Measurement of Internal User Satisfaction and Acceptance of the E-Justice System in Turkey

Abstract.

Purpose - The aim of this study is to develop an evaluation model for the National Judiciary Informatics System (NJIS), which is an e-justice system forming part of e-government, based on the models and the theories of information systems.

Design/methodology/approach - A survey was conducted on 8,840 internal users working for judicial services in Turkey. The success of the NJIS as an e-justice system is evaluated using Structural Equation Modeling (SEM).

Findings - The results show that while the most important factor is the latent variable information quality in the SEM created to analyze the satisfaction of internal users using the NJIS, other factors include perceived usefulness, system quality, and service quality, respectively. It is found that design quality has affected directly and positively the perceived ease of use while perceived ease of use has affected the perceived usefulness in the same manner.

Research limitations/implications - This study was solely concerned with internal users. Therefore, a more comparative study in which other users such as lawyers and ordinary citizens can be incorporated is suggested. Related to internal user satisfaction of the e-justice system, it is explored whether or not internal users are satisfied with their information processing needs, the system's efficiency, the number of process steps, technical office services and the system in general.

Originality/value - The research presents a new developed evaluation model of e-justice system from an internal user perspective. Most evaluation models focus on system-centered evaluation or organizational structure while user-centered evaluation concerning judicial information systems has not been explored yet.

Keywords: Information system; Structural equation modeling; User acceptance; user satisfaction; Technology acceptance model; E-justice system.

1. Introduction

With the rapid growth in technological development in recent years, some new information technology (IT) and information systems (IS) applications have emerged. IT and IS applications affect social and business life all over the world as well as in Turkey. E-government applications are also an example in which developed technologies and information systems are used extensively. E-government in Turkey provides easy and efficient access to all public services for citizens, firms, and public organizations from a single point.

The National Judiciary Informatics System (NJIS) (referred to as UYAP in Turkey) is an e-justice system that forms part of e-government which has been developed to ensure a fast, reliable, efficient, and accurate judicial system. As a central network project, it includes all courts, public prosecutor services, prisons, related judicial institutions, and other government departments, e.g., enforcement and bankruptcy offices and forensic medicine units in Turkey. The NJIS was established to improve the functioning and efficiency of the judiciary and to create an efficient and less bureaucratic judicial system for concerned institutions and citizens.

The information is recorded in the central electronic environment with the full integration of the NJIS and made available to all users within the scope of authorization granted by legislation, especially to judges, solicitors, and all judicial staff. The NJIS provides quick and easy access to this information as it also allows judicial units to perform all types of information and document transfers in an electronic environment. The NJIS is in operation in almost all judicial units in Turkey with the goal to establish a faster, more reliable information, document and workflow of judicial services in compliance with IT developments in Turkey (Ministry of Justice, 2015).

Apart from ordinary citizens, the main users of the NJIS include lawyers, law clerks, judges, solicitors, chief judges, and prison officers. Solicitors, chief judges, prison officers, and law clerks are internal users of the system. There is an obligation to use the NJIS during business processes. Therefore, how particular user groups evaluate the success of this e-justice system and which factors influence an internal user's evaluation of IS success are the key questions involved in this study. It is believed that the evaluation of NJIS's success will reveal the satisfaction of NJIS internal users.

Several theories and research models related to IT/IS adoption have been proposed to help businesses implement IT/IS successfully, including the Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behavior (TPB) (Ajzen, 1991), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). The factors influencing IT/IS and user behavior are important to the successful implementation of IT/IS. Basically, evaluation models are employed to understand user needs and to identify relevant dimensions and factors in the development of systems to broaden their acceptance and satisfaction (Ong et al., 2009).

Some studies are related to all forensic and administrative services as follows: Gerjuoy (1995) examined possible means of improving the ability of the judiciary to deal with disputes. Andrade and Joia (2012) focus on information and communication technology (ICT) strategies and organizational structure related to the judicial system in Brazil. In their study, the influence of organizational structure in the definition and implementation of ICT strategies in the Brazilian Judicial System are analyzed. In the study of Loukis and Xenakis (2008), the emphasis is on taking advantage of ICT potential, which supports the participation of citizens in the democratic processes which exist in countries today, and the necessity to show the same attention to investment in e-participation, as well as an evaluation of these efforts. Rosa et al. (2013) analyze and discuss different e-justice experiences from around the world. The focus is on risk factors related to design, development and application of this kind of system. Seyal and Turner (2013) worked on the acceptance of biometric security services that have become an important alternative in user authentication in a system. The study appears to be affected by several factors, some of which may be the personal attitude of users, influences of normality and the context in which it is used. The theory of planned behavior (TPB) was used as a reference framework to understand the intention of using the biometrics of executives from the ministries at Brunei Darussalam. Van de Velde et al. (2014) contribute to our understanding of Twitter and new communication patterns by developing an explanatory model of message diffusion on social media. Messages from Dutch police force Twitter accounts are analyzed using trace data drawn from Twitter. Newman and Doherty (2008) evaluate the perception of lawyers and of those not legally trained on usefulness and usability, to help design an environment in which professionals without legal training can make efficient use of public sector legal information regarding planning and the environment. However, none of these studies focused on the internal user perspective.

The purpose of our study is to develop an evaluation model for the e-justice system based on a review of IS models and theories. Thus, the new model incorporates constructs

from both internal user satisfaction and technology acceptance literature. Since we focus on the internal user perspective, we believe the proposed model should facilitate the design of an e-justice system and thereby enhance user satisfaction and acceptance.

Many e-government studies focus on the satisfaction of the public as the end users. According to the best of our knowledge, no studies have been conducted on internal user acceptance and satisfaction. Additionally, most evaluation models focus on system-centered evaluation or organizational structure while user-centered evaluation concerning judicial information systems has not been explored. If we are to build a practical e-justice system model, we must achieve a performance level that primarily satisfies the majority of internal users. Therefore, we propose an evaluation model of a successful e-justice system from an internal user perspective.

The following section focuses on the research model, theoretical linkages among conceptualizations of internal user satisfaction, technology acceptance and acceptance of the e-justice system. Section 3 mentions the research data set used and construction of the measurement model, presents SEM results for the proposed model. Section 4 discusses these results. Finally, some concluding remarks are presented in Section 5.

2. Theoretical foundations and hypotheses

In this section, we describe the theoretical linkages between internal user acceptance and constructs affecting satisfaction. The theory and model are explained to build a research model. A diagrammatic representation of the proposed research model with hypotheses indicated is presented in Figure 1.

2.1. Domain and conceptualizing of internal user satisfaction and technology acceptance

An evaluation model should provide feedback about a system's architecture as well as its impact on the internal user, thereby facilitate improvements in the system. Such a model could also help to determine the extent to which a particular system meets requirements and to demonstrate its value. Information systems researchers have long studied how and why individuals adopt IS. There have been several streams of IS research, one of which focuses on explaining the individual acceptance of technology by considering intention to use, or actual usage, as a dependent variable. Other streams focus on the success of implementation at an organizational level, or on task-technology fit (Ong et al., 2009). Wixom and Todd (2005)

suggest that research related to the perception of IS success can be classified under two primary research streams; user satisfaction literature and technology acceptance literature as mentioned earlier. These two are neither integrated with nor adapted to each other, but rather developed in parallel to each other.

To improve our understanding of the evaluation of systems, we reviewed the IS theories by Davis (1989), Ajzen and Fishbein (1980), Doll and Tokzadeh (1988), De Lone and McLean (1992, 2003), and Wixom and Todd (2005).

The models used in the literature for measuring user satisfaction and acceptance levels include the 'End Users' Computing Satisfaction' by Doll and Tokzadeh (1988), the De Lone and McLean 'Success Model' (1992, 2003), and Wixom and Todd (2005) 'Theoretical Integration of User Satisfaction and Technology Acceptance Model'. With regards to user satisfaction which constitutes an addition to the user acceptance subject of our study, we examined the 'Theoretical Integration of User Satisfaction and Technology Acceptance Model'.

This model integrates two research streams which include the user satisfaction literature and the technology acceptance literature. It is an integrated research model that distinguishes beliefs and attitudes about the system to build the theoretical logic that links the user satisfaction and technology acceptance literature. In cases where there is system usage obligation, perceptive measurements related to satisfaction may provide more usable results. The Doll and Tokzadeh (1988) study shows that satisfaction causes system usage rather than system usage resulting in satisfaction. Therefore, they support the notion that user satisfaction is an important factor. De Lone and McLean (1992, 2003) primarily focus on measurement of the IS success dependent variable and state IS success will be achieved as a result of user satisfaction. While increased user satisfaction promotes IS success, the more usage of an inadequate quality system will lead to dissatisfaction and IS failure.

2.2. Conceptualization of internal user satisfaction and acceptance of the e-justice system

We propose an evaluation model for the e-justice system in Turkey based on a model of internal user satisfaction and technology acceptance. The fundamental concept was inspired by the Technology Acceptance Model (TAM) designed by Davis (1989) who calls for further research to consider the role of additional theoretical constructs that influence Perceived Usefulness (PU) and Perceived Ease of Use (PEoU). Two important additional

theoretical constructs for this system include anxiety and trust. Generally, we adapt dimensions of quality from the models that attributed to the development of user satisfaction to three user perceptions; *information quality, service quality, and system quality*. Also, *design quality* constitutes another factor of the conceptual model. The concepts and hypotheses forming the conceptual model are examined below.

2.2.1. Information quality

Information quality (IQ) is a measure of the quality of the content of an IS. Many different information characteristics have been viewed as important determinants of information quality perception, including accuracy, precision, currency, output timeliness, reliability, completeness, conciseness, convenience (Srinivasan, 1985), relevance (Bailey and Pearson, 1983), sufficiency, freedom from bias, comparability, and quantitativeness. In this study, information quality is examined as a factor that directly and positively affects internal user satisfaction. In the DeLone and McLean (1992) IS Success Model, 'information quality' measures semantic success. Some researchers beyond De Lone and McLean also examined the information quality factor in a similar way (Ainin et al., 2012, Bhattacharya et al., 2012, Chen, 2010, Chen et al., 2013, Lin et al., 2011, Negash et al., 2003, Ong et al., 2009, Doll and Tokzadeh, 1988).

In this study, information quality was viewed as having six aspects: Convenience, relevance, timeliness, consistency, completeness, and accuracy. These features related to the information provided by the system are used by internal users. In these terms, better information quality is thought to lead to better internal user satisfaction in the e-justice system in Turkey. Therefore, it is suggested:

H1. *Information Quality is positively associated with Internal User Satisfaction.*

2.2.2. System quality

System quality (SQ) is "concerned with whether there are bugs in the system, consistency of user interface, ease of use, quality and documentation and sometimes quality and maintainability of program code" (Seddon, 1997). According to Roldan (2003), system quality refers to desired characteristics of the IS itself which produces information and is related to the quality of IS output. De Lone and McLean (1992, 2003) state that system quality is more concerned with the technical success of an IS. System quality is recognized by

technical features regarding the network and the IT equipment itself and is conceived as the semantic success of an information system relating to features such as information completeness, accuracy, format, currency, relevance, timeliness, precision, reliability, accessibility, and conciseness. The determining criteria for the assessment of system quality are the performance characteristics of the systems under study. The behavior of users is affected by all the features of the system they use.

Accessibility is the availability of a system when internal users try to retrieve information, along with the ease of using the interface to contact people needed for support. Accessibility refers to access speed, performing quickly the operations and the system always being accessible, which are adopted as a measure of system quality. Here, we use accessibility to represent system quality. To decide on the accessibility of the system, we examine whether or not the operations of the system are performed quickly, whether or not the system is always accessible, and whether or not access to the system is fast. The researches performed by Ainin et al. (2012), Bhattacharya et al. (2012), Chen (2010), Chen et al. (2013), Lin et al. (2011), and Negash et al. (2003) are the main studies related to system quality being directly affected by user satisfaction. It is expected that an increment in system quality will increase internal user satisfaction.

Therefore, it is suggested:

H2. *System Quality is positively associated with Internal User Satisfaction.*

2.2.3. Service quality

Service quality (SeQ) is a holistic evaluation of users regarding the perfectness of the IS. According to Parasuraman et al. (1985), the service quality perception of users results from a comparison of user expectations with actual service performance. Two factors relating to the analysis of service quality should be considered; namely, the IS unit and a certain IS application (Pitt et al., 1995). In this study, the service opportunities of the e-justice system that ease the usage of the system for internal users are evaluated and examined whether or not they affect user satisfaction. In addition, service quality was viewed as having two aspects, competence and access. We examine whether experts responsible for the NJIS have enough information to perform their work or not, whether or not technical staff can support users via e-mail or phone when users face problems.

Service quality was expressed as supporting IS users by helping them perform their operations and supplying support whenever required. It is therefore hypothesized that better service quality will positively influence the effectiveness and internal user satisfaction. Some researchers such as Ainin et al. (2012), Wixom and Todd (2005), DeLone and McLean (2003), Ong et al. (2009), Chen (2010), Chen et al. (2013), Negash et al. (2003), and Pitt et al. (1995) proposed a model that combines internal user satisfaction and the TAM.

Therefore, it can be suggested:

H3. *Service Quality is positively associated with Internal User Satisfaction.*

2.2.4. Design quality

Design quality (DQ) expresses the design properties of a system for users to conduct their work efficiently with the help of the system. Jeong (2011) examines interface characteristics as a factor affecting intention in system usage. Interface characteristics refer to interaction between the system and the IT users. Many systems feature user interfaces, such as menus, icons, and mouse devices that are specifically intended to enhance usability (Davis et al., 1989, Parikh and Verma, 2002). Interface characteristics are important to the enhancement of the user-interface, which reduces the effort of using a particular technological tool (terminology, screen design, navigation). The interface dimension deals with how easy it is to learn and use the system. Is the system easy to learn, is it flexible, is it user-friendly, etc. are the issues related to the ease of use. Layout appropriateness for a given screen, clarity of instructions, the information being presented in a useful format, etc. are issues related to the format of the user interface. Design quality is concerned with the design of the interface and display of information (Tojib et al., 2008).

Garrity and Sanders (1998) extends the De Lone and McLean model by proposing an alternative model in the context of organizational and socio-technical systems. The model identifies one of four sub-dimensions of user satisfaction (Garrity et al., 2005). This study examines screens and menus standards, efficiency of keyword search, adaptation to changes by internal users, and whether or not screens and menus in the system contain a user-friendly design compliant with workflow. In its current state, the system includes a usage facilitative feature. Therefore, we postulate that design quality positively influences perceived ease of use. Jeong (2011) proposes a model that combines internal user satisfaction and the TAM and examines how interface characteristics positively affect perceived ease of use. Therefore, it is

suggested:

H4. *Design Quality is positively associated with Perceived Ease of Use*.

2.2.5. Trust

In this study, trust is expressed as the reliance of internal users on the e-justice system. Trust (T) is recognized as an important factor in the achievement of citizen acceptance of e-government services when former e-government studies are examined. Kim et al. (2008)and McKnight et al. (2002) emphasize that e-commerce customer trust is related to behavior such as satisfaction, loyalty, and commitment. This study considered that system usage willingness and satisfaction would increase if internal users trust the system. By reducing uncertainty, trust is assumed to create a positive perspective regarding the usefulness of the system and to provide expectations of an acceptable level of performance.

Trust in the system encourages a user to accept technology when the individual is apprehensive about doing so, a fact which often leads to circumstances whereby the user can understand the benefits and usefulness of the system (Aloudat et al., 2014, Miltgen et al., 2013). It is mandatory for internal users to use the NJIS. Different management levels should approve the transactions between procedural steps. In this study, related to trust in the system, the perception of internal users is examined, related to possible unauthorized access and unauthorized information changes in the system as well as detection of unauthorized access by the authorities. Before internal users are satisfied with the e-justice system, they need to trust that system usage will increase their performance. We postulate that trust positively influences perceived usefulness. The research hypothesis that we address in this study is the following:

H5. *Trust is positively associated with Perceived Usefulness.*

2.2.6. Anxiety

Anxiety (Anx) is defined as 'the degree of an individual's apprehension, or even fear, when faced with the possibility of using computers' or 'evoking anxious or emotional reactions when it comes to performing behavior' (Venkatesh et al., 2003, Venkatesh and Davis, 2000). Anxiety has direct or indirect effects on perceived usefulness (Chen and Tseng, 2012, Hsu et al., 2009, Huang and Liaw, 2005, Igbaria et al., 1995, Park et al., 2012). The

NJIS consists of many procedural steps and the transactions between these steps require approval. Therefore, in the beginning, users may feel anxiety, fearfulness, or misgivings because of their unfamiliarity with the usage of this system. Users must have training to learn and to adapt, which may take an extended period. For senior management levels (judge, solicitor, attorney general, and chief judge) adding a new procedural step to the NJIS may break their usual routine, and they must try to adapt to new working conditions. This study suggests that anxiety has a negative effect on perceived usefulness. Therefore, we posit:

H6. *Anxiety is negatively associated with Perceived Usefulness.*

2.2.7. Perceived ease of use

The TAM attempts to estimate and explain system usage by using perceived ease of use and perceived usefulness, which are two main determining factors of IS acceptance.

In defining *perceived ease of use,* Davis (1989) refers to "the degree to which a person believes that using a particular system would be free of effort". Perceived ease of use influences perceived usefulness because the easier the system is to use, the more useful it is (Davis, 1989, Davis et al., 1989, Igbaria et al., 1995, Moon and Kim, 2001). Other studies showing that perceived ease of use affects perceived usefulness appear in Hsu and Lu (2004), Huang et al. (2012), Jeong (2011), Lin et al. (2011), Pai and Huang (2011), Palvia (2009).

At the same time, some researchers conduct studies handling user satisfaction and the TAM together (Lee and Park, 2008, Ong et al., 2009, Park et al., 2012, Rai et al., 2002). In this study, the system's ease of learning/use and whether or not it facilitates the work were examined according to internal users. More formally, we offer the following:

H7. *The Perceived Ease of Use of system is positively associated with perceived usefulness.*

2.2.8. Perceived usefulness

Davis (1989) defines perceived usefulness, another factor of IS acceptance in the TAM as, "the degree to which a person believes that using a particular system would enhance his/her job performance," and eventually his/her user satisfaction. Perceived usefulness has a direct causal connection with user satisfaction. Perceptions of usefulness derive from personal evaluations of an IS (Rai et al., 2002). In the Seddon model (1997), perceived usefulness variables affect internal user satisfaction.

In this study, related to the perceived usefulness of the NJIS, accompanied by evaluation of internal users, it is examined whether or not work is performed faster and more efficiently, whether usage of such a system is advantageous for the institution, whether or not it decreases workload, and usefulness of the system due to both changing perspectives and process traceability. Other studies that are similar to this study have also been conducted. It handles the relationship between perceived usefulness and user satisfaction (Lee, 2010, Lee and Park, 2008, Ainin et al., 2012, Park et al., 2012, Rai et al., 2002, Lin et al., 2011, Ong et al., 2009, Tojib et al., 2008). Accordingly, it has been suggested that perceived usefulness has a positive effect on internal user satisfaction. Hence, we propose the following:

H8. *The Perceived Usefulness of system is positively associated with Internal User Satisfaction.*

2.2.9. Internal User Satisfaction

Bailey and Pearson (1983) define user satisfaction as 'the sum of one's feelings or attitudes towards a variety of factors affecting that situation'. Zviran et al. (2006) and De Lone and McLean (1992, 2003) view user satisfaction regarding system use and acceptance as practical measures of IS success. According to Gatchalian (1999) who handles the user satisfaction issue from the customer's point of view, user satisfaction is 'a measure of *success* in a highly competitive market and the understanding of the product's features and characteristics by users'.

In the De Lone and McLean's (1992) IS Success model, 'system quality, information quality, use, user satisfaction, individual impacts and organizational impacts' are the dimensions of IS success. User satisfaction can also be regarded as a function of perceived usefulness, information quality, service quality, and system quality which are crucial to IS acceptance and success.

In this study, related to internal user satisfaction of the e-justice system, we explore that whether or not the users are satisfied that the system meets their information processing needs. In addition, internal user satisfaction from the system's efficiency, the number of process steps, technical office services and the system in general are examined.

There have been other studies that take into account user satisfaction in the same manner as this study (Chen, 2010, Chen et al., 2013, Hwang, 2000, Lee and Park, 2008, Negash et al., 2003, Ong et al., 2009, Udo et al., 2011).

3. Methodology

A survey of internal user satisfaction and acceptance was conducted to evaluate the success of the NJIS as an e-justice system for internal users, and to determine which factors affect this evaluation. The development of the survey was completed in five stages; (1) preliminary developments, (2) permission process, (3) questionnaire improvement, (4) pilot study, and (5) reliability, validity testing, and conducting the survey. The final survey includes 47 items in total comprised of five parts: demographic information, the perception dimension, quality dimension, satisfaction dimension, and additional theoretical constructs. The demographic attributes of the users in the sample group are examined regarding gender, age, educational background, work experience, and experience in the use of information systems. The perception dimension involved two constructs: perceived ease of use and perceived usefulness. In addition, the quality dimension included four constructs: design quality, system quality, service quality, and information quality. An additional theoretical construct also consisted of trust and anxiety.

3.1. Survey participants and data collection

The participants in our study were internal users of the NJIS. The data in this study was collected via a web-based questionnaire that utilized multi-item scales to measure each construct. A 5-point Likert-type scale was used for this purpose, thus allowing participants to choose one of five levels of agreement items, ranging from 1 (strongly disagree) to 5 (strongly agree).

A web-based questionnaire was applied to all of the internal users, including judges, attorney generals (since there is one attorney general in each city of Turkey), solicitors, chief judges, law clerks, prison officers, and others by the Ministry of Justice General Directorate of Information Technologies and assigned to 76,592 internal users as potential respondents. A total of 8,840 participants voluntarily contributed to the study. The profile of the respondents was based on their demographic characteristics resulting from the survey as shown in Table 1.

Table 1 about here

Table 1shows the demographic findings indicate that 29.7 % of the internal users were female and 70.3 % male.

3.2. Construction of measurement model

The measurement model was initially analyzed to realize the aims of this research. After the statistically most suitable measurement model had been developed, analyses were conducted using LISREL ver.8.80 software and the theoretical model was then tested to determine causal relationships in the proposed model. Statistical decisions were made for the research hypotheses established related to the theoretical model, and the results were discussed concerning the information obtained under the scope of the literature review.

The importance of the Structural Equation Modeling (SEM) appears with the simultaneous usage of measurement and structural models. The analysis of the SEM consists of the following stages: development of theoretical model; description of causal relations; determining of measurement and structural models; decision of estimation method for the proposed model; definition of the structural model; goodness of fit measures; and evaluation and interpretation of the model.

Researchers may wish to test whether or not there are similarities among the different groups of measurement models. In this case, it may be that the indicators measure the same underlying factors in different groups. However, in this study, it was concluded the model is invariant both for men and women, and for all occupational groups with a 95% confidence level. Since they are not statistically significant, the internal user groups and the gender groups are not taken into account in this study.

There are several statistical methods for structural equation modeling, such as the Maximum Likelihood (ML), and the Generalized Least Squares (GLS). However, some of them assume the data follows a multivariate normal distribution. According to the results of the univariate and multivariate tests of normality, it appears there is sufficient evidence that the assumption of multivariate normal distribution might be violated ($p<0.05$). The effect of violating the assumption of non-normality is that chi-square is too big, and standard errors are too small. The scaled chi-square and 'robust' standard errors, using the method developed by Satorra and Bentler (1988, 1994) appear to be a good general approach to dealing with non-normality (Hu et al., 1992, Curran et al., 1996). The analysis shows the data set did not satisfy the multivariate normality assumption ($p<0.05$); therefore, the robust ML method was preferred at the modeling stage.

The Cronbach alpha coefficient was estimated as 0.942 to assess internal consistency of the survey, meaning that the 47 items in the nine factors are consistent.

Table 2 about here

Furthermore, the overall fit indices contribute to the impression of a well-fitting model provided in the following table.

Table 3 about here

Table 3 shows the goodness of fit indices are quite satisfactory. Firstly, the appropriateness of the SEM is evaluated. The chi-square test statistic is used for hypothesis testing to evaluate the appropriateness of a SEM. If the distributional assumptions are fulfilled, the chi-square test evaluates whether the population covariance matrix $\mathbf{\Sigma}$ is equal to the model-implied covariance matrix $\mathbf{\Sigma}(\theta)$, i.e., it tests the null hypothesis that the differences between the elements of $\mathbf{\Sigma}$ and $\mathbf{\Sigma}(\theta)$ are all zero: $\mathbf{\Sigma} - \mathbf{\Sigma}(\theta) = \mathbf{0}$ (Schermelleh-Engel et al., 2003)**.** To evaluate the fit of the model, χ^2 / df is also used as suggested by Jöreskog and Sörbom (1993). This ratio is found to be 0.697, meaning the data set and the model indicate a statistically good fit.

Several measures which are commonly used as the model fit indices for the SEM can also select to evaluate the structural model's fit. When RMSEA, RMR and SRMR measures, which take into account the relationship between the estimated covariance matrix and the sample covariance matrix, were examined, it was also concluded that the model had a good fit. It was found that, as the model comparison based measures NFI, NNFI, CFI, GFI, AGFI show, the research model had a better fit than the saturated model, and that the internal user satisfaction model of the NJIS had a good fit. The consistency measures AIC, CAIC, and EVCI show that the closest model was chosen as the most representative model. It was concluded that, as a result of statistical evaluation the alternative models, the appropriate model was the internal user satisfaction model of the NJIS. The SEM results for the proposed model are given in Table 4.

Table 4 about here

We note that all structural relationships are statistically significant since their t values are outside the significance region. Furthermore, the structural equations and multiple determination coefficients values are given in Table 4.

As can be seen from Table 4, according to the structural equation model for the latent variable with the strongest influence on the satisfaction of internal users, is information quality, while the others have less influence: perceived usefulness, system quality, and service quality, respectively. While the latent variable with the strongest influence on PU is PEoU, the weakest influence on PU is Anx.

All of the research hypotheses and causal relationships are shown on the e-justice system model for internal user satisfaction in Figure 1.

Figure 1 about here

It was found there is a statistically significant positive relationship between trust and perceived usefulness (0.24). This result shows that a one unit increment in trust results in a 0.24 unit increase in perceived usefulness or, in the same manner, a one unit decrease in trust results in a 0.24 unit decrease in perceived usefulness. The regression coefficient is -0.07 for anxiety and perceived usefulness. There is a statistically significant and negative relationship between these two latent variables.

It can be concluded there is a significantly strong positive relationship between design quality and perceived ease of use (0.78). The SEM shows it can be said the perceived ease of use is 60.3%, explained by design quality for a significance level at 5%.

The relationship between perceived usefulness and perceived ease of use is statistically significant and estimated as 0.78. This coefficient shows a one unit increment in perceived usefulness results in a 0.78 unit increase in perceived ease of use.

The determination coefficient R^2 is obtained as 0.935, which means trust, anxiety, and perceived ease of use explain perceived usefulness as the result of the SEM. Except for trust, anxiety, and perceived ease of use which have a direct effect on perceived usefulness, the coefficient of an indirect effect on the design quality latent variable on perceived usefulness is estimated at 0.606.

It can be assumed there is a positive relationship between internal users' satisfaction and perceived usefulness with the coefficient being estimated at 0.34. Besides internal users' satisfaction and perceived usefulness, system quality, service quality, and information quality have coefficients of 0.21, 0.15 and 0.43, respectively. As a result, these causal relationships explain 98.5% of internal user satisfaction. Except for the latent variables, which affect internal user satisfaction directly, trust, anxiety, and design quality have an indirect effect with coefficients of 0.08, -0.025 and 0.209, respectively. The effect of ease of use on internal

user satisfaction was found to be 0.269. The standardized total effects of trust, anxiety, system quality, service quality, information quality, and design quality on perceived ease of use, perceived usefulness, and internal user satisfaction are given in Table 4, respectively.

While the indirect effect of Trust and Anxiety on internal user satisfaction (IUS) are (0.081 and -0.025) respectively, the effect of DQ on IUS is 0.209. In addition, the indirect effect of DQ on PU is seen as 0.606.

The total effects of PEoU and PU on IUS are positively estimated (0.269, .344) respectively, while the total effect of PEoU on PU is positively 0.781.

The indirect effect of PEoU on IUS is estimated as 0.269.

Table 5 gives a summary of the internal user satisfaction model's statistical evaluation of the SEM results

Table 5 about here

Since the H_1 hypothesis is verified ($\gamma = 0.24,\ t = 2.033$), it can be concluded that trust has a positive effect on perceived usefulness in terms of the system use. As can be seen from the hypotheses results, the eight hypotheses are verified as expected, and all of the latent variables, except for anxiety, have a positive effect on related variables.

4. Results

The confirmatory factor analyses which are a part of the SEM, are formed from a 47-item, 9-factor to measure the user satisfaction and the acceptance of the NJIS. The respondents of the questionnaire voluntarily contributed to the survey. Hence, it is believed the validity and reliability of the research increased in this manner. The calculated Cronbach alpha values support this idea. The proposed internal user satisfaction model was tested and was found to provide a high degree of confidence in the reliability and validity of the scales.

It is obvious the SEM permits examination of latent variables which cannot be measured directly, but which can be represented by more than one variable. According to the results of SEM analysis, the explained variance values for perceived internal user satisfaction expression are SeQ=0.65, SQ=0.61, PU=0.57, PEoU=0.57, IQ=0.54, Anx=0.53, Trust=0.53 and DQ=0.50 respectively. Besides, when the explanation ratios of the structural equations are checked, it can be observed that both PU and IUS, in particular, have very high values

(0.985 and 0.935, respectively). It can be stated the proposed internal user satisfaction model has been well explained.

It was detected that the model fit is also good for the proposed model, and the findings below were reached:

Design quality has a positively and directly effect on perceived ease of use (0.78): The many complicated procedural steps and approval difficulties related to juridical services may create a negative effect on the perceived ease of use of internal users. Internal users believe that more work can be done if screens are simplified and there are fewer modules and procedural steps. With this in mind, it was concluded that design quality, whether or not screens and menus are user-friendly and are designed suitable for workflow is examined, has a strong effect on creating a perception of internal users regarding the ease of use of the system. In similar studies, Thong et al. (2002) and Jeong (2011) (interface characteristics in terms of terminology, screen design, and navigation) can indirectly (but not strongly) influence perceived usefulness via perceived ease of use.

Information quality, system quality and service quality have directly (but not highly) and positively effect on internal user satisfaction respectively (0.43, 0.21 and 0.15): It can be seen that information quality has the most effect (of the three quality dimensions) on internal user satisfaction. In the e-justice system, where operations are performed, the properties used by internal users and taken from the system (convenience, relevance, consistency, timeliness, completeness, and accuracy) ensure complex juridical operations with multiple steps can be maintained.

The reason why the system quality and the service quality do not have a strong effect on internal user satisfaction can be that the expectations of internal users preferably concentrate on the existence, also information and design quality of the system. Accordingly, it is expected that internal users will face small and individual problems related with the system rather than large corporate problems. Therefore, it is sufficient for internal users that accessibility should always be maintained, and that technical experts are on hand to ease the work of users and give effective service.

Examination of the literature reveals studies which conclude that three latent variables - information quality, system quality and service quality - affect user satisfaction (Chen et al., 2013, Chen, 2010). The findings suggest the three factors are weak in estimating end-user satisfaction (Ong et al., 2009, Ainin et al., 2012). In addition, apart from DeLone and McLean (2003), Luarn et al. (2005) found that these three variables strongly estimate end-user satisfaction.

While the trust has directly and positively highly affected on perceived usefulness (0.24), the anxiety has directly and negatively affected by the same factor (-0.07): The reason why trust in the system has a positive, but not very strong, effect on internal user perception of system ease of use is that internal users should have confidence that they are using a system that prevents unauthorized access, and that information may not be changed between different management levels for judicial systems all over Turkey. This must be realized in an electronic environment. Similar results have been achieved in previous studies (Aloudat et al., 2014, Miltgen et al., 2013). However, the e-justice system usage as the NJIS, which has a complex structure, is mandatory; therefore, the negative effect of anxiety on the internal user's ease of use perception about the system is extremely weak. When previous studies are examined, it can be seen that some, with similar results to our work regarding anxiety, exist (Huang and Liaw, 2005). It can be understood that there is a negatively highly effect between anxiety and perceived usefulness (Igbaria, 1994, Chen and Tseng, 2012, Hsu et al., 2009). As a result, it is observed that trust and anxiety do not affect internal user satisfaction of the e-justice system strongly through perceived usefulness.

The perceived ease of use has directly and positively highly affected on perceived usefulness (0.78): The effect between perceived ease of use and perceived usefulness, the two main determining factors of IS acceptance, were also explored in research into the TAM. The reason why this positive direction effect was observed to be strong in our study can be that internal users have a strong belief that the system has ease of use and usefulness. The decision by internal users to use a system or not is related to the extent to which they believe it will help them perform their work better. Even if internal users believe a system is useful, they may also simultaneously believe that the system is too difficult to use and that the performance benefits of usage are outweighed by the effort of using the system. As a result, in addition to usefulness, usage is thought to be influenced by perceived ease of use (Davis, 1989). In addition to our study, other studies which suggest a direct and strong relationship between these two basic factors have been conducted by (Davis et al., 1989, Igbaria et al., 1995, Lin et al., 2011, Park et al., 2012).

The perceived usefulness has directly and positively affected on internal user satisfaction (0.34): According to the results of our study, the perception of users regarding the ease of use of the system affects user satisfaction. Other studies which conclude there is a positive and direct effect between the two factors, have been conducted by Ainin et al. (2012), Ong et al. (2009), Rai et al. (2002), Seddon (1997), Tojib et al. (2008).

5. Conclusion

The study provides a framework for describing both the dimensions of satisfaction and the acceptance of the e-justice system by the internal users in Turkey.

The most important problem in the system is that the process steps related to juridical services are too many and complex, and thus necessitate the confirmation. While this situation decreases the speed of the system dramatically, low data speed problem occurs during the software updating. Therefore, one of the expectations of internal users is to simplify the system interface. They also expect that the technical specialists have adequate experience on the system to facilitate system access and to provide the required technical support. The passing to a paperless office and the generalization of the usage of e-signature instead of wet signature will speed up the finalization of work. It is inevitable to make some arrangements on the system and the technical staff to overcome the mentioned problems.

We can suggest the following common solutions to ameliorate the working conditions of internal users: Increasing of system processing speed; resolving the inability of technical stuff in terms of quality and quantity; providing in-service training to the internal users related to system usage, constitution of a working group to enhance NJIS performance according to user's complaints, suggestions and requests, developing the new policies and rules for the usage of NJIS and then inspecting them fairly.

Finally, this paper presents a new developed evaluation model for e-justice system in Turkey. Thus, our proposed model incorporates constructs from both internal user satisfaction and technology acceptance. In addition, the research is the first evaluation model of a successful e-justice system from an internal user perspective. Most evaluation models focus on system-centered evaluation or organizational structure while user-centered evaluation concerning judicial information systems has not been explored yet.

The study has certain limitations. Determining these limitations will guide future research. First, supporting quantitative research with qualitative research may ensure more detailed results can be obtained. Second, this study dealt solely with internal users, so a more comparative study in which other users such as lawyers and ordinary citizens can be incorporated, might be suggested. Another limitation of the study is the organizational dynamics. It is difficult to reflect these dynamics in the survey. It should not be neglected that technological applications can be affected by organizational dynamics.

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Variable	Variable level	Frequency (n=8,840)	%
Gender	Female	2628	29.7
	Male	6212	70.3
Age	18-24 years	1000	11.3
	25-34 years	4608	52.1
	35-44 years	2142	24.2
	45 and over	1090	12.3
Internal users	Judge	274	3.1
	Attorney General	72	0.8
	Solicitor	219	2.5
	Chief Judge	28	0.3
	Law Clerk	4898	55.4
	Prison Officer	1629	18.4
	Other	1720	19.5
Education	Secondary School	27	0.3
	High School	1824	20.6
	University	6479	73.3
	Masters	497	5.6
	PhD.	13	0.1
Work experience	1 year or less	984	11.1
	1-5 years	2866	32.4
	6-10 years	2351	26.6
	11-15 years	1066	12.1
	16 years and over	1573	17.8
Experience of the use of information systems	1-3 years	3614	40.9
	4-6 years	3934	44.5
	7 years and over	1292	14.6

Constructs	Standardized Loadings	t value	Cronbach alpha (Explained variance)
Design Quality (DQ)			0.81
Being user-friendly design	0.66	17.80	(0.50)
Being well designed screen standards	0.55	21.88	
Adequacy of help menus	0.44	12.03	
Compliance with screen/menus to workflow	0.71	18.05	
Efficiency of keyword search	0.48	13.36	
Compliance with the passes among the menus	0.66	18.41	
Adaptation to changes	0.75	20.95	
Trust (Trs)			0.78 (0.53)
Preventing info leakage	0.58	10.23	
Preventing unauthorized entry	0.74	14.80	
Preventing unauthorized operation	0.62	7.87	
Dependable system	0.61	8.49	
Trust on competent authorities in case of security violation	0.68	16.16	
Anxiety (Anx)			0.69 (0.53)
Computer anxiety	0.55	50.56	
Hesitating to make unrecoverable mistakes	0.67	50.41	
Scaring from losing the info by incorrect operation	0.73	51.63	
System Quality (SQ)			0.77 (0.61)
Accessibility to the system always	0.75	71.51	
High speed access	0.60	50.72	
Quickly performing operations	0.82	78.00	
Service Quality (SeQ)			0.81 (0.65)
Fast service of the technical staff by emails	0.76	30.80	
Fast service of the call centers	0.76	33.70	
Adequate info of the technical staff	0.78	37.89	
Information Quality (IQ)			0.89 (0.54)
Consisting of accuracy	0.63	14.71	
Relevance	0.63	14.85	
Completeness of obtained info	0.63	18.15	
Ease of understanding	0.66	26.90	
Appropriateness of the screens to the regulations	0.69	13.60	
Update of the screens on time	0.59	21.92	
Accessibility info 7/24	0.61	18.60	
Compliance with the info classification/indexing	0.69	14.03	
Transaction without reaching useless info	0.70	11.00	
Consistency of the words/statement in the system	0.70	31.23	
Making the work easier of provided info	0.72	12.92	
Perceived Ease of Use (PEoU)			0.73 (0.57)
Ease of use	0.59		

Ease of learning	0.65	6.90	
Adequacy of system's making work easier	0.81	7.84	
Perceived Usefulness (PU)			0.87 (0.57)
Perception of using system useful for my institution	0.64		
Increment of work efficiency	0.73	10.86	
Perception of using system useful for myself	0.67	6.12	
Perception of increment of process speed	0.68	9.39	
Perception of decrement of workload	0.70	6.77	
Perception of usefulness of system due to changing perspective	0.77	7.58	
Perception of usefulness of system due to process traceability	0.67	7.07	
Internal User Satisfaction (IUS)			0.72 (0.47)
Satisfaction from fulfilment of needs	0.56		
Satisfaction from system effectiveness	0.52	10.64	
Satisfaction from the number of process steps	0.65	10.78	
Satisfaction from the technical office services	0.72	10.90	
Overall satisfaction	0.47	9.01	

Goodness of Fit Indices	Value	Fit
χ^2	705.665	Good Fit
χ^2 /df	0.697	Good Fit
RMSEA	0.000	Good Fit
p-value for test of close fit(RMSEA>0.05)	1.000	Good Fit
RMR	0.036	Good Fit
SRMR	0.048	Good Fit
NFI	0.999	Good Fit
NNFI	1.000	Good Fit
CFI	1.000	Good Fit
GFI	0.865	Acceptable
AGFI	0.850	Acceptable
AIC-Model	939.665*	
CAIC-Model	1885.849*	
ECVI	0.141<0.255*	

* Compared with the related values of saturated models.

Structural Relations	Standardized loadings	t value
DQ → PEoU	0.776	7.838
Trs → PU	0.24	2.033
Anx → PU	-0.07	-2.468
SQ → IUS	0.21	5.474
SeQ → IUS	0.15	2.867
IQ → IUS	0.43	3.278
PEoU → PU	0.78	5.615
PU → IUS	0.34	2.545

Structural Equations	R^2
PEoU = 0.776DQ	0.603
PU= 0.24Trs - 0.07Anx + 0.78PEoU	0.935
IUS = 0.34PU + 0.21SQ + 0.15SeQ + 0.43IQ	0.985

Total effects of independent latent variables on dependent latent variables

	Trs	Anx	SQ	SeQ	IQ	DQ
PEoU	---	---	---	---	---	0.776
PU	0.236	-0.074	---	---	---	0.606
IUS	0.081	-0.025	0.209	0.148	0.434	0.209

Hypotheses	Results
H1: IQ is positively associated with IUS of UYAP information system.	Verified
H2: SQ is positively associated with IUS of UYAP information system.	Verified
H3: SeQ is positively associated with IUS of UYAP information system.	Verified
H4: DQ is positively associated with PEoU.	Verified
H5: Trs is positively associated with PU.	Verified
H6: Anx is negatively associated with PU.	Verified
H7: PEoU is positively associated with PU.	Verified
H8: PU is positively associated with IUS of UYAP information system.	Verified