

# *The Use of Applications in Preparing Face-to-Face Examination Materials For Distance Learning System of Universitas Terbuka*

Irla Yulia<sup>1</sup>, Timbul Pardede<sup>2</sup>, Eko Kuswanti<sup>3</sup>, Mutiara Magta<sup>4</sup>, Susi Sulistiana<sup>5</sup>, Faridah Iriani<sup>6</sup>, Suryo Prabowo<sup>7</sup>, Tri Wahyuningsih<sup>8</sup>, Imam Muiz<sup>9</sup>

<sup>1</sup>Communication Science Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

irla@ecampus.ut.ac.id

<sup>2</sup>Statistics Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

timbul@ecampus.ut.ac.id

<sup>3</sup>Primary School Teacher Education Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

kuswanti@ecampus.ut.ac.id

<sup>4</sup>Early Childhood Education Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

mutiara@ecampus.ut.ac.id

<sup>5</sup>Biology Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

susi@ecampus.ut.ac.id

<sup>6</sup>Management Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

iriani@ecampus.ut.ac.id

<sup>7</sup>Educational Technology Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

sprabowo@ecampus.ut.ac.id

<sup>8</sup>Biology Education Study Programme

Indonesia Open University (UT)

Jakarta, Indonesia

tri@ecampus.ut.ac.id

<sup>9</sup>Test Processing Center

Indonesia Open University (UT)

Jakarta, Indonesia

muiz@ecampus.ut.ac.id

**Abstract**— Massively developing technology makes changes in various fields, one of which is the field of education. One form of technology that is developing very quickly is the internet. The presence of the internet in the era of the industrial revolution 4.0 makes it easier for us to communicate without being limited by space and time. The Covid-19 pandemic that has hit the world in recent years has brought its wisdom to the Indonesia Open University as a university characterized by a distance learning system. When all universities with face-to-face learning systems are forced to change their learning systems to online learning systems, the Indonesia Open University does not have these concerns. Although implementing a distance learning system, the Indonesia Open University also conducts learning evaluations on students to measure students' self-learning abilities so that quality students are produced. One form of learning evaluation implemented at the Indonesia Open University is the face-to-face examination scheme (UTM). In preparing face-to-face examination materials, the Indonesia Open University is assisted by the Examination Center, which is responsible for preparing examination materials for the process of conducting examinations. The examination Center also ensures that face-to-face exam materials are well-prepared and confidential. In the preparation of face-to-face exam materials, the Examination Center also uses applications that can assist the team in compiling questions available in the data bank. This research aims to find out how universities with distance learning systems prepare face-to-face examination materials as a form of student learning evaluation at the Indonesia Open University. This research method is a descriptive qualitative research method with a field observation data collection system and in-depth interviews. The interview was conducted with one of the informants who became the application development information technology team at the Examination Center. The results showed that the Examination Center has been utilizing information technology systems in designing the preparation of face-to-face examination materials that will be tested on students at the Indonesia Open University for a long time. The Examination Center continues to develop the application according to existing needs. The applications used in the preparation of face-to-face exam materials are the data bank application and the SPBU (Exam Material Preparation System) application. Both are applications designed by the Information Technology Team of the Examination Center in preparing learning evaluations with face-to-face examination schemes.

**Keywords**— applications, distance learning system, face-to-face examination.

## I. INTRODUCTION

The era of industrial revolution 5.0 has arrived, bringing with it a society that is heavily reliant on advanced technological support. Consequently, collaboration between humans and technology is an inevitability in the future. Coined by Japan, the term 'industrial revolution' signifies the progress of technology-based civilization. Presently, Indonesia remains in the era of the 4.0 revolution, marked by the integration of the intelligent system into industries through technologies such as machine learning and artificial intelligence. This trend has led to the interconnection of industry players without direct human involvement, facilitating rapid growth in the digital sector.

In the era of Industrial Revolution 5.0, education plays a pivotal role in enhancing the quality of human resources. To address the challenges posed by the Industrial Revolution 4.0 and Society 5.0, human resources must acquire skills like creativity, critical thinking, communication, and collaboration (Laila & Hendriyanto, 2021). The competence of educators significantly influences the quality of education imparted to students (Cahyani, n.d.). The journey toward improved quality can commence by embracing the swift evolution of technology, enabling students to meet their learning objectives. Educational assessment and evaluation serve as foundational elements in offering information and ensuring the quality of education (Yusuf, 2017).

Assessment in education encompasses evaluating inputs, processes, products, programs, and learning outcomes, alongside testing knowledge and understanding. Tests and non-tests methods represent two categories of assessment instruments closely tied

to measuring knowledge or skills. Tests ascertain learning abilities, enhance engagement, motivate students, evaluate comprehension, and assess material understanding (Yusuf, 2017; Ghufroon & Sutama, 2011). A significant example of testing is the final semester exam (UAS) implemented in schools and colleges, aimed at gauging students' understanding, boosting motivation, evaluating educator performance, and providing material feedback (Arifin, 2020).

As a pioneer of the distance learning system, Indonesia Open University conducts end-of-semester exams to assess student learning. The Examination Center, a dedicated unit, oversees the exam process, spanning material preparation, printing, and result processing. Given the distinctive nature of distance learning and its departure from traditional face-to-face instruction, effective student assessment strategies pose a challenge for Indonesia Open University.

Presently, Indonesia Open University employs three end-of-semester exam schemes: face-to-face exams (UTM), online exams, and take-home exams (THE). In 2022/2023 even semester, 2,276,727 student identification numbers (NIM MK) undertook the final semester exam, comprising 1,077,296 NIM MK for UTM, 506,284 NIM MK for online exams, and 693,147 NIM MK for THE. UTM continues due to uneven internet distribution across Indonesia, a prerequisite for online exams. Additionally, Indonesia Open University extends its reach to the 3T region (underdeveloped, frontier, and outermost), favoring face-to-face exams.

Substantial participation in UTM necessitates meticulous quality-focused preparation. The Face-to-Face Exam (UTM) serves as culminating exam format for Indonesia Open University students, conducted face-to-face in various Indonesian cities. Students attend predetermined exam locations, undertaking manual exams (with test paper and answer sheets) under exam supervisors' guidance.

The process of preparing exam materials and executing exams across diverse Indonesian regions and abroad involves structured procedures, culminating in the preparation of a ready-to-duplicate master script. Leveraging information systems and technology, the Examination Center oversees the entire process. Thus, this research seeks to outline the Examination Center's utilization of application-based technology in preparing master scripts for face-to-face exams (UTM) at Indonesia Open University.

## **II. METHOD**

This research employs a descriptive qualitative approach guided by a constructivist perspective. Qualitative methodologies offer insight into human behavior and cognition through observation, interviews, and document analysis (Michael Quinn Patton, 2015). They prove useful for evaluation, problem-solving, decision-making, action research, and policy analysis in organizations, communities, and international development. Lindloff and Taylor (2022) underscore that qualitative research aims to analyze the form, content, and experiences of existing social actions, rather than translating them into formal or mathematical constructs. Consequently, language and gesture serve as raw materials underpinning analysis (Lindloff, 2022).

Data collection techniques encompass in-depth interviews, observations, and literature reviews about assessment and examination materials. Data are categorized as primary (interviews, observations) and secondary (literature studies). Primary data encompasses in-depth interviews with a single informant involved in the team designing the exam material application, coupled with observation data gathered by researchers during site observations. Secondary data comprises information gleaned from literature reviews.

## **III. FINDING**

The utilization of technology and information in preparing the UTM scheme has been in practice for a significant duration. The preparation of the UTM master script involves the use of two applications: the question bank application and the Exam Material Preparation System (SPBU) application. The question bank application itself has been in development since 2002, albeit in a simple form. This application's evolution continued until 2010 when it transitioned into a desktop application known as Power Builder.

To adapt to changing times and the evolving needs of the master script preparation process, the Information and Technology (IT) Team of the Examination Center took on the task of developing the application. Originally initiated by the Directorate of Information Systems (DSI) Team, the key application in the UTM exam script preparation process is the question bank application. This application serves as a repository for question item documents, storing raw data derived from question grids. A

single course can comprise 1 to 10 sets of digital question bank archives. A single course can comprise 1 to 10 sets of digital question bank archives. The documents undergo validation by instructors to ensure the validity of the question items. Valid question items are assembled to create a draft master script. The interface of the question bank application is depicted in Figure 1 below.



Fig. 1 Question Bank Application Display

In addition to the question bank application, the Exam Material Preparation System (SPBU) application is also in place. Designed as a specialized tool for managing the preparation of master scripts, this application was similarly developed to meet specific needs. The appearance of the SPBU is demonstrated in Figure 2 below.



Fig. 2. Exam Material Preparation System (SPBU) Application Display

The process of preparing examination materials in the UTM scheme commences with the faculty's verification of grids and question cards, overseen by academic staff at the Examination Center. Once verified, these grids and question cards are entered into the question bank application. The initial entry involves inputting the subject matter book (BMP) name module title, learning activities, and special instructional review (TIK) into the grid keyin menu, as illustrated in Figure 3.

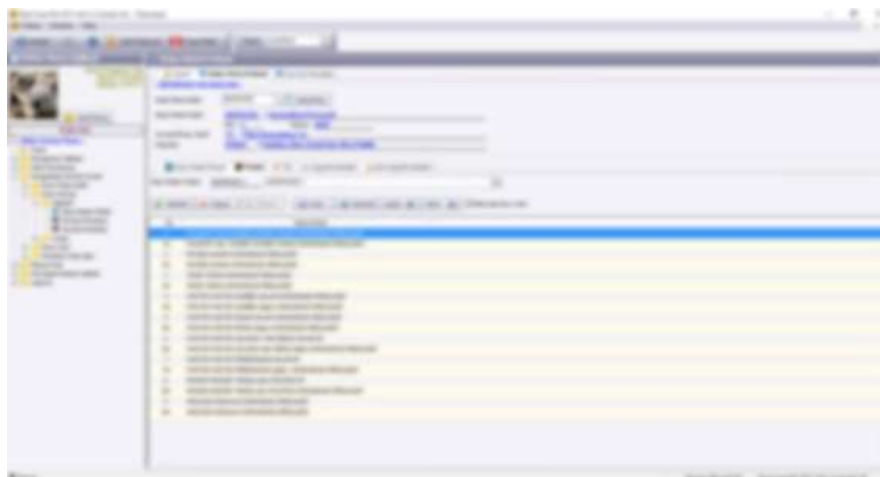


Fig. 3. Grid Keyin Menu Display

The subsequent step involves mapping each grid item number to BMPs, modules, learning activities, and TIK. This mapping serves as a reference for assembling the question paper, as depicted in Figure 4 below.

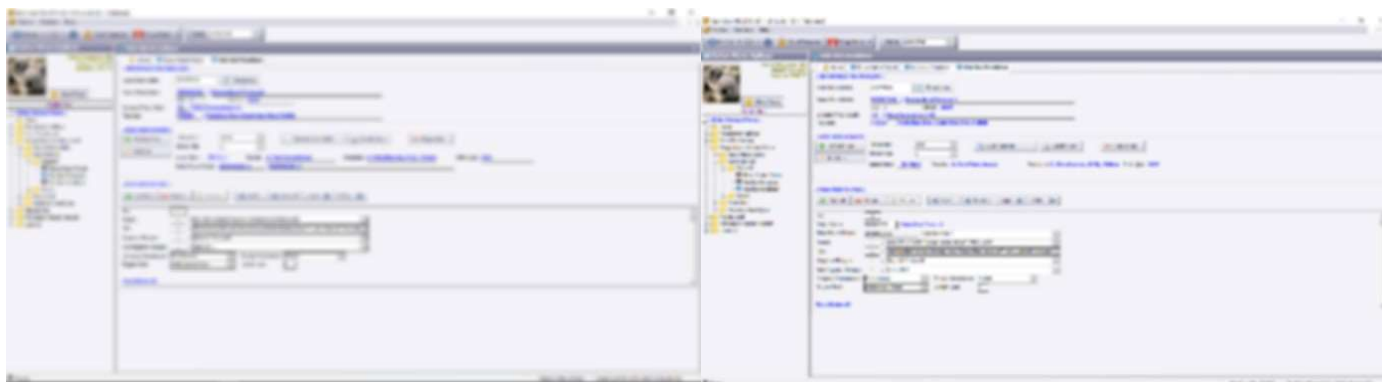


Fig. 4. Display of Filling Out The Exam Question Grid

After this step, information is entered on the question card, including the course name, question identity number (NIS), and question content correlated with BMPs, modules, learning activities, and TIK. Following this, the course instructor validates the items. This validation process, shown in Figure 5, enables the course instructor to double-check the appropriateness of grids and question items entered into the question bank application.

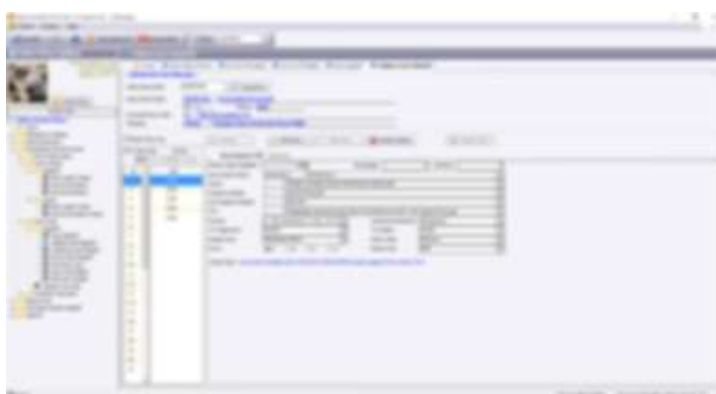


Fig. 5. Exam Question Validation Display

Subsequently, the IT staff at the Examination Center assembles the validated master script, as overseen by the guardian (Figure 6).

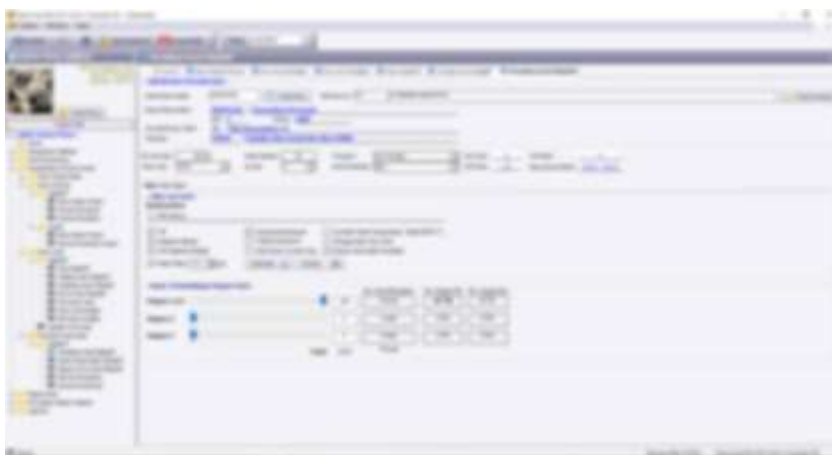


Fig. 6. Exam Question Assembly Display

Each semester, the Examination Center prepares two sets of the master script through the assembly process. Following these stages, the IT team moves the exam script master to the SPBU application, facilitating the refinement of layouts before the master script's printing.

Upon completion of the process, the course instructor finalizes the master script offline. If any issues arise during finalization, such as typographical errors or incorrect answer keys, the IT team addresses these concerns, and the script is reprinted. However, if no issues arise during the finalization process, the academic staff at The Examination Center manually reviews the master script of exam questions. This review process is conducted at The Examination Center, and the results are entered into the SPBU application (Figure 7).



Fig. 7. The Exam Script Master Check Activity in SPBU Application Display

In the final stage, following these comprehensive processes and the validation of exam master scripts across faculties, the finalized master scripts undergo duplication. The complete sequence of preparing exam materials under the face-to-face exam scheme is outlined in Figure 8.



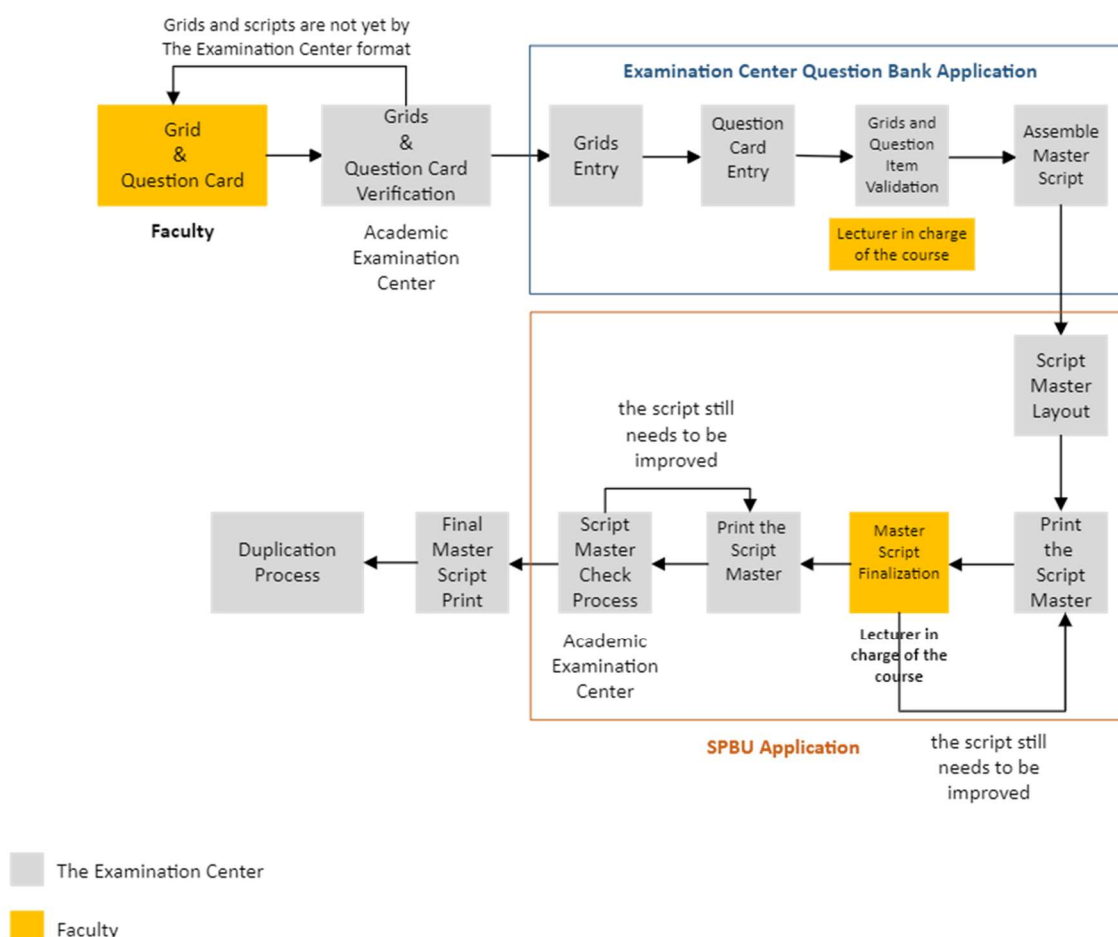


Fig. 8. Schematic Process for Preparing Face-to-Face Exam Materials (UTM)

#### IV. DISCUSSION AND CONCLUSION

The meticulous stages of preparing face-to-face exam scripts at Indonesia Open University's Examination Center highlight the center's commitment to ensuring the precision of the exam script preparation for students. Moreover, maintaining the confidentiality of grids and test items remains pivotal in the UTM script preparation process.

With the application's development since 2022, the Examination Center can offer diverse exam scripts each semester. Even within a single semester, the center can provide varying sets of scripts, contingent upon a minimum of six sets of question papers per course. The application's role in achieving this is pivotal. These outcomes align with the assertions of Purohit, et al (2012), emphasizing the need for an adaptive question bank management system within the current education system. Such a system facilitates the creation of standardized tests to assess students based on their curriculum (Purohit et al., n.d.).

The question bank, serving as a repository of identified questions, enables the selection of questions for the tests based on specific criteria. This resource holds the potential for sharing and reuse in formative or summative assessments. Although creating questions can be time-consuming, the question bank application streamlines this process (Bull, 2004). Consequently, the Examination Center at Indonesia Open University employs two applications to simplify staff tasks and ensure the generation of high-quality exam questions. Ultimately, the integration of technology serves as a solution for managing exam questions, allowing for measurement of student achievements. Given the substantial student population of 439.222 (Tanpa Nama, 2023), technology's significance in supporting the preparation of face-to-face exam materials is evident.

Despite being a cyber university, Indonesia Open University effectively leverages technology in the face-to-face exam script preparation process, optimizing its utility for a more accessible education system.

## REFERENCES

- [1]. Arifin, Z. dan R. S. (2020). *Evaluasi Hasil Belajar* (1st ed.). Universitas Terbuka. <https://pustaka.ut.ac.id/reader/index.php?subfolder=TPEN4408/&doc=DAFIS.pdf>
- [2]. Bull, J. D. J. (2004). *Reusing Online Resources A Sustainable Approach to e-learning : Assessing Question Banks* (A. Littlejohn, Ed.; pp. 171–181). Kogan Page Limited.
- [3]. Cahyani, W. I. (n.d.). *Pengembangan Kualifikasi Mengajar Pendidik Guna Meningkatkan Mutu Pendidikan*. Jurusan Administrasi Pendidikan Fakultas Ilmu Pendidikan Universitas Negeri Malang. Retrieved August 14, 2023, from <http://ap.fip.um.ac.id/wp-content/uploads/2020/03/Widi-Ika-Cahyani.pdf>
- [4]. Ghufroon, A., & Utama. (2011). *Evaluasi Pembelajaran Matematika* (S. Nurhayati, Ed.; 1st ed.). Universitas Terbuka.
- [5]. Laila, K., & Hendriyanto. (2021, February 3). *Menyiapkan Pendidik Profesional di Era Society 5.0*. Direktorat Sekolah Dasar Kementerian Pendidikan, Kebudayaan, Riset, Dan Teknologi. <https://ditpsd.kemdikbud.go.id/artikel/detail/menyiapkan-pendidik-profesional-di-era-society-50>
- [6]. Lindlof, T. R., & Taylor, B. C. (2022). *Qualitative Communication Research Methods* (M. H. Seawell, Ed.; Second). Sage Publication Inc.
- [7]. Michael Quinn Patton. (2015). *Qualitative Research & Evaluation Methods Fourth Edition* (Fourth). Sage Publication Inc.
- [8]. Purohit, V. K., Kumar, A., Jabeen, A., Srivastava, S., Goudar, R., Shivanagowda, & Rao, S. (n.d.). *2012 2nd IEEE International Conference on Parallel Distributed and Grid Computing (PDGC) : December 6-8, 2012, Jaypee University of Information Technology, Waknaghat, Solan-173234, Himachal Pradesh, India*.
- [9]. Tanpa Nama. (2023, April 29). *UT Dalam Angka*. Ut.Ac.Id. <https://www.ut.ac.id/ut-dalam-angka>
- [10]. Yusuf, A. M. (2017). *Asesmen dan Evaluasi Pendidikan* (Ria, Ed.; 2nd ed.). Kencana.