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**FINAL STATE CERTIFICATION OF GRADUATES OF THE TASHKENT  
MEDICAL INSTITUTE USING AN INTERACTIVE APPLICATIONS  
ACADEMIX 3D**

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Parpibaeva Dinara Ayupovna  
DSc. of Tashkent Medical Academy  
Telefon: +998(94) 604 60 71

Salayeva Muborak Saidabdullayevna  
Cand.Sc. of Tashkent Medical Academy  
Telefon: +998 97 711 70 98

Salimova Nargiza Djurabaevna  
Cand.Sc. of Tashkent Medical Academy  
Telefon: +998 93 378 51 01

Ergashov Nodirbek Shermuxamat o'g'li  
Assistant of Tashkent Medical Academy  
Telefon: +998(90) 019 95 01  
Nodirbek\_tta@mail.ru

Buvamuxamedova Nasiba Taxirovna  
Assistant of Tashkent Medical Academy  
Telefon: +998(99) 819 02 12

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**ABSTRACT**

The final state certification (FSC) of graduates of the Tashkent Medical Academy is carried out in accordance with the Law of the Republic of Uzbekistan "On Education" and "On the National Training Program", the level of readiness of graduates to perform professional tasks and its compliance with the requirements of the State Educational Standard.

The article summarizes the experience of conducting FSC of graduates of medical and pedagogical faculties using the interactive application "Academix3D" in quality one from elements appraisal funds. Also are given results online survey, Where Graduates 2021–2022 educational of the year gave my assessment holding FSC With application virtual applications and perspectives use virtual technologies V learning.

**Keywords:** simulation technologies, Academix 3D, final state certification, medical education.

**Introduction**

WITH the purpose of improving the quality of the educational process in medical universities in terms of mastering practical skills V the present time actively implemented simulation education [3]. In the field of medical education has become possible to use a variety of training ditch simulators, which allow work out interaction between the doctor and the patient, to form



the necessary competence [1,4,5]. Use of simulation technologies much expands possibilities educational process and allows you to increase the level of mastering practical skills without risk for patients [7]. Interactive application in 3D format for the study of human diseases and conditions. In the practice mode, a patient is examined : practical communication skills, skills of conducting a physical examination, interpreting the result, and the skills of a doctor's clinical thinking are practiced. A virtual patient with a detailed description of the classification, pathogenesis, anamnesis, complaints, examination, symptoms, methods of diagnosis and treatment. This interactive application complete measure Maybe take on myself practicing a wide range of clinical skills — to work out methods of communication, diagnostics, treatment in 150 virtual simulation clinical scenarios, according to various medical specialties: therapy, cardiology, pulmonology, nephrology, endocrinology, and others. With the help of virtual clinical scenarios, you can work out the algorithms for professional communication with the patient, including the collection of complaints, history diseases, history life, conduct objective physical examination auscultation, get the results of percussion and palpation, appoint and estimate results laboratory and instrumental studies, to formulate preliminary, differential and final diagnosis [7].

#### Purpose

The purpose of this work was to assess the satisfaction with the FSC results by graduates of the 2021–2022 academic year using medical educational Academix3D systems , as well as their evaluation of their application in the educational process and at the FSC.

Final state certification of graduates of the Tashkent Medical Academy is held in accordance with the Law of the Republic of Uzbekistan "On Education" and "On the National Training Program", the level of readiness of graduates to perform professional tasks and its compliance with the requirements of the State Educational Standard of the FSC held V form interdisciplinary an exam, the purpose of which is to assess theoretical and practical preparedness . The final interdisciplinary exam is carried out in stages using the Academix3D interactive application in quality one from elements appraisal funds .

Since September 2021, this educational system has been used for the first time at the stage of the FSC, where the level of graduates' learning outcomes in using the theoretical basis for solving professional situational tasks included in the certification test is tested. Thus, graduates of medical and medical-pedagogical faculties became the first users to have this application included in the educational process and later in the FSC for graduates of the 2021-2022 academic year in order to use it as an assessment tool. Volunteered to participate in the study 1350 graduate students of the 2021–2022 academic year from 1st treatment (n = 602 ), 2nd treatment (n = 600 ) and medical and pedagogical (n = 148 ) faculties which anonymously answered on questions online survey. For use of the system as an evaluation tool with the approval of all graduating departments were selected 20 virtual clinical scenarios-each graduate had the opportunity to pass the in the training mode any clinical scenarios.

"Exam" grade action and answers provided only by completion fulfillment case. After the exam, graduates were asked to take an anonymous questioning for definitions their opinions and satisfaction with the evaluation of the results of this stage of the FSC. In addition to scoring questions Liker V completion questioning there was free field for comments in any form for



estimates alumni satisfaction with the results of FSC using the interactive application "Academix 3D", as well as the prospects for its application V further.

The questionnaires were created and posted online on the Google Forms software platform. In total there were seven questions that had to be assessed on a scale le Likert from 1 ("NO, strongly disagree") to 5 points ("YES, fully agree") (table 1).

Table 1 To the survey questioning alumni past FSC

|   |  |
|---|--|
| 1 | Application interactive app "Academix3D" on final state attestations (FSC) was very a good start in the educational process  |
| 2 | I recommend and V further use interactive app "Academix3D" on FSC  |
| 3 | At me was enough time and possibilities familiarize With interactive app "Academix3D" to FSC   |
| 4 | Virtual clinical I decided the script without worrying time FSC and experienced satisfaction and comfort while doing   |
| 5 | Teachers And students should maximum wide use interactive application "As ademix 3D" in time learning with courses with start of initial teaching courses clinical disciplines |
| 6 | Virtual simulation training is excellent replacement traditional method V medical education, complementary practical classes.  |
| 7 | IN progress learning and training To exam interactive app "Academix 3D" worked without errors of remarks Not was   |
| 8 | On exam interactive app "Academix 3D" worked without error, Not was none technical problems  |

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### Results and Discussion

The results of the survey about the opinion of graduates and satisfaction with the results of the stage FSC With application interactive application "Academix 3D" as an evaluation tool are shown in Table. 2. Total passed questioning 606 alumni (from general numbers n = 1350 ).

As a result of a survey of graduates on 5 point scale answer options 4 and 5 prevailed - 91.1%, then How options 1 And 2 gave only V 4.2% answers.



Table 2 Percentage ratio answers from option 1 (NO) before 5 (YES) on questions questioning past FSC

| No.  | 1<br>LF-1,<br>LF-2<br>MPF | 2<br>LF-1,<br>LF-2<br>MPF | 3<br>LF1,<br>LF-2<br>MPF | 4<br>LF-1,<br>LF-2<br>MPF | 5<br>LF-1,<br>LF-2<br>MPF |
|--|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|
| "Positive option"  | NO<br>(%/%)<br>)          | probably<br>not<br>(%/%)  | Don't<br>know<br>(%/%)   | rather YES<br>(%/%)       | YE<br>S!<br>(%/%)<br>)    |
| 1. Application interactive app "Academix3D" on final state attestations (FSC) was Very a good start in the educational process   | 1.2/3.1                   | 0.3/3.1                   | 2.6/2.1                  | 9.4/41.7                  | 86.5/50.0                 |
| 2. I recommend And V further use interactive app "Academix3D" on FSC   | 1.3/3.1                   | 0.6/1.1                   | 2.9/10.4                 | 6.5/25.0                  | 88.7/60.4                 |
| 3. I I recommend And V further use interactive app "Academix3D" on FSC   | 0/6.3                     | 0.3/2.1                   | 3.5/3.1                  | 12.3/25.0                 | 83.9/63.5                 |
| 4. Virtual clinical I decided the script without worrying time FSC and experienced satisfaction and comfort while doing  | 1.0/2.1                   | 0.0/3.1                   | 3.5/9.4                  | 7.1/30.2                  | 88.4/55.2                 |
| 5. Teachers And students should maximum wide use interactive application "Academix 3D" in time learning with courses with start of initial teaching courses clinical disciplines | 0.0/1.0                   | 1.0/2.1                   | 3.9/6.3                  | 6.1/15.6                  | 89.0/75.0                 |
| 6. Virtual simulation training is excellent replacement traditional method V medical education, complementary practical classes.   | 0.0/4.2                   | 0.3/2.1                   | 3.9/8.3                  | 9.0/21.9                  | 86.8/63.5                 |
| 7 V progress learning and training To exam interactive app "Academix3D" worked without errors of remarks Not was   | 1.6/3.1                   | 1.3/7.3                   | 2.3/6.3                  | 10.0/18.7                 | 84.8/64.6                 |
| 8. On exam interactive app "Academix3D" worked without error, Not was none technical problems  | 1.3/3.1                   | 2.6/7.3                   | 1.6/6.3                  | 6.1/14.5                  | 88.4/68.8                 |
| Total  | 0.8/3.2                   | 0.8/3.5                   | 3.1/6.5                  | 8.2/24.2                  | 87.1/62.6                 |

### Results

Questionnaires alumni past FSC with using the interactive application "Academix 3D" indicate that that the majority approved the use of virtual systems V quality appraisal facilities on FSC, her the use was comfortable and quiet despite on weekly term, allotted \_ on acquaintance with system, V most this time was sufficient. Most of the graduates of both faculties highly appreciated the educational potential virtual methodologies and agreed with statement, What They are "excellent replacement traditional method in medical education, excellent complement practical classes. Only acquiring knowledge and skills V virtual environment Can proceed to learning on patient at bed sick."



Except this, comments V arbitrary form, left by graduates at the end of the questionnaire at will, also indicate a high degree of satisfaction lethargy using interactive app "Academix3D" in educational process and FSC. Answers pleased a lot of positive feedback and valuable constructive suggestions, which indicates a great interest V further her use for improvements quality learning students. According to the subjective feedback of graduates and teachers, both reflected in arbitrary comments and in the subsequent oral discussions, conducting exams with help interactive application "Academix 3D" significantly reduces the time for assessing graduates And does procedure standard And objective. Overall high alumni satisfaction rates demonstrate, what interactive application "Academix3D" can be considered as one of the elements educational process and evaluation tool for FSC alumni medical universities.

#### Conclusions

1. Interactive application "Academix3D" can be recommended as a training allowances, complementary traditional didactic methods V medical education
2. The interactive app "Academix3D" can be used as a evaluation tool for the FSC, as well as for conducting other formative and summative student assessments (91.1% alumni high appreciated her application — scores 4 and 5). Before using in exams should provide graduates possibility of independent preparatory study
3. Teachers And Graduates consider, What conducting exams with the interactive application "Academix3D" reduces time evaluation students And does procedure standard And more objective, however given opinion is a subjective judgment and requires further study.

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