Variables	Form	Content	Duration	period	Function	Social	Personal	Experience	Monetary	Time	Energy	Psychic	Quality	Psychic	Social	Time	Task
Form	1.000																
Content	0.529	1.000															
Duration	-0.023	0.032	1.000														
Period	0.070	0.109	0.014	1.000													
Function	0.137	0.142	0.147	0.159	1.000												
Social	0.128	0.150	0.096	0.058	0.581	1.000											
Personal	0.117	0.083	0.073	0.062	0.525	0.452	1.000										
Experience	0.105	0.045	0.110	0.160	0.580	0.524	0.618	1.000									
Monetary	0.139	0.084	0.048	0.099	0.494	0.494	0.370	0.422	1.000								
Time	0.144	0.037	0.038	0.143	0.524	0.501	0.492	0.514	0.650	1.000							
Energy	0.102	0.080	0.049	0.123	0.507	0.478	0.420	0.453	0.546	0.628	1.000						
Psychic	0.107	0.071	0.089	0.074	0.496	0.427	0.439	0.461	0.594	0.585	0.665	1.000					
Quality	0.096	0.047	0.067	0.110	0.410	0.370	0.332	0.361	0.332	0.419	0.405	0.384	1.000				
Psychic	0.078	0.013	0.012	0.139	0.378	0.307	0.302	0.348	0.345	0.374	0.387	0.354	0.502	1.000			
Social	0.147	0.078	0.022	0.009	0.404	0.338	0.407	0.433	0.393	0.384	0.401	0.423	0.383	0.455	1.000		
Time	0.079	0.037	0.031	0.106	0.372	0.297	0.264	0.295	0.357	0.430	0.373	0.413	0.393	0.456	0.379	1.000	
Task	-0.008	0.015	0.035	0.123	0.366	0.353	0.304	0.377	0.312	0.424	0.388	0.377	0.452	0.448	0.413	0.489	1.000

From table 2 extending the performance of audio learning service to enhance self-learning capability of working age population is the subject of study in this research. The purpose is to develop and offer as an alternative self-learning channel by creating value under the marketing concept (Kotler, 2003) and value perception model (Day, 1999). From usage of audio learning service, description of perceived benefit such as functional benefit (Chan & Lee, 2005) and personal benefit (Gribbins, 2007), perceived cost-advantage such as time saving (Evans, 2008) and psychical cost (Chan & Lee,

2005) and other related factors such as quality of content and physical surrounding (Sukhothai Thammathirat Open University, 1998) were formulated in the form of value perception model of audio learning service. Description of statistical data and results from correlation test and examination of the model validity would support understanding of user perception as well as prioritize and enhance the service performance in the form of value creation model

Fig. 1 Conceptual framework: Value perception for audio learning service
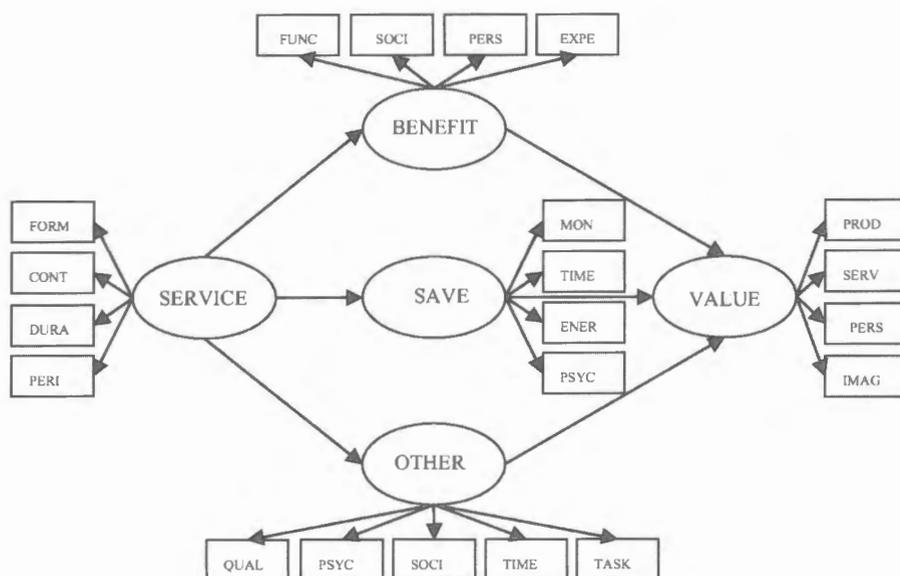
2. Method

2.1 Scope of the study

This research was a descriptive and semi-qualitative research. Empirical data from reviewing the literatures and articles under the Structural Equations Model (SEM) were formulated into a questionnaire which examined validity and reliability of the data. As stratified sampling, municipal weight was applied into 50 areas of BMA. The samples of the study consisted of 400 persons who represented the working age population in Bangkok (Yamanae, 1973). Then the sample group was asked, with the purpose to obtain their opinion to complete the valid close-ended and open-ended questionnaires in check list and 5-point Likert scale in order to find out the casual relationship for hypothesis tests, factor analysis and path analysis.

2.2 Procedures

Statistical analysis in a package program was performed parametrically and non-parametrically to describe demographical data, characteristically usage, perceived benefit, perceived cost-advantage, perception of other factors and value perception of using audio learning service as well as description of obstacles and suggestions with regards to audio learning service improvement. Furthermore, Causal Model: Structural Equation Modeling (SEM) was used in order to examine correlations between latent variables, factor analysis and path analysis with regard to the development of the parsimonious model. Apart from description in percentage, Mean and SD of all latent variables, there was inferential statistics of Structural Equations Model: SEM, in order to hypothesize correlations between latent variables and examine the model validity by testing the goodness-of-fit with variance of its empirical data.

Table 3 Structure of questionnaire

Section	No.	Type	Validity	Reliability
Section 1 Personal data	1-11	Check list	1.00	-
Section 2 Forms of audio learning service	12-15	5-point Likert scale/ Check list	1.00	-
Section 3 Beneficial perception	16-19	5-point Likert scale	0.92	0.92
Section 4 Perception of cost-advantage	20-23	5-point Likert scale	1.00	0.84
Section 5 Perception of other factors	24-29	5-point Likert scale	0.95	0.85
Section 6 Value perception	30-34	5-point Likert scale	1.00	0.88
Section 7 Problem and obstacle	35	5-point Likert scale	1.00	0.90
Section 8 Suggestion	36-38	Open-ended	1.00	-

3. Results

1. The results of the research showed that, demographically, 55% of the respondents had been using the audio learning service. The majority of the respondents were categorized as female (52.3%), aged below 30 (37.5%), single (57%), Bachelor degree (62%), working for the government/ state enterprise (31.3%), at the operative level (68.5%), with 1-5 years experience (30%), with an average income of 10,000-20,000 Bath/month (35.8%), using personal computers (66.8%) and using Thai as a communication language (99%). The description of audio learning service usage was as follows: radio (Mean =4.30) and news (Mean=4.61) were used the most, the average period (35.3%) was < 30 minutes and between 6-12 a.m. of working days (23.2%). As for perception, it was found at the high level ranging in the following order: perception of functional benefit (Mean=3.84), perception of cost-advantage (Mean=3.78), perception of other factors (Mean=3.63) and value perception (Mean=3.57).

**Table 4** Correlation coefficients between variables

Variables	Service	Value perception	R^2
Perceived benefit	.922*	.346*	0.850
Perceived cost-advantage	.892*	.092	0.795
Other factors	.796*	.443*	0.634

2. From Table 2, at significant level 0.05, hypothesis tests of correlation between audio learning service and perception of functional benefit (P<0.05), perception of cost-advantage (P<0.05), and perception of other factors (P<0.05) were examined and accepted. Correlation between perception of functional benefit and value perception (P<0.05), correlation between perception of other factors and value perception (P<0.05) were examined and accepted. Except the correlation between perception of cost-advantage and value perception since hypothesis test showed rejection (P>0.05).

3. Analysis in Structural Equations Model: SEM, value perception for audio learning service model was valid and fitted the empirical data due to the indicators comprised; χ^2= 183.566, df = 166, P-VALUE = 0.166, CMIN/DF = 1.106, GFI = 0.958, RMSEA = 0.016 and R^2 for Structure Equations = 0.659.

Fig. 2   A Structural Equations Model of Value Perception for Audio Learning Service
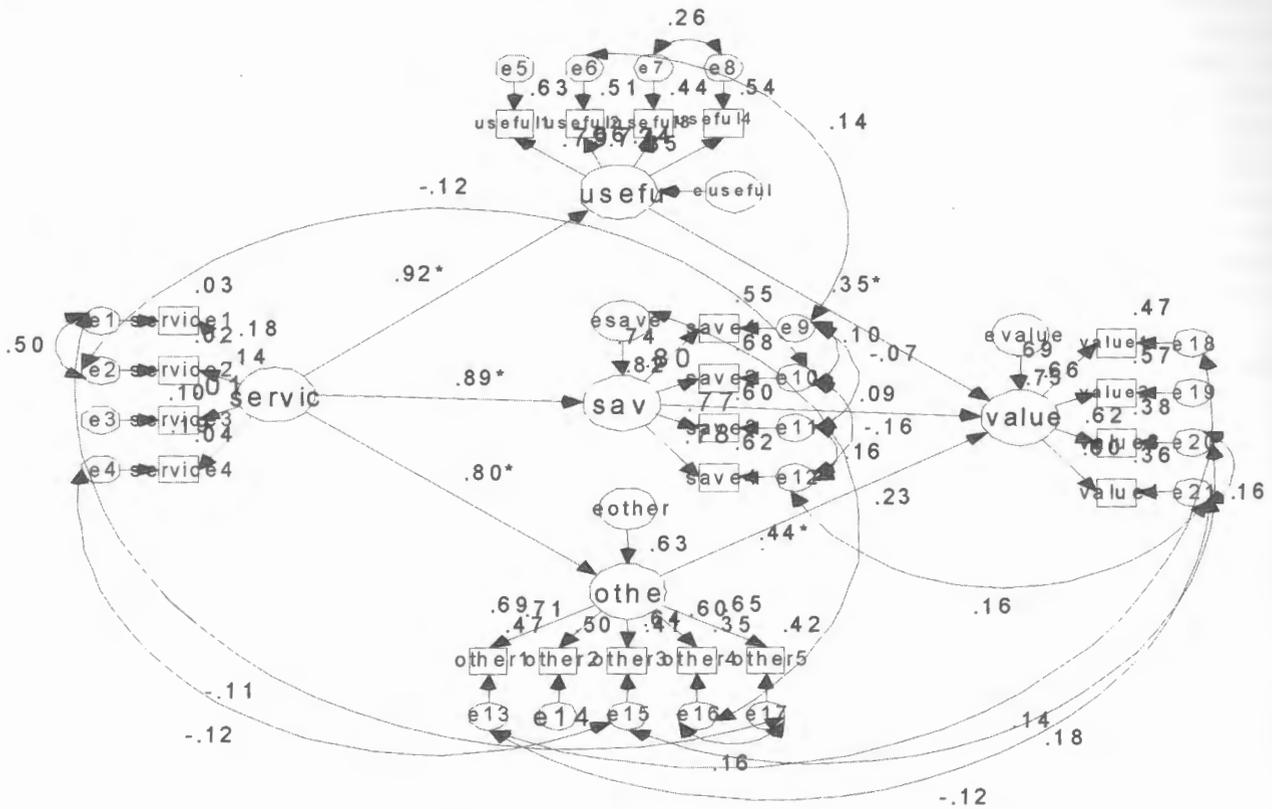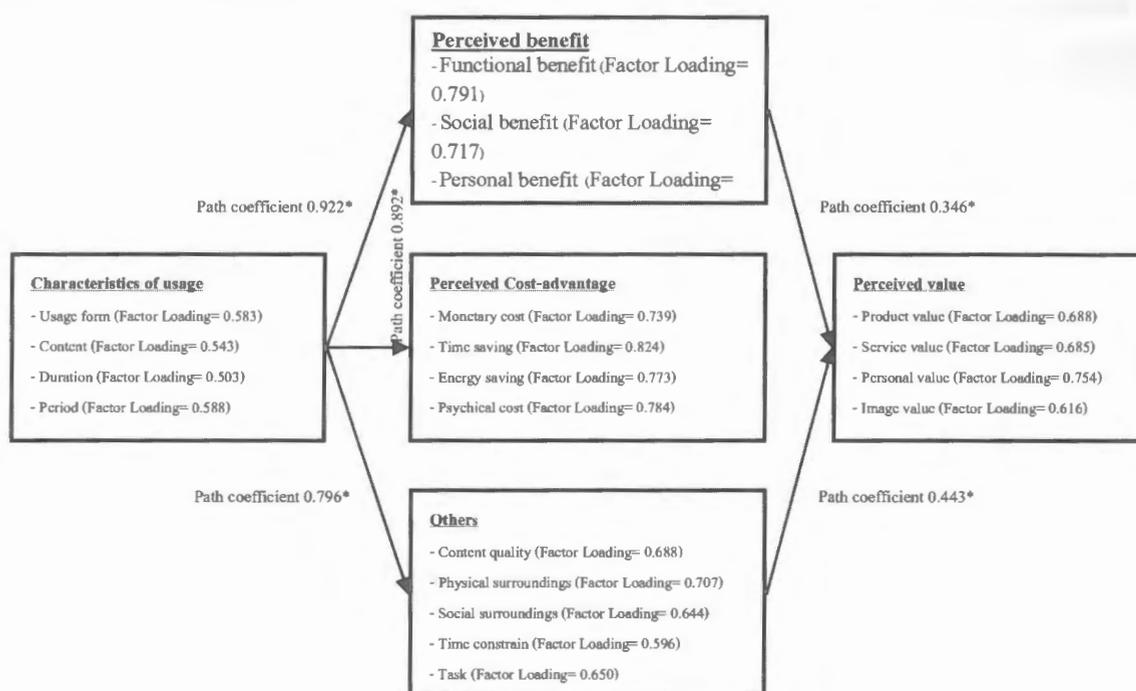

4. The descriptive statistics also advised that problems and obstacles were related with personal background knowledge and concentration (Mean=3.18) and product problem such as quality of content which required clear audible description (Mean=3.15). Most of respondents interested in content related with personal development and public health (Mean=3.74), science and technology (Mean=3.65) and marketing and social (Mean=3.57) with 11-15 minutes of offering period as standard. Suggestions for audio learning service enhancement (from open-ended questionnaire) were: simplifying the narration for easy understanding (20.3%), offering period shall not be too long (12.5%) and offering the addition visual aid might improve leaning capability (10.5%).

4. Conclusion

1. Value creation should be focused on perception of other factors (Path coefficient = 0.443) and perception of benefit (Path coefficient = 0.346) accordingly. As suggested by analysis under cost-benefit of the Parsimonious model, the result showed no correlation between value perception and cost-advantage. Corresponding to the study of Cronin, Brady and Hult (2000), there is no relationship found between cost and service value.

Fig. 3   A Parsimonious Model of value perception of audio learning service

Perceived benefit
- Functional benefit (Factor Loading= 0.791)
- Social benefit (Factor Loading= 0.717)
- Personal benefit (Factor Loading=

Path coefficient 0.922*

Path coefficient 0.892*

Path coefficient 0.346*

Characteristics of usage
- Usage form (Factor Loading= 0.583)
- Content (Factor Loading= 0.543)
- Duration (Factor Loading= 0.503)
- Period (Factor Loading= 0.588)

Perceived Cost-advantage
- Monetary cost (Factor Loading= 0.739)
- Time saving (Factor Loading= 0.824)
- Energy saving (Factor Loading= 0.773)
- Psychical cost (Factor Loading= 0.784)

Perceived value
- Product value (Factor Loading= 0.688)
- Service value (Factor Loading= 0.685)
- Personal value (Factor Loading= 0.754)
- Image value (Factor Loading= 0.616)

Path coefficient 0.796*

Path coefficient 0.443*

Others
- Content quality (Factor Loading= 0.688)
- Physical surroundings (Factor Loading= 0.707)
- Social surroundings (Factor Loading= 0.644)
- Time constrain (Factor Loading= 0.596)
- Task (Factor Loading= 0.650)

2. Managing the prerequisites as audio learning service provider as per Fig. 3, value perception of audio learning users could be created through increment of perception of other factors (Path coefficient 0.443), prioritized from physical surrounding (Factor loading 0.707) and quality of content (Factor loading 0.688). Then, value perception could be created by increasing the perceived benefit (Path coefficient 0.346), prioritized from functional benefit (Factor loading 0.791) and benefited in creating new learning experience (Factor loading 0.735) respectively.

3. Results of factor analysis also suggested ways to increase perception of benefit and perception of other factors. Designing and improving the service usage were prioritized from customization of the service forms and scheduling the service program to fit the learning styles and segments of users.

4. Offering the audio learning content shall be consistent with most interested content resulted from survey such as personal development, public health, science and technology, marketing and social. While, offering duration (of listening) shall not be too long or with average of 11-15 minutes.

Suggestions of respondents from open-ended questionnaire are: to simplify the narration for easy understanding which depending on capability and skill of narrator. Additional visual aid such as hand-out or text in website might increase the learning capability of the users.

5. A Parsimonious Model of value creation for audio learning service which was found and presented could be extended in other sales and service industries in the form of value creation model. Consistent to the cost and benefit models, independent variables under sales/service characteristics and group of other factors could be adopted and transformed to correspond to each particular sales and service industry.

Audio learning service appeared to have significant potential for enhancement under value creation process. Leverage perception of service users of other factors: improving the physical surroundings such as easy access to telephony and internet system, developing quality of learning content which appropriated to each user group (segmentation). Then, leverage perception of user's benefit: improving the functional benefit such as develops the learning content in order to serve

technical requirement as well as in careers development. To creating new learning experience by using audio learning as a supporting tool or as an alternative channel of learning. As one of the distance learning, it's an opportunity for people to obtain higher education for their career advancement and self enhancement.

Future investigations of more independent variables should be planned in order to promote audio learning in working age population more effectively. Refer to the Parsimonious Model of Value Perception of Audio Learning Service, an experimental studies to compare cost and cognition with using different learning services (i.e. E-Learning and reviewing from books) were advised in order to reinforce the influence of perceived cost-advantage.

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