Information Technology Recommendations on a Model based on Distance Education the Measurement of Professional Quality of Technical Service Staff

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Abstract: In this study, the design of the distance examination system for professional qualification measurement of the Vocational Qualifications Authority, the question bank of this examination system and the methods of forming the questions are given. Possible contributions are being investigated for solutions to problems such as the formation of quality questions, the establishment of question banks, and the creation of examinations consistent with the norms that will be tested during the exams and the creation of exams from the right questions,if the applicant has already entered the examination, the fact that the previous exam questions are not used for the same applicant invocational qualification measurement exams.

Key Words: Vocational Qualification Examination Model, Distance online exam, Consistent Question Bank, Vocational Qualification.

I. INTRODUCTION

This is to introduce a model developed for the interactive test application that can be used in the purpose of the Vocational Qualification Examination. Developed for Turkey, this model provides information on the preparation of a reliable question bank, control and the creation of remote exams.

Especially in the developed countries, the concept of professionalcompetence has gained importance (Brockmann, 2010) and most public institutions related to professional competence have been established (Konrad, 1999; Gehmlich, V. 2009; ESCO 2016).

Theworks in this field in Turkey started in 2006 and the Vocational Qualification Institution affiliated to the public was established. With the establishment of the professional qualification institution, standardization studies have been started in many branches of profession.

After that, specialization certificates were started to be given under the accepted national qualification. Certifications within the scope of National Qualifications differ according to the level of branches and branches. For example, Network Technician is Level 4, Network Technician is Level 5 and Network Expert is Level 6.These levels are named 1,2,3,4,5,6,7 and 8. These levels are determined by academic levels. According to this, professional qualification levels and academic provisions are shown as follows.

Level 1 Diploma of Primary Education
Level 2 Diploma of High School 10th Grade, Apprentice
Level 3 Diploma of High School 11th Grade, Master-builder, Formen
Level 4 Diploma of High School, Master, Technician
Level 5 Diploma of Associate Degree, Technician
Level 6 Bachelor's Degree, Expert
Level 7 Master's Diploma
Level 8 Doctorate Diploma

As mentioned above, there is more than one level of expertise for a profession. At National Qualification each level of specialization has a separate examination. Furthermore, in the National Qualification Standards of the MYK, there are no requirements other than literacy for candidates entering these exams. So if a candidate wants he can take the Network Technician Level 4 exam and the Network Expert Level 6 exam. In this case, the importance of questions for beingconstitutedconsistentlyreliableexams is high(UTS, 2016). It is important to establish a question bank from these questions in case of candidates or system failures.Examination booklets are created for candidates from the questionnaire banks created. For the reliability of the measurement and evaluation, candidates in the examination booklets should not be able to repeat the questions used in repeated questions or in the previous examination of the candidate. It is important that the correct exam booklets are created as well as the questions to be used in examinations.

In this study, our aim is not to give information about the structure of examination system, measurement evaluation criteria or certification process, but to provide information about the development of a test model to be used in Vocational Qualification Examination System.

Definitions
Before moving on to the general structure of the model, it is useful to focus on the definitions in order to make the

reader better understand us. Because the meaning of the concepts used here is the vocational qualification system.

Vocational Qualification

Occupational competence is occupational standards that show the minimum knowledge and skills required for a person to succeed in a profession.

Vocational Qualifications Authority

The Vocational Qualifications Authority was established in Turkey on September 21, 2006 (MYK, 2015). The Vocational Qualifications Authority provides the creation of committees by bringing together representatives of public institutions and organizations, workers, employers, professional organizations and non-governmentalorganizations.

The Vocational Qualifications Authority determines the professional standards. It then supervises the execution of the following processes related to the specified standards.
• Occupational standards,
• Exam and certification,
• Accreditation services

NationalQualification

Occupationalstandards in occupational groups are based on one or more occupational standards. Knowledge, skills and competence that an individual must have, which is determined by the evaluations made by the certification bodies authorized by the The Vocational Qualifications Authority and which is approved by the Agency and placed in the national qualification framework.

NationalCompetency Framework

It is thenational professional qualification standards prepared in accordance with the professional qualifications accepted by the European Union and based on vocational qualifications earned through primary, secondary education, associate degree, undergraduate and graduate degree.

Structure of Qualification

Vocational qualification It is a process that starts when the candidate applies to the examination center accepted by the The Vocational Qualifications Authority. The institution concerned evaluates the application. The dates of the theoretical and performance exams, which are the vocational qualification examinations to be taken by the applicant after the acceptance of the application, are notified to the candidate. The candidate enters the test. The exam is assessed according to the conditions set out in the Vocational Qualifications manual. Candidates who are successful in theoretical and performance examinations are documented and recorded in the framework of national qualification.

LearningOutcome

All of the professional skills that the candidate should have, which are accepted within the scope of the National Qualification Framework for the acquisition of competence, are all.

Achievement Criteria

Achievement Criteria vary according to each profession. It is expected that every profession group that is basic will have knowledge about their profession in the field of occupational health and safety. For example, the performance criteria for Network technology component level 5 are as follows.

12UY0046-5 / A1 ISG, Quality, Business Organization and Professional Development 12UY0046-5 / A2 Computer Hardware and Software Foundation
12UY0046-5 / A3 Network Technologies Foundation
12UY0046-4 / A4 User Relations and Technical Support
12UY0046-5 / A5 Network Design and Physical Network Installation
12UY0046-5 / A6 Basic Network Security, Maintenance and Efficiency
12UY0046-5 / A7 Network Server Operating System Usage

Exam Assessment

The evaluation of each standard varies within the framework of national competence. If we take the information technology fields as an example, candidates should be 70% successful from the theoretical exam and 100% successful in the performance exam.

Questioner

It is the person who prepared the questions according to thenationalqualificationfortheprofessionconcerned.

Assessment and Evaluation Specialist

The prepared questions are the persons who control the levels of the questions on the basis of the performance criteria and levels specified in the National Qualification framework.

GrammarSpecialist

It is theconfirming person who examines the prepared questions in the grammatical aspect.

TechnicalSpecialist

It is theperson who technically reviews and approves the questions approved by the language expert and the assessment expert.

Examiner

It is the person who provides the theoretical and practical examination and enables the examination evaluation.

Evaluator

It is the person responsible for examining the successes and failures of the candidates and for producing the documents of those who are entitled to document.

III. MODEL

The model proposed in this study is directedto a distance education based (Volery ve Lord, 2000; Rockwell, K., Furgason, J. ve Marx, David B. 2000) test system for

vocational Qualification fields. Inorderto be able to operate this model, firstly the Examination Centers can be authorized by the Vocational Qualification Authority, they have to make the necessary personnel assignments and form question banks.

At the same time, it is imperative that they take exams beforehand. After these studies, the process flow of the proposed model is shown below in the Figure 1 examination process.
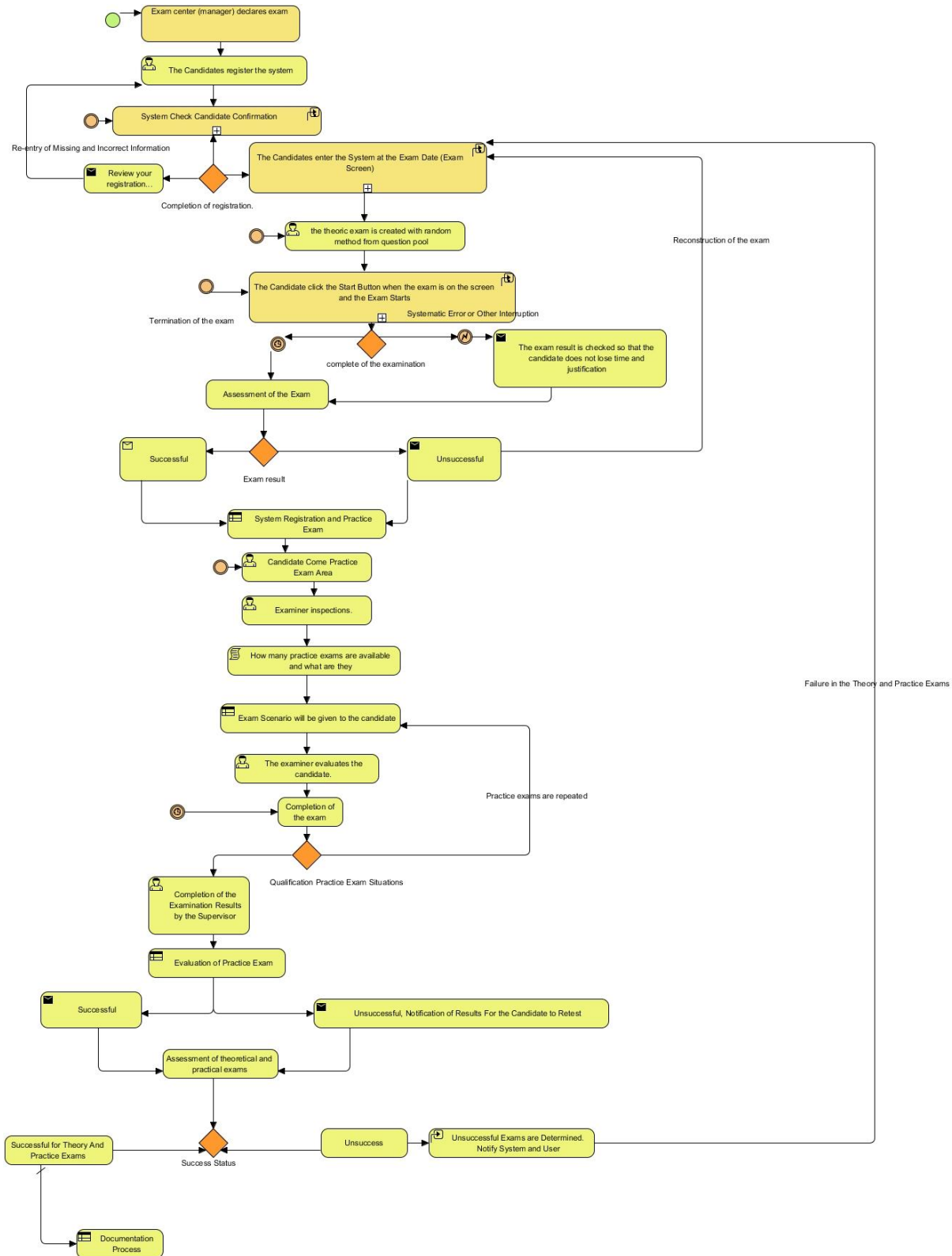

Figure 1 Examinationprocess.

Inthese model, studieshavebeencarriedout in order to create a particularly coherent question bank. In this, the importance of the questions is gaining importance. The preparation of the question bank prepared in the model is described below. The exam center manager defines the relevant vocational qualification. This appoints staff for vocational qualification. These staffs are Questioner, Language expert, Assessment expert and technical expert. The model usedtopreparethequestion is givenFigure 2.
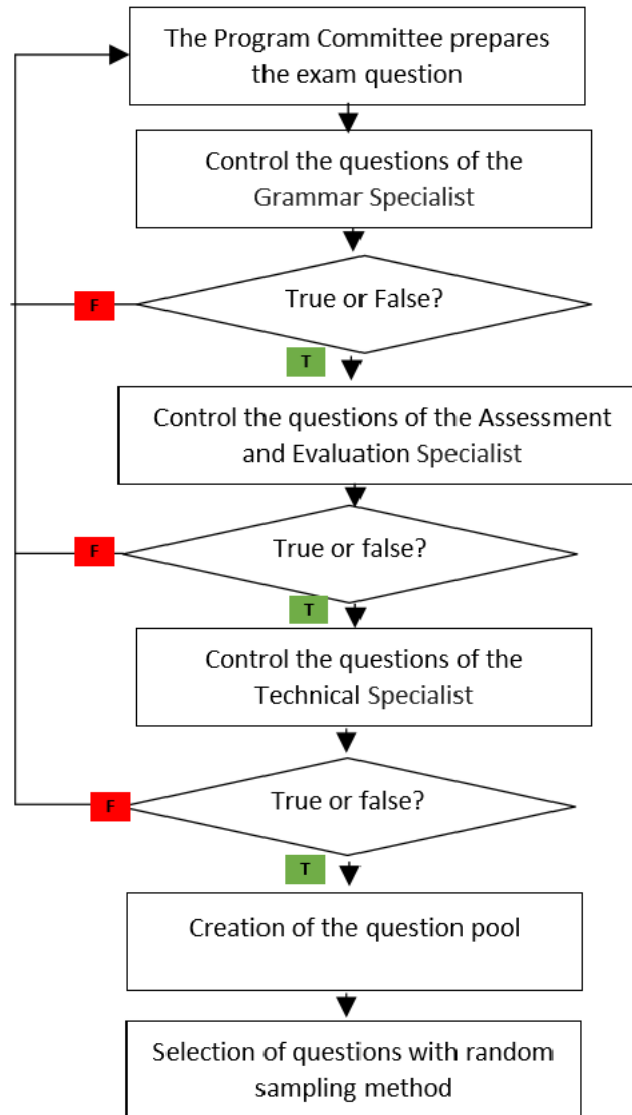
Figur 2 Questionprrparation

First, thequestionerentersthe question adding system by selecting the vocational qualification assigned to him / her. Then, in order to add a question, he chooses the proficiency unit of the profession concerned, after which he selects the proficiency unit's performance measure. After the elections are made, the question is written and answers are prepared. The correct answer is determined by adding a question to the system. These added questions are reported by the system to the linguist and the measurement evaluator, and these questions appear on the user's screen for review.

Linguist examines questions in a grammatical way. Incorrect questions are marked by adding comments.The questions that are marked as incorrect are forwarded by the system to the question maker.

The assessment specialist examines the questions according to the level of vocational qualification. Appropriate questions are marked correctly. Incorrect questions are marked by adding comments. The questions that are marked as incorrect are forwarded by the system to the question maker.

The questions correctly marked by the linguist and the assessment expert are passed to the technical expert by the system. The technical expert examines the questions according to the relevant Occupational Standards. If the

questions are correct in terms of technical information in these standards, they are added to the question bank in thesystem.

This is to increase the consistency of the questions used in the purposeful examinations. Because the documentation provided as a result of a reliable examination gives information about the applicant's competence and competence in the relevant profession.

Exam Preparation

Exam booklets are created at the time of the exam or just before the examination so that exam questions are not seen by the examiner or any other person. However, there are operations that need to be done before this. The system administrator has to make a profession selection and make an exam. The system administrator enters the exam generation module. Occupation selection enters the system of information such as exam code entry, exam time, exam time, exam type, exam supervisor and examiner. The student enters the system and applies for participation in the active exams.

Examination

The examiner enters the system, selects the exam, performs the nomination of the candidates, forms the exam questions, and examines the questions. When the questions are assigned, the previous exam questions are taken and ignored. Question booklets are defined randomly for each student. However, if the candidate has already entered the test, the system will ignore the questions for the candidates that appeared in the previous examination of the candidate. Candidates are expected to enter the examination system after these processes are over. When the exam time arrives, candidates start their exam by pressing the start exam button. Exams are automatically terminated when the exam expires. If the candidate wishes, examination may be terminated earlier in accordance with the exam rules.

Evaluation of the exam

Examination results are calculated according to the predictions of professional qualification institutions. For example, the criteria of the theoretical examination achievement in the vocational standards of the Vocational Qualifications Authority of Turkey are based on giving a minimum 70% correct answer. In this case the candidate is considered successful if the candidate's result is ≥70%.

III. RESULTS AND SUGGESTIONS

The method developed in this study allows the candidate to test the level of knowledge and skill without harming his business or economic situation. Documents set as a result of a reliable exam give information about the candidate's competence and competence in the relevant profession. Companies working in the sector are required to have consistent knowledge about the theoretical and practical skills of these individuals when they want to

recruit staff with this certificate. Minor changes can be made to this model and applied to all test systems. Question banks can be created for a university department. For example in computer engineering this module is very easy to use. System change can be made in the question bank creation system by making personnel changes. Question printer lesson teacher, measurement evaluation expert can be another teacher or department chair who gives the same lesson. The technical expert may also be the head of the department, but may also be the supervisor appointed by the management. In this way, the exam questions used in the departments are audited by the system.

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