

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the study design and approach to evaluate the theories, including Stakeholder Theory, Technology Acceptance Model (TAM) and Value Theory, and analytical structure addressed in Chapter 2 along with the sample range, demographic and description of the statistical techniques used to examine the data used in this study.

3.2 Research Design and Approach

Burns and Grove (2003) explain a study design as "a model for designing and planning research with maximum flexibility over variables that may conflict with the credibility of the results".

Parahoo (1997) explain a study design as "a program explaining how to gather results, where and when". Polit (2010) elaborate a study design as "the ultimate response of the researcher to the research topic or assumption testing." The thesis aimed at providing solutions to the research questions that required straightforward

execution in the research problem statement, so it was reasonable to use alternative research hypothesis.

Looking from the employer's viewpoint, this research reflects on the moderating impact of age on the interaction among digital services offered by the government and job performance. This research also has used the Structure Equation Model (SEM) approach to assess the strong impact in the civil status and passport department by the dependent variables and independent variables along with the front-line staff results. This research utilized a quantitative methodology (Cooper & Lichtenstein, 2010) to produce statistical information for empirical testing of the interaction among the independent and dependent variables (Hair, Bush & Ortinau, 2000). The quantitative analysis requires data to be obtained from a diverse set of participants (Morgan, 1998).

This research used the Social Sciences Statistical System (SPSS) software to evaluate the collection of data. SPSS was also used to achieve descriptive, factor and reliability analysis. For the study of the test assumptions, the edition (22.0) of the statistical program (AMOS) has been used to apply the structural equation model (SEM).

The statistical software used for this research analysis used was AMOS (Analysis of a Moment Structures). It has an SPSS module added which is helpful for Structural Equation Modeling, confirmatory factor analysis and path analysis. AMOS is popular among researchers using analysis of casual modeling and covariance.

3.3 Location of the Study

The study was performed in Jordan, inside the civil status and passport department. Rather than assigning this responsibility to a few departments and authorized agencies such as that of the Ministry of Health, the Islamic Courts, the Department of Statistics, and the Ministry of the Interior, the government designed the civil status and passport department to undertake the registration of the residents. Accordingly, Law No (34) issued in (1973) that substituted by the Law No (32) issued in (1966). This law has made the Department of Civil Status as an independent division capable of enforcing the laws.

3.4 Population and Sampling

The study was performed at the civil status and passport department in Jordan, between government officials. There is (1006) frontline staff in (36) civil status and passport department divisions throughout Jordan. Such frontline employees have been identified by using digital government services (e-government services). Table by Krejcie and Morgan (1970) shows the optimal sample group to be (278). Only, in respect to Krejcie and Morgan's rule of thumb (1970), the size of a sample group of 278 with a level of confidence of (95%) as well as a failure level of (5%).

This department was in joining to the Interior Ministry. After the war of 1967 throughout (1968), the Department of Civil Status that was limited with only distributing the family books and identity cards to residents began to conduct few of the competencies. The civil status and passport department has one Executive Director. This has been the situation as of the end of (1977), until a director general

was named for the Department of Civil Status, and who has been assigned with the responsibility of implementing the Law No (34) issued in (1973).

On (1/7/1977), the department initiated its tasks, and its branches became dispersed throughout the Kingdom. The agency had (45) branches in (1989), and as of (1998), it had expanded to (73) branches in (12) governorates.

Sample Size Formula for a limited population: If the target population is infinite, the following equation can be used to determine the sample size (Krejcie & Morgan, 1970):

$$s = \frac{x^2 NP(1 - P)}{d^2(N + 1) + X^2 P(I - P)}$$

(3.1)

Where S = required sample size, X = Z value (e.g. 1.96 for 95% confidence level)

N = Population size, P = Population proportion (expressed as a decimal) (assumed to be 0.5 (50%)), d = Degree of accuracy (5%), expressed as a proportion (0.05); this is the margin of error.

The sampling framework has been used by civil status and passport department front-line employees throughout Jordan in the pilot study design. We also have a similar workplace environment like the original sample of this research. Appendix C declares the front-line staff of civil status and passport department located in Jordan.

Because it is impossible to make the whole population to participate, it takes a sample of representative participants to make assumptions on the findings on the community. Gay and Diehl (1992) mentioned, "Sample collection is a quite essential

step in performing research project since sample performance influences the predictive validity of the outcome. This usually takes a long time and money to measure the effect, and findings that are not generalizable are incredibly inefficient. It would be a very slow scientific progress if the scientist were to validate Newton's law" (p. 128).

A simple random sampling technique is used for this analysis to classify the subject by using the probability sampling method (Sekaran, 2003). Therefore, the data gathered from the survey could also apply to the entire civil status and passport department front line employee community located in Jordan. This research also used the random sampling, owing to the similarities of the features of the samples and to ensure that the group identified represents the overall population. The first benefit of simple random sampling can be demonstrated as it ensures the presence of the group selected. The second benefit being that all the entities has almost the same chance of being chosen; thus this reinforces the significance of the quantitative performance. It is deemed the most effective approach since all community participants have equal chances of being chosen as a component of the survey (Sekaran & Bougie, 2010).

The study increased the survey to 400 with such an effort to achieve a substantial population size and a reasonable success rate (Hair, Bush & Ortinau, 2000). The Civil Status and Passport Office situated in Jordan compiled a list of licensed frontline workers working in the Ministry of Civil Status and Passport. The name list of the frontline identified employees working in the Department of Civil Status and Passport is included in this list. To create the selection genuinely random, the record of all frontline workers was placed into the machine to guarantee that the

sample was randomly chosen. Afterward, they picked the appropriate participants from the list by random. Next, questionnaires were given to the staff chosen.

SEM analyzes typically use the Maximum Likelihood Estimate (MLE), whereas the ideal sample size of using SEM in a test must be at minimum (200) or (10) or (5) per event (Kline, 2011). Therefore, at least 200 findings were taken into consideration from Hair, Anderson, Babin and Black (2010) assertions. Regarding structural equation modeling (SEM), thus, the sample group for this analysis was fixed at (20) survey questions, multiplying (10) per event. A (400) questionnaire circulated for the final compilation of the information for all the above. Having considered the fact that a minimum of (335) answers is available when used with even more than (200) findings for corresponding review (Hair, Anderson, Babin & Black, 2010).

3.5 Research Instrumentation-Items Construct

A questionnaire screening form has been used, which was circulated to a group of civil status and passport department workers (Myers & Avison, 2002; Creswell, 2013). The sample composed of closed-ended questions was developed depending on this study's goals and assumptions. The sample composed of three parts that included populations, the independent variable, and the dependent variable. The first segment comprises of the participant's information questionnaire to collect statistical information such as age, class, education and frontline employment experiences.

The elements were assessed using a (5)-point Likert scale of 1 reflecting "very low" and (5) reflecting "very high" to assess the participants ' attitude towards the

variables used in the study. All of the things used throughout the research were taken from earlier studies; digital government service products were introduced by Brooke (1986) and Martin's (1989) work efficiency; "Dual-objective performance measurement").

The study design targeted at exploring the impacts of age in moderating the partnership among digital government services and job performance at the Jordanian's Department of Civil Status and Passport. The independent variable for analysis is the digital e-government services. The degree of restraint is sex. The aspect that relies on that is work performance.

The report covers (24) topics like four demographic variable-related questions and another segment on e-government services usability and job performance at work. They assessed the parameters in the Table (3.1).

Table 3.1: Questionnaire Sections

Number	Variables	Number of Items
1	Demographic	4
2	E-government services	10
3	Job Performance	10
Total		24

3.5.1 The Demographic Section

The first section is qualitative. This was created by the study to gather respondents ' personal details. This segment included questions to collect details used

to correlate with results from similar and related research. We requested the participants to include their class, era, training and experience, and education.

3.5.2 E-Government Services Section

The Brooke (1986) paper, which used a measure to determine the value of e-government services to workers, mentioned the scale elements for e-government services. This section contains (10) questions with a (5)-point Likert scale, (1) representing "very small" and (5) reflecting "very high" perception of this component designed to measure the participants. In the initial study, the e-government scale alpha Cronbach quality was (0.832), and this is a reasonable level. The scale was accurate with an alpha value of (0.70) for a Cronbach (1951).

Table 3.2: E-Government Services Measurement Source

Code	Items
Q1	I think that I would like to use this system frequently
Q2	I found the system unnecessarily complex
Q3	I thought the system was easy to use
Q4	I think that I would need the support of a technical person to be able to use this
Q5	I found the various functions in this system were well-integrated
Q6	I thought there was too much inconsistency in this system
Q7	I would imagine that most people would learn to use this system very quickly
Q8	I found the system very cumbersome to use
Q9	I felt very confident using the system
Q10	I needed to learn a lot of things before I could get going with this system

Source: Brooke (1986)

3.5.3 Job Performance Section

The Dual-Objective Output Measurement discussed the scale items of the employee performance (Martin, 1989). It used a test to assess the quality of workers. This segment includes (10) elements with a (5)-point Likert scale (1) reflecting "very low" and (5) reflecting "very large" designed to measure the participants' interpretation of this portion. In the initial study, the work performance scale alpha Cronbach performance was (0.87), which is a reasonable level. The measure was accurate with an alpha coefficient of (0.70) for a Cronbach (1951).

Table 3.3: Job Performance Measurement Source

Number	Items
JP1	I am providing complete and accurate services
JP2	I am accomplishing mistake-free services
JP3	I am providing fast responses for the costumers' inquiries
JP4	I am providing services with effectiveness
JP5	I am seeking to provide perfect services
JP6	I am accomplishing the services based on a specific timetable
JP7	I am abiding by the department systems and policies
JP8	I am respecting the job ethics
JP9	I am following the work schedule
JP10	I have the enthusiasm and willingness to achieve the services

Source: (Martin, 1989)

The techniques used for manipulating the methods shown in the research context were drawn from previous studies (Broke, 1986; Martin, 1989, "Dual-objective success assessment"). To calculate more precisely a multiple-item approach has been used, and each element was centered on a Likert scale of five points. Finally, twenty elements were used to represent the elements of the research design as calculated parameters.

Table 3.4: All Sections of Survey Questionnaires

Number	Variable	Source	Number of items
1.	Demographic	Researcher	4
2.	E-government services	Brooke, 1986	10
3.	Job Performance	Martin, 1989 "Dual-objective Performance Measurement"	10

The survey questions included three parts addressing ethnicity, the independent variable, and the contingent variable, in both English and Arabicized forms. Questionnaire objects were interpreted into Arabic and back translated into English for scientific purposes to verify the transcription (Brislin, 1970). Two English professors from the Department of English at the University of Jordan conducted the translation vice versa, both of which were proficient in both Arabic and English. The survey questions were deliberately converted into Arabic to promote it because it is their native language (Appendix A and B).

It was then converted into English to ensure that the words and phrases stayed the very same (Brislin, 1986). All interpretations showed that the context of all the items in the questionnaire is not significantly different. The conversion into Arabic was intended to ensure the answers were accurate (Bates & Khasawneh, 2005). Pre-testing of questionnaire items was conducted with a pilot test to verify the survey questions were understandable. It has also changed the perception of an actual survey instrument. The census data samples were evaluated depending on the research goals (Gould-Williams, 2003). Data Collection and Procedure

Before the information was collected, an official notice of authorization was received from the PPS University Sains Islam Malaysia, which allowed the researchers to view the list of staff who have been the participants in this report. The study used a questionnaire, utilizing techniques of systematic data gathering and analysis. The demographic under research was the front-line workers of the civil status and passport department in Jordan who used the e-government services program. The tool developed to gather research information to assess and check the

function of age in censoring the partnership among e-government services and job performance at work in Jordan's Department of Civil Status and Passport.

Next, the researcher contacted the sample CSPD offices to arrange appointments with them. Meetings were then held with the director of the CSPD offices and the offices managers to explain to them about the study and to get their cooperation. The CSPD director then organized the offices managers for questionnaire distribution, where the questionnaires were distributed to the office's managers with the name of the registered staff who should fill out the questionnaire. In collaboration with both CSPD management and the offices managers, the researcher briefed the staff regarding the purpose of the questionnaires. Meetings with the staff were mostly conducted during their break time, with the approval of the office's managers. The staff were given a week to complete the questionnaires and return them to the office manager. To guarantee a high level or rate of response, the researcher encouraged staff cooperation with constant reminders via phone calls and face-to-face contact with the manager in each office, but even then, some of the questionnaires were unanswered and others were returned incomplete. The data were collected during a span of 60 working days, from April 1, 2018 until May 30, 2018.

3.6 Pilot Study

A pilot study was conducted to assess the quality and reliability of all of the survey components (Cohen, 1993). The pilot study was crucial to ensure that the nature of the survey questions was relevant to the practical context and that the set of questions was clear and concise for the respondents (Korunka, Hoonakker & Carayon,

2005). The alpha coefficient of the Cronbach must be considered credible and dependable in the scope of (0.7) to (1.0) (Rad & Yarmohammadian, 2006).

Hair, Money, Samouel and Page (2007) assume that pilot research was conducted with an appropriate number of participants involved. An exact copy of the questionnaire was given to the participants to address and was asked to note down the problem they needed to explain, particularly certain issues that they cannot be understood. After the pilot test results, the original number of questions was updated and adjusted to satisfy the relevancy of the operationalized constructs. The pilot study analysis revealed the total internal coherence of the two measures, digital government services, and job performance at ($\alpha= 0.835$, $\alpha= 88.2$) respectively.

The elements from the pilot study were circulated to (31) civil status and passport service workers in Jordan. Therefore, this research implemented the probability sampling method for the pilot study, in line with Sekaran's description of sampling protocol (2003). The collection of samples for the pilot study was taken from the department of civil status and passport in Jordan. A (45) respondents were randomly selected by the researcher considering this information. Besides, the chosen respondents were justified on the basis that they can serve the Jordanian civilian status community and passport service. A sum of (31) of the (45) workers replied with an (86.8) percent success rate. The respondents demonstrated simple concerns and terminology indicated that questions and vocabulary used were clear.

3.6.1 Reliability and Validity

Use of both the durability and authenticity of all element collections is ensured (Straub, Boudreau & Gefen 2004) which are used to check each item-set per construct using Cronbach's Alpha (Churchill, 1979; Hair, Anderson, Babin, & Black, 2010).

They will be discussing the consistency of the approaches used in the pilot study. Hair, Anderson, Babin and Black (2010) define reliability as the degree to which a measurement or sequence of measurements accurately represent the object of importance or the extent to which the metric scale measures what it is supposed to measure" (Pallant, 2013). According to Pallant (2013), the efficacy of treatments could be evaluated using multiple methods that are the substance's authenticity, condition-related validity, and legitimacy. The validity of material implies, "the steps include an appropriate and representative selection of things that draw on the definition" (Sekaran, 2003). To determine the material quality of the measurements used throughout the pilot study, three senior lecturers in the area of research management have been sent the initial and interpreted copy of the measures. The lecturers generally gave positive comments on the steps (Appendix D).

The technique of facial authenticity was applied by assessing knowledge about the instrument and the accuracy of the measure (Sekaran, 2003). The Arabic version in the face-validity process was clearly understood, and three lecturers in the research management area had been sent the English version of the software. The lecturers provided good reviews on the instruments and agreed that the goods would be suitable for this analysis throughout the scales.

Accordingly, this work used the system of exploratory factor analysis (EFA) (Pallant, 2013; Sekaran, 2003) and conformity factor analysis (CFA) (Hair, Anderson,

Babin, & Black, 2010) in addition to the face validity approach in order to determine item authenticity and to check the construct reliability of the scales.

In this research, the criterion analysis approach for assessing efficacy was performed on two measures using metric scales: interactive government programs (Brooke, 1986), and work performance (Martin, 1989 "Dual-objective Performance Measurement"). Brookes (1986) designed a SU (system usability) scale using which a researcher gives an opportunity to its respondents to be unbiased as the system records respondent's immediate responses to evaluate the most accurate results. If there is a question on the survey that the respondent has to think about then he/she is recommended to mark the mid-point on the scale. The thesis used the exploratory factor analysis (EFA) technique, which is defined as "a factor analysis approach commonly used by sociology scientists to analyze the psychometric component, instrument or rate of development and assessment" (Osborne, 2014). For contrast, while all the test measures applied in this study were literature-based and widely used in previous studies to enhance the validity of the calculation model, the reviewer undertook EFA and CFA methodology analysis of the metric measurements to verify its internal structure. This work will discuss EFA and CFA's empirical analysis of the two metric measurements presented in the next portion of Chapter 4, based on the recommendations of (Hair, Anderson, Babin & Black, 2010; Osborne, 2014; Pallant, 2013).

Several randomly chosen workers of the Jordanian civil status and passport service (31 workers) were used to carry out the pilot study. The factor analysis, convergent validity, and discriminant validity were not carried out at this initial phase because of the small sample size. Thus the review discussed previous activities in

Chapter 4. The findings were taken in comparison to a larger study group of the Jordanian Department of Civil Status and Passport. Based on the information and analysis conducted in the pilot study, the kit of measurements for the actual data reporting process was distributed to (400) civil status and passport service staff in Jordan. In the next segment to this approach is discussed further below.

Cronbach alpha was determined to check the durability of all structures on internal consistency. Table 3.5 indicates that the Structure alphas of the Cronbach were all above the (0.70) marks (Hair, Anderson, Babin, & Black, 2010). Thus, it is suggested to validate the internal consistency of a build.

Table 3.5: Measurement Scales Reported from the Pilot Study

Measurement scale	Cronbach's alpha
E-government services	0.83
Job Performance	0.88

3.7 Statistical Data Analysis

Descriptive statistics used by displaying an overview of concentrations and percentages to recommend key characteristics of data gathered from civil status and passport department workers in Jordan. Additionally, quality measures were used to achieve a rating based on the alpha coefficient standard (Cronbach, 1951), which is a metric of accuracy.

For the research concerns, the statistical analysis consisted of:

Concise statistical models such as origins, standard deviations, relative important series, proportions, and percentages support multidimensional concepts. The means and standard deviations of the employees' perceptions of the indicators of the e-government services and the relative importance index analysis (RII) were used to measure the level of using e government services.

Use of multi-regression by measuring the relation strength among the parameters while checking the viability of using the process. Using standardized regression between variables to measure the relationship between e government services and JP, and age with JP.

Using of the AMOS (Structural Equation) to measure the moderating effect of age in the relationship between e government services and JP.

3.8 Conclusion

The chapter summarized the methods employed for this study. The study aims at exploring the effect of e-government adoption on employee productivity. The research used a questionnaire that applied quantitative data gathering and measurement methods, conducted by both the (335) sampling method of civil status and passport department employees in Jordan. The consistency and precision of the proposed research model were tested using the Cronbach alpha and factor analysis, respectively. In comparison, the next segment, Segment 4, provides further clarification of the goals and testing of theories.