AN EVALUATION OF INFORMATION POINTS FOR CIVILIANS BASED ON TELEMATICS AND AUTOMATED DATA TRANSFER

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Abstract—Aim of this paper is to investigate the user satisfaction and degree of acceptance of Info-kiosk. The research methodology follows the positivist philosophical approach with productive research approach and uses the quantitative method using questionnaires. Sample numbers, 109 individuals. The research model of this thesis is based on two famous information systems evaluation models: the TAM model for technology acceptance and the IS success model for user satisfaction. From research findings it appears that the overall satisfaction of using Info-kiosk for those who had experience of such use (Info-kiosk) is very positive, and respectively for respondents who have not used Info-kiosk their opinion was also very positive. Specifically, the attitude toward using is affected more by the perceived usefulness, but less than the ease of use. Additionally, user experience will not affect attitude towards using the user info-kiosk, apart from the sex most affected by the overall satisfaction, where female have a higher overall satisfaction than male. Finally, this research can help the design and promotion of info-kiosks.

Keywords—info-kiosk, TAM model, IS SUCCESS model, information system, evaluation

I. INTRODUCTION

The Info-kiosk is an information portal, a geographically distributed system, automated information, easy to use for citizens and businesses. This paper has proposed and used a framework (research model) of information kiosk evaluation. It is a combination two models: TAM & IS SUCCESS. It examines various info-kiosks in the light of an integrated evaluation framework that includes the user satisfaction and acceptance of technology. The findings provided to fill the conceptual gap between user satisfaction and technology acceptance of information system for info-kiosk [1, 2].

The Information System (IS) is a system composed of people and computers that processes or interprets information. The term is also sometimes used in more restricted senses to refer only to the software used to run a database or to refer only to a computer system [3, 4].

Mainly, the IS contains [5, 6]:
- Hardware (CPU, Memory, I/O devices etc.)
- Software (programs, applications, operating system)
- Data (useful elements for processing).
- Procedures (operations)
- People (human resources)
- Feedback

The evaluation of the IS uses two basic approaches that have been developed [7, 8]:

(a) Technology Acceptance: Davis (1989) proposed the Technology Acceptance Model (TAM) to investigate the impact of technology on user behavior (Fig.1). The model focuses on the process of using technology, where “Perceived Usefulness” and “Perceived Ease of Use” are the two key factors that affect an individual’s intention to use a technology. Perceived Usefulness means that the user believes the technology will improve his/her performance, while Perceived Ease of Use refers to the belief that using the technology will be free of effort [9]. Venkatesh and Davis (1996) suggested that Perceived Usefulness and Perceived Ease of Use could be affected by external variables. For example, they found that computer self-efficacy is an important variable and assumed that a positive relationship exists between higher computer self-efficacy on the one hand and Perceived Usefulness and Perceived Ease of Use on the
The studies of Venkatesh (2001) confirmed the hypotheses about positive causal relationships posited in previous research [11].

(b) **User Satisfaction:** To measure the success of Information systems Delone and McLean reviewed the research published in the period between 1981 to 1987. Based upon their research they identified six variables of IS success: system quality, information quality, use, user satisfaction, individual impact and organizational impact. These are interdependent variables. D&M model states that the amount of system use can affect the degree of user satisfaction (Fig. 2). No empirical validation of the model was proposed by them [12].

Information kiosks, or public access kiosks, are located in public thoroughfares, shopping malls, airports, railways stations and other locations as a substitute for, or to complement customer service through a human service agent. In contrast to the other public access information arena, the Web accessed in the home or office, kiosks have received little media, professional or academic attention [13]. Early kiosks, were typically uninteresting boxes with relatively simple interfaces, designed specifically to allow customers to conduct a simple transaction, such as placing an order, or locating a specific item of information, such as a recipe or a repayment rate for a mortgage. The modern information kiosk support multiple functions including most or all of: information provision/promotion, interaction, transaction, and relationship building through loyalty schemes or other communication opportunities. There are four functions of modern kiosks [2]: information provision/promotion, interaction, transaction, and relationships.

II. METHODOLOGY

1) Research Model

The Research model, offered by the Wixom and Todd (2005), which incorporated both models (TAM, IS success) in theoretical and conceptual framework [14], contains three parts (Fig. 4):

(a) TAM model (3 basic parameters & 1 external parameter)
(b) IS SUCCESS model (3 parameters)
(c) External factor: demographics elements

2) Research Objectives

The Research Objectives are:
- Info-kiosk User satisfaction
- Technology acceptance
3) Hypothesis

The Hypothesis of Research Model:

H1.0 Overall satisfaction is not influenced by information quality
H1.1 Overall satisfaction is influenced by information quality

H2.0 Overall satisfaction is not influenced by information system
H2.1 Overall satisfaction is influenced by information system

H3.0 The intended use of info-kiosk is not affected by the perceived usefulness
H3.1 The intended use of info-kiosk is affected by the perceived usefulness

H4.0 The intended use of info-kiosk is not affected by the perceived Ease of Use
H4.1 The intended use of info-kiosk is affected by the perceived Ease of Use

H5.0 The intended use of info-kiosk is not affected by the Experience
H5.1 The intended use of info-kiosk is affected by the Experience

H6.0 The intended use of info-kiosk is not affected by the Overall Satisfaction
H6.1 The intended use of info-kiosk is affected by the Overall Satisfaction

H7.0 The overall satisfaction is not affected by the demographic elements
H7.1 The overall satisfaction is affected by the demographic elements

H8.0 The intended use of info-kiosk is not affected by the demographic elements
H8.1 The intended use of info-kiosk is affected by the demographic elements

4) Survey Tool

This research uses a questionnaire for survey tool (Fig.5):
- 28 questions
- 3 sections
- User Profile

Specifically, the user profile contains:
- Gender
- Age
- Education
- Income
- Family

- Profession
- State/city

5) Sample

The sample consisted of 109 persons from various regions of Greece, as shown in Table 1:

<table>
<thead>
<tr>
<th>Regions</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neo Hraëkleio city</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Athens city</td>
<td>62</td>
<td>56.9</td>
</tr>
<tr>
<td>Nea Ionia city</td>
<td>7</td>
<td>6.4</td>
</tr>
<tr>
<td>Chalandri city</td>
<td>4</td>
<td>3.7</td>
</tr>
<tr>
<td>Kallithrea city</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Kerkrya island</td>
<td>19</td>
<td>17.4</td>
</tr>
<tr>
<td>Nea Smirni city</td>
<td>1</td>
<td>.9</td>
</tr>
</tbody>
</table>

Fig. 5. Questionnaire Structure

Table -1 Sample Regions
5) Data Analysis

This research uses some methods and techniques based in Descriptive & Inferential statistics.

III. RESULTS

This research uses Cronbach Alpha technique for reliability analysis, as provided in Table 2 and face validation for validation analysis, which can be seen in Table 3.

Table -2 Reliability Analysis

<table>
<thead>
<tr>
<th>Models</th>
<th>Variables</th>
<th>Cronbach Alpha</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS Success</td>
<td>Information Quality</td>
<td>0.886</td>
<td>High reliability</td>
</tr>
<tr>
<td></td>
<td>System Quality</td>
<td>0.792</td>
<td>Satisfactory reliability</td>
</tr>
<tr>
<td>TAM</td>
<td>Usefulness</td>
<td>0.657</td>
<td>Simple reliability</td>
</tr>
<tr>
<td></td>
<td>Ease of Use</td>
<td>0.845</td>
<td>High reliability</td>
</tr>
<tr>
<td></td>
<td>Intended Use</td>
<td>0.650</td>
<td>Simple reliability</td>
</tr>
<tr>
<td></td>
<td>Experience</td>
<td>0.847</td>
<td>High reliability</td>
</tr>
</tbody>
</table>

Table -3 Validation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Results (percent%)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>100%</td>
<td>High satisfaction</td>
</tr>
<tr>
<td>Contents</td>
<td>70%</td>
<td>Important satisfaction</td>
</tr>
<tr>
<td>Research object</td>
<td>80%</td>
<td>Important satisfaction</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>90%</td>
<td>High satisfaction</td>
</tr>
</tbody>
</table>

The data processing of this research uses SPSS software (version 20) and Excel 2013. Every complex variable uses the next format:

\[
\text{INDEX complex variable} = \frac{\sum \text{question 1...question n}}{n}
\]

The results are:
- the majority of the sample (62.4%) has used Info-kiosk and from them, the majority (69%) has used in two or more types info-kiosk.
- the majority of the sample are Female (58.8%).
- the majority of the sample belonging to the X generation (1965-1980).
- the majority of the sample have university degree (undergraduate or postgraduate (~60%).
- the majority of the sample belonging to the middle income level (~ 46%).
- the majority of the sample consists of married with a child / a or just married.
- the majority of the sample is employed: in private sector with 36.7% and public sector with 30.3%.
- the overall satisfaction is very positive with 75% for users info-kiosk and 85.5% for no users info-kiosk.
- using Kolmogorov-Smirnov (K-S) & Shapiro-Wilk (S-W) Test (research variables): have no normal distribution (Sig <0.05), and
- using non-parametric tests (Kruskall-Wallis, Mann-Whitney).

The results of Hypothesis analysis are illustrated in Table 4:
In research, the results of comment analysis (question 27) are:
- increase the number of info-kiosk,
- have high ease of use, and
- more reliable the providing information.

Table 4 Hypothesis Results

<table>
<thead>
<tr>
<th>Research Objectives</th>
<th>Questions of Questionnaire</th>
<th>Hypothesis</th>
<th>Results (after checking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 User satisfaction</td>
<td>3,4 - 19</td>
<td>H1.0-H1.1</td>
<td>H1.1</td>
</tr>
<tr>
<td></td>
<td>5,6 - 19</td>
<td>H2.0-H2.1</td>
<td>H2.1</td>
</tr>
<tr>
<td>2 Technology acceptance</td>
<td>7.9 – 15.16</td>
<td>H3.0-H3.1</td>
<td>H3.1</td>
</tr>
<tr>
<td></td>
<td>10.14 – 15.16</td>
<td>H4.0-H4.1</td>
<td>H4.1</td>
</tr>
<tr>
<td></td>
<td>17.18 – 15.16</td>
<td>H5.0-H5.1</td>
<td>H5.0</td>
</tr>
<tr>
<td>3 User satisfaction</td>
<td>19 – 15.16</td>
<td>H6.0-H6.1</td>
<td>H6.1</td>
</tr>
<tr>
<td>– technology acceptance</td>
<td>19 – 21.22.23</td>
<td>H7.0-H7.1</td>
<td>H7.1.a, H7.0.b, H7.0.c</td>
</tr>
<tr>
<td></td>
<td>15.16 – 21.22.23</td>
<td>H8.0-H8.1</td>
<td>H8.0.a, H8.0.b, H8.0.c</td>
</tr>
</tbody>
</table>

The future relative research would be useful for the developers company to design better info-kiosks.

IV. CONCLUSION

In this research work the conclusions can be summarized as follows.
- the overall satisfaction is influenced by the system & information quality,
- the intended use of info-kiosk is affected by the perceived usefulness and ease of use (less grade),
- the experience is not affects the intended use of info-kiosk,
- between user satisfaction and intended use showed small effect, and
- the gender affected the overall satisfaction (the female has high satisfaction), and
- the overall satisfaction is high for users and non-users info-kiosk.

V. REFERENCE


[17] (access date: 27 November 2013)
