Case-Based Learning (Panorama) and Improving the Quality of e-Services for University Students

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Case-Based Learning (Panorama) and Improving the Quality of e-Services for University Students

Abstract:

The current research aims to reveal the effect of case-based learning, the Panorama style, on improving the quality of electronic services among university students. The research sample consisted of (60) male and female students from the university, South Valley University. The research used the descriptive analytical approach in analyzing the literature, studies and previous research with the aim of describing the research problem, preparing the theoretical framework for the research, and determining the skills that must be developed for students to improve the quality of electronic services. The experimental approach was used in the evaluation phase, as the research tools consisted of the achievement test to measure the cognitive aspect and the observation card to measure the performance aspect, by applying the research tools before and after on the students. The model of Muhammad Attia Khamis was used in designing the learning environment, and the experimental treatment materials were represented in designing an electronic learning environment based on the Panorama case pattern. The research results showed a statistically significant difference between the average scores of students in the experimental group and the control group in the achievement test and the observation card in favor of the experimental group, which studied using an electronic learning environment based on the Panorama case pattern to improve the quality of electronic services.

Keywords: Case-based learning - Panorama model - E-services - E-services - E-learning environment - University students.

Introduction:

The university's contribution to education over the years, and its important role in the educational system, is evident in the conceptual growth of the field, its numerous contributions to education and training programs, and its efforts to raise educational, practical, and living standards with high quality. It is also noted that all institutions and organizations have shifted to work with the integration of technology, due to its ease of use and the advantages it provides that elevate services to the highest levels. Therefore, it is incumbent upon government institutions in general, and educational institutions in particular, to ensure that all their members are motivated to learn technology and believe in the services it provides, to facilitate all educational processes and keep pace with rapid developments.

Case-based learning is A constructivist learning approach, it encourages active learner participation through the learner's construction of their own learning and the use of a set of higher-order thinking skills such as analysis, synthesis, and evaluation. Learners collect, study, and analyze information about real-world situations, ranging from abstract knowledge to practical applications (Srisawasdi, 2012).

The case-based learning method is supported by the constructivist learning theory, given that it relies on building knowledge through the analysis of the cases

used. The theory also supports it. Social, because it relies on interaction between students to make decisions and collect information. It also indicates (Kulak & Newton, 2014) Case-based learning is primarily based on the hypothesis of cooperative learning, where the teacher's role is to facilitate the learners in building their knowledge, directing them to participate actively away from passivity, and helping them in examining cases.

Case-based learning (CBL) is a current method used in various educational fields to bridge the gap between theory and practice. It is a well established approach used across different disciplines, where learners apply their knowledge to real-world scenarios, promoting higher levels of understanding such as analysis, synthesis, and evaluation, and may even reach innovation, as in the modern model of Bloom's Taxonomy .

The case-based learning method relies on presenting real cases or problems to students to study, analyze, and discuss, and thus learning is gradual. The case-based learning method is distinguished by its reliance on building learning for the learner through employing a set of thinking skills. The High Such as analysis, evaluation and innovation, through the employment of several strategies. Educational, such as: generating questions, discussions, feedback, and ,educational support, through which information about the case is collected studied, and analyzed (Lee, et al, 2009).

The source case Case-based learning is a core concept of learning that involves stories that resemble real-life situations and contain a challenging problem to solve. It provides a clear context and a central character, includes sufficient detail to draw interpretations and conclusions, and allows learners to view the situation from multiple perspectives (Saltan, Özden & Kiraz, 2016).

(Heinrichs, 2002) identified four procedural stages for processing case studies: It includes: formulating and generating hypotheses to determine the cause of the problem, collecting supporting data and information, conducting a self-study, and then testing the hypotheses and combining the answers to reach a comprehensive conclusion.

Case-based e-learning is defined as an approach to delivering educational courses in which learners are provided with real-life cases or examples using modern technologies . It is also defined as an active learning strategy in which learners apply their knowledge and analytical skills to real-life educational scenarios that are closely related to the educational content that the learner is studying. (Giacalone, 2016)

He knows it (Dow, et al, 2016) It is a form of education in which scenarios developed with good storytelling, interesting characters, controversial topics, and dilemmas are presented to learners, in order to encourage them to participate in conversations and discussions about the case or cases, from their multiple perspectives. It is also a useful strategy in developing and preparing leaders, in which the case is presented to learners in the form of a story containing errors that the learner discovers, and attempts to suggest solutions for them. It may also contain ambiguous matters, and at the same time it contains a set of details

that are provided to learners to facilitate analysis and study of the case and to provide supportive information for the learner By searching, watching videos, and educational presentations that serve as supports Educational to facilitate knowledge construction, case-based learning can be combined with traditional lectures or with other strategies. (Kulak & Newton, 2014)

There are several types of case-based learning, such as the direct case method, the panorama method, and the discontinuous case method, which differ from each other in the way cases are presented and in the degree of instructor involvement and student autonomy. However, all of them do not require a large investment of resources, as there may be no need for a group facilitator or trainer to guide small group discussions, and cases can be integrated into lectures for a range of class sizes. All of them are also suitable for use in higher education at all levels, provided the complexity of the case is appropriate to the students' knowledge base and the subject matter being taught. (Kulak & Newton, 2014)

One type of case study is the "guided" type, which has a highly structured design. Students are taught using lectures and other supporting materials (such as figures, tables, videos, etc) and group work is also involved . The questions that accompany the case presentation are specific, closed-ended, and supporting materials can be presented along with them. .The instructor facilitates discussion of the overall conclusion (final solution) of the case.This type of CBL allows the instructor to set time limits and monitor the construction of information to prevent learners from straying from the main topic. Another type of CBL is the "panoram type, in which learners form groups and become experts on a single" question. The expert groups are then dissolved, and new groups are formed with one expert member for each question. The final solution to the case results from the integration of each expert's contributions. (Kulak & Newton, 2014)

Hence, the research seeks to achieve the following general objective: measuring the impact of using case-based e-learning using the Panorama format on improving the quality of electronic services among university students. This is achieved through the following sub-objectives:

1. Measuring the impact of case-based e-learning using the Panorama format on developing the cognitive aspect of skills to improve electronic services provided to university students.
2. Measuring the impact of case-based e-learning using the Panorama format on developing the performance aspect of skills to improve electronic services provided to university students.

The importance of this research stems from its field-based approach to applying a modern strategy—case-based e-learning using the Panorama model—in an Arab university environment, to measure its impact on improving the quality of e-services. Its importance lies in the following:

1. Contributing to improving the quality of e-services provided at South Valley University.
2. Raising students' digital proficiency and developing their technological skills to keep pace with rapid changes, thus achieving quality university education.

3. Keeping pace with modern educational trends that focus on active, student-centered learning.
4. Supporting higher education institutions' efforts to adopt e-learning environments based on real-life situations to develop critical thinking and build lifelong learners.
5. Enriching Arab educational research in the field of designing and implementing case-based learning environments, particularly using the Panorama model, and presenting an applied model that can be replicated in similar educational contexts.

The Research problem:

Recent years have witnessed rapid developments in the field of e-learning. The need for effective university e-services has increased, especially in light of emergency crises such as the COVID-19 pandemic. This pandemic has exposed the lack of prior preparedness among educational institutions and led to the emergence of multiple challenges facing students in using e-services. Through the researcher's personal observation of the reality of students at South Valley University, recurring complaints emerged regarding difficulties interacting with university e-services portals. These complaints stem from a lack of necessary skills, a low level of interaction, and students' poor technical and pedagogical preparation.

In light of the above, it has become necessary to search for modern educational methods that address this gap. Case-based learning is one such method, due to its effectiveness in developing applied skills and enhancing interaction with realistic educational situations. The researcher conducted a survey study on a sample of university students using a questionnaire, which was administered to 30 male and female university students from the 2024/2025 academic year. The aim was to identify the most common problems they faced in interacting with the university's electronic services. They were presented with a set of dimensions and axes related to defining the research problem: the first dimension, which represented (the importance of case-based e-learning), the second dimension (identifying the patterns of case-based e-learning), and the third dimension (the skills university students need to improve the quality of electronic services provided to students). The results of the study indicated that:

- 92% of students face difficulties with electronic services.
- 84% of students expressed awareness of the importance of case-based learning.
- 76% of students showed a positive attitude toward learning about its various forms.

Personal interviews with a number of students revealed limited knowledge of case-based learning, particularly its various forms, including the "panorama mode." Previous studies and research recommendations have emphasized the importance of employing this mode, given its role in achieving higher levels of knowledge and enhancing realistic interaction with educational situations.

Hence, the research problem was identified as the inadequacy of the

quality of university e-services provided to students and their weak skills in interacting with them. This necessitated the design of a case-based e-learning environment using the panorama mode, to examine its effectiveness in improving the quality of these services for university students.

A literature review

A. Regarding Case-Based E-Learning:

Several studies have concluded that case-based learning has a significant impact on achieving various learning outcomes in different academic courses. These studies recommended the development of educational programs and activities based on case-based learning. Among these studies are those by: (Nashwa Rifaat, 2019; Nevine Mansour, Anhar Ali, 2017; Baeten et al., 2013; Adri, Timothy & Biggie, 2017; Taghreed Ayash Al-Habahbeh, 2011; Van et al., 2006). All of these studies emphasized encouraging the use of case-based learning in educational processes, and called upon educators to pay attention to designing e-learning environments that align with learners' cognitive styles. Hanan Al-Shaer (2012) stressed the importance of designing case-based learning in an electronic format and selecting the most effective technological media for its delivery, while also studying the variables involved in designing such environments and comparing their different formats. The study by Sursock, Smidt, & Davies (2010) recommended that college instructors design constructivist learning environments that allow learners to become active knowledge builders so they can become lifelong learners.

Furthermore, the following studies: (Perin, 2011; Fardilha et al., 2010; Dowden, 2007; Rybarczyk, Baines, McVey, Thompson, & Wilkins, 2007; Davies, 2004) indicated that case-based learning facilitates the development of higher-order cognitive skills in Bloom's taxonomy—such as application, analysis, synthesis, and evaluation—more effectively than lectures alone. It also helps engage learners more actively in real-world situations and allows them to experience typical decision-making roles in professional environments.

Research questions

In light of the above, the main research question was identified as follows:

What is the impact of using a case-based e-learning environment using the Panorama model in improving the quality of e-services for university students?

The following sub-questions branch from the previous main question:

1) What are the tasks required to improve the quality of e-services for university students?

2) What criteria should be considered when designing a case-based e-learning environment using the Panorama model to improve the e-services provided to university students?

3) What is the educational design of a case-based e-learning environment using the Panorama model to improve the e-services provided to university students?

Research objectives:

Independent Variable: A case-based e-learning environment (Panorama).

Dependent Variable: E-services at South Valley University.

Research Methodology:

The current research relied on two research methods:

1. The descriptive method: This method was used to review previous studies, research, and literature that addressed the current research variables (case-based e-learning "Panorama", e-services at universities).
2. The experimental method: This method was used to investigate the impact of using case-based e-learning (Panorama) on improving the quality of e-services for university students.

Research Design:

The research will rely on a quasi-experimental design, known as a factorial design. This is a type of experiment in which the researcher can determine the effect of studying two or more independent variables individually and the interaction between them. The following table shows the experimental groups for the research:

Table 1: Experimental groups for the research

Group	Pre-Test	Experimental Treatment	Post-Test
Control Group	Cognitive Test ● Performance Observation Checklist	E-Learning Environment	● Cognitive Test ● Performance Observation Checklist
Experimental Group	Cognitive Test ● Performance Observation Checklist	E-Learning Environment Based on Case-Based Panorama Model	● Post Cognitive Test ● Performance Observation Checklist

Research Hypotheses:

The current research seeks to verify the following hypotheses:

1. There is a statistically significant difference at the level of (≤0.05) between the mean scores of students in the experimental group and the control group in the pre- and post-applications of the cognitive test for the tasks of improving the quality of electronic services, in favor of the post-application.
2. There is a statistically significant difference at the level of (≤0.05) between the mean scores of students in the experimental group and the control group in the pre- and post-applications of the performance observation card for the tasks of improving the quality of electronic services, in favor of the post-application.

Research Tools:

The tools used to answer the research questions are as follows:

First: Data Collection Tools:

A list of skills necessary to improve the quality of e-services was identified through:

1- A questionnaire to identify the university e-services needed by educational technology students.

2- A questionnaire to assess the needs and aspirations of educational technology students regarding university e-services from the perspective of those responsible for university e-services.

Second: Experimental Treatment Material:

The experimental treatment material consisted of designing an e-learning environment based on case-based learning using the Panorama model. It included training content organized into six sequential educational units, covering the skills and knowledge necessary to improve the quality of university e-services for students.

The treatment was implemented over four weeks, with one and a half units per week. Each unit included a set of interactive activities and educational situations designed according to the principle of case-based learning. Twelve real-life cases were presented, derived from real-life problems faced by university students in using e-services. Students were divided into expert groups to discuss and analyze these cases and propose practical solutions, based on acquired knowledge and personal experience. Multimedia elements and active interaction were employed, including explanatory texts, interactive videos, and participatory activities via forums and quizzes. The learning environment was designed using digital tools that facilitate case presentations and student interaction monitoring.

Third: Measurement Tools:

1. A test to measure the specific cognitive aspect associated with e-service quality improvement tasks.
2. An observation card to measure the performance aspect associated with e-service quality improvement tasks.

Research Limitations:

The research was limited to the following:

1. **Human Limitations:** 60 students from Specific Education, third year.
2. **Objective Limitations:** The research will cover tasks to improve the quality of electronic services provided to students through the university's website, which will be taught to university students using the case-based e-learning model "Panorama."
3. **Spatial Limitations:** The research experiment will be conducted in the locations where learners reside, with the assistance of the university's student laboratories, South Valley University, for those who lack internet access or computers.
4. **Temporal Limitations:** The second semester of the 2024/2025 academic year.

Search steps:

First - The theoretical aspect

Conducting an analytical study of previous studies, scientific literature, and research related to the research variables; case-based e-learning, panorama model . This aims to develop the theoretical framework for the research, use it to guide the .research, and discuss and interpret its results

Second: The practical aspect:

1. Determining the tasks necessary to improve the quality of electronic services.for university students, South Valley University.
2. Present the list to the judges and prepare the final form of the skills list.
3. Preparing research tools, including.

- ❖ Preparing a test to measure the cognitive aspect of electronic services.
- ❖ Prepare a note card.

4. Present the research tools to the referees and prepare their final form.
5. Conduct a pilot study.
6. Selecting a random sample of university students to conduct the survey experiment.
7. Make necessary adjustments to the learning environment.
8. procedural processing of research.
9. Discussion and interpretation of results.
10. Providing recommendations and proposed research.

Research Terms

In light of the researcher's familiarity with the definitions contained in numerous previous literature and research related to the research, and taking into account the nature of the independent and dependent research variables, the training environment, and the research sample, the research terms were defined as follows:

Case:

Procedurally, it refers to a concrete problem, observable and narrative, that needs to be solved using one of the possible modern methods. Cases in case-based learning are an educational medium.

Case-based Learning:

Procedurally, it refers to a method that focuses on collaborative and discussion activities to solve problems and improve communication skills. This is achieved by working within small groups of students, gathering information, defining concepts, making informed assessments, conducting group discussions, making trade-offs with others, and presenting hypotheses to determine the best solutions to a problem.

Panorama Case-Based Learning

Procedurally, it refers to a type of case-based learning that allows actions, interactions, and discussions to take place within groups, with a facilitator or trainer assigned to each group of students.

Quality of university e-services:

This refers, in practical terms, to the performance level required for the beneficiary (university student) of the services provided by the university's website.

The theoretical framework of the research:

First: The Concept of "Case-Based Learning"

By examining the various definitions of case-based learning in various studies and literature, such as the studies of: (Foran, 2001; Lee, et al., 2009; Biggs & Tang, 2011; Burgess A et al., 2021; Van, et al., 2006; Adry, Timothy, & Peggy, 2017; Nashwa Refaat Mohamed, 2019; Nevin Mansour, Anhar Ali, 2017; Srisawasdi, 2012; Kulak & Newton, 2014; Williams, B., 2018; Giacalone, 2016; (Dow, M et al., 2016). The researcher finds that case-based e-learning encompasses several concepts, as illustrated by the following:

Case-based e-learning is an innovative educational approach that combines the power of case-based learning with the flexibility of e-learning. This approach

relies on the use of real-life or hypothetical cases and scenarios to deliver educational content, allowing learners to apply knowledge and skills in practical contexts. It is an effective educational approach that combines theory and practice, helping to enhance learning and develop skills in a variety of fields in a world witnessing rapid technological advancements and constantly changing labor market needs.

Through examining research and literature on case-based e-learning, the researcher finds that case-based e-learning encompasses several concepts, including:

The concept of a case: A case or cases are problems for which students develop solutions under the supervision of a teacher/facilitator. Case studies encourage students to use critical thinking skills to define and narrow the problem, develop and evaluate alternatives, and propose solutions.

Characteristics of case-based e-learning:

Case-based e-learning environments are characterized by a number of characteristics, as evidenced by research and literature that mentioned case-based e-learning, such as the study of: (Kjærulff, 2008); (Lee et al., 2009; Hanan Mohammed Mohammed (2012); (Kulak & Newton, 2014); (Fatih Saltan, 2017); (Williams, B., 2018); Nashwa Refaat Mohammed (2019); (Burgess A et al., 2021); (Donkin, R., Yule, H. & Fyfe, 2023). It can be summarized as follows:

1. Participation: Engaging the learner in open-ended thinking and using higher-order thinking skills.
2. Autonomy: Encourages self-reliance in decision-making.
3. Collaboration: Encouraging learners to research, collaborate, and work collaboratively to arrive at an explanation of a situation or solve a problem. It encourages collaborative learning among students.
4. Interaction: Interaction is one of the most important features of case-based learning.
5. Dialogue: Dialogue and discussion processes where students can formulate their opinions and discuss them with their peers.
6. Motivation: Helps increase motivation. The realism of the case provides students with enhanced learning and increases their interest in learning.
7. Integration: Case-based learning integrates knowledge, skills, and application.
8. Diversity: Employs multiple learning strategies, such as question generation, discussion, feedback, and learning supports.
9. Analysis: Provides opportunities to analyze case dilemmas from different perspectives.
10. Application: Encourages students to gather and apply information to solve problems.

Objectives of Case-Based E-Learning

(Donkin, R., Yule, H. & Fyfe,2023) identified several objectives for case-based e-learning environments, including:

1. Improving knowledge retention and increasing critical thinking.

2. Improving collaboration among colleagues.
3. Increasing opportunities for interaction between faculty and students.
4. Increasing student engagement with their peers and motivating them to learn.

Case-based e-learning aims to achieve a number of goals, such as capturing students' attention, arousing their curiosity, and engaging in learning by presenting cases that challenge their abilities and activate their prior knowledge. It also aims to connect what they learn with real-life experiences by presenting real-life cases that help them connect theory to actual practice, develop students' decision-making abilities, and enhance their higher-order thinking and analytical skills (Williams, 2018).

By reviewing previous studies, some of the objectives of case-based e-learning can be identified as follows:

- Helping to bridge the gap between theory and practice.
- Providing a real-life experience where students apply their knowledge to real-world scenarios.
- Helping learners apply previously learned concepts and principles.
- Providing opportunities for collaborative learning by facilitating active learning and reflection.
- Enhancing higher levels of cognition such as analysis, synthesis, evaluation, and innovation.
- Developing students' research and collaborative skills to solve new and complex problems.

The Importance of Case-Based E-Learning:

(Kulak, Newton, & Sharma, 2017) indicated that case-based learning offers many educational benefits to students, such as:

- Students' intrinsic motivation to learn
- Developing critical thinking skills
- Knowledge retention
- Encouraging self-assessment
- Effective collaborative interactions

Weil & McGuire (2011) emphasized that the use of case-based learning helps students become self-reliant in learning and allows them to practice their skills in dealing with peers, communication, analysis, criticism, and information extraction. The results of their study also confirmed that the use of discussions is the foundation of case-based learning, particularly synchronous and asynchronous online discussions, and called for research on the relationship between discussion type and the success of case-based learning. also, Butler et al. highlighted the importance of case-based learning (CBL) in helping students develop higher-order thinking and reasoning skills through reading and discussing complex real-life scenarios. (Butler, Lee, & Tippins, 2006)

Case-Based Learning Styles:

Saltan Özden & Kiraz (2016) indicate that a good case study must have a meaningful narrative context that connects learners to real-life situations and allows them to view the situation from multiple perspectives. Also Kulak &

Newton (2014) and Cam & Geban (2017) add a set of factors that contribute to the success of a case study:

1. Providing learners with the opportunity to obtain, integrate, and apply information on their own.
2. Using real-life situations during the case study helps engage learners, engage them in sharing their ideas and knowledge with their peers, and engage them in the learning process.
3. Cases should include content-based evidence and written and non-written descriptions that reflect real-life scenarios. These descriptions should be presented in one or two paragraphs with engaging context.
4. Cases should be brief and clear, provide sufficient information, and avoid information that might confuse learners. Cases often contain preliminary information, very specific guidelines, and questions to be presented to learners.

Cases can be processed in various ways depending on the topic, timelines, and learning outcomes. For example, case processing timelines can vary from one week to several weeks. Heinrichs (2002) described four stages in case processing:

1) Hypothesize to determine the cause.
2) Gather supporting data and information.
3) Identify secondary learning issues and conduct self-study.
4) Reevaluate hypotheses and integrate answers to reach a comprehensive conclusion.

The differences in how these stages are accomplished lead to several types of case studies. They differ in terms of the degree of student participation, group work, integration with lectures, case complexity, and supporting information. These include lecture-based, guided, intermittent, panorama, and project-based learning (Kulak & Newton, 2014). Bolz (2002) argues that no one type of case is better than another. Rather, the design decision regarding the type of case or how to design learning should be linked to the nature of the educational situation itself and the nature of the learners. The more the difficulty level of the case and the level of originality of the content vary, the more the learning outcomes change, especially reaching a solution and the ability to define the problem. The role the teacher plays in designing and presenting the case and linking it to engaging activities contributes to the success of learning and achieving the desired outcomes. One of the models that will be addressed in this research is the jigsaw model, in which students form groups and become experts in only one question. Then the expert groups are dissolved, and new groups are formed with an expert member for each question, and the final solution to the case results from combining the contributions of each expert (Kulak & Newton, 2017).

Second: E-Services

In light of the rapid development and spread of modern information technology, companies have become increasingly focused on e-services to keep pace with this progress. The importance of e-services for organizations stems not

only from their being an indicator of the success of their e-commerce transactions, but also from their ability to serve as an effective communication channel with customers, understanding their needs and desires, and subsequently analyzing customer information and meeting their needs. Therefore, converting traditional services to e-services has become a trend among organizations. E-services are services provided via electronic means and networks such as the internet, and they are businesses conducted via communications technology. (Rowley, 2006)

A variety of literature has addressed the concept of e-services as a study, including: (Rowley, 2006); (Wassim Al-Habil and Ahmed Al-Sir, 2017); (Najm, 2010); (Kasper, 2006); (Kalitesi and Yasam, 2018); (Qashee Lily, 2024); (Khalifa Al-Balawi, 2021); (Hind Abdel Aziz et al., 2024); (Waseem Ismail, Ahmed Abdel Karim, 2017)

The researcher explained that the concept of e-services encompasses several concepts, as follows:

1**) Infrastructure:** Includes internet networks, computers, operating software, and databases necessary to provide services.

2) **Security:** Protecting information and personal data from hacking and piracy.

3) **User:** The individual or organization using the e-service.

4**) Provider:** The organization or company providing the e-service.

5**) Interaction:** The process of exchanging information and data between the user and the provider.

Electronic Services Provided by Universities:

Najm (2010) stated that providing services electronically saves time and effort, reduces the workload for universities, and ensures that services are delivered more effectively and efficiently than traditional methods. Therefore, universities today offer their services electronically by building websites that offer integrated, high-quality services. With the development of the concept of quality, attention has become necessary to enhance the quality of university websites, as it is one of the most important factors in increasing competitiveness and attracting students.

Examples of e-services provided by the university:

- Student Portal: Through which students can register for courses, pay fees, view results, and communicate with faculty members.
- Content Management Systems: Tools used to create and manage digital content efficiently.
- University Email: The official means of communication between faculty members, their assistants, students, and staff.
- Library Management System: Used to search for books, journals, and electronic resources.
- Registration and Application System: Systems to facilitate the application process to the university and various academic programs.
- Human Resources Management System: To manage employee affairs.
- Research Management System: To facilitate the management of research projects.

The Importance of E-Services for Universities:

The e-services provided by universities facilitate communication between the university and all members of its campus community (students, faculty, staff, alumni), and speed up and simplify administrative and academic procedures. Their most important objectives include:

- Improving the user experience: Providing easy-to-use and fast services, reducing the time and effort required to complete transactions.
- Increasing efficiency and productivity: Automating many administrative tasks, reducing human errors and increasing the speed of work completion.
- Cost savings: Reducing operating costs by reducing paper correspondence and printing and facilitating communication.
- Enhancing transparency: Making all information and data easily accessible to all, increasing trust between the university and its community.
- Developing the educational process: Providing e-learning platforms that facilitate communication between students and faculty members.

Service quality:

Service quality is of paramount importance due to the increasing number of service organizations and the growing competition among them. Providing quality services at a reasonable price without providing good customer service and understanding is no longer sufficient. Organizations are keen to maintain and expand their customer base. (Kurtel, 2011)

The quality of services that customers expect or actually perceive is a primary (but not the sole) determinant of customer satisfaction and is also a key priority for organizations seeking to enhance their competitive advantage. That is, service quality is the degree to which actual service performance matches customer expectations. (Kumar, 2006)

The most important characteristics of e-service quality, according to Al-Naimi (2008), are similar to those of e-services. The most important characteristics are the following:

1. Clarity of information and instructions: Information must be clearly written, and support tools must be accessible and easy to understand.
2. Page loading speed: Loading time refers to the time it takes for website pages, including images, graphics, animations, and audio files, to load. This depends on the size of the files, the size and number of images used, the number of servers that must be connected, and the speed of the modem.
3. Transaction completion time: Consumers must be able to complete online transactions in a timely manner. Some websites save consumers time by building their websites based on customer details, previous purchases, and orders.
4. Design appeal: The website design must be attractive and consistent.
5. Transaction reliability: Products must be delivered on time and in good condition, and the payment process must be secure.

Advantages of University E-Services:

Based on the above-mentioned e-services, the researcher concludes the

most important advantages of providing services electronically at universities through the following points:

- Availability: Access to services anytime, anywhere.
- Availability: Services are available 24 hours a day, 7 days a week.
- Security: Data and information security.
- Efficiency: Process automation reduces human error.
- Costs: Saving students transportation costs.
- Interactivity: Students interact with university personnel.
- Enhancing learning and teaching: Providing e-learning platforms enhances learning resources.

Challenges Facing University E-Services:

- **Digital divide:** Lack of internet access in some areas, as well as the need to provide a robust and secure infrastructure at universities.
- **Cost and human resources:** The cost of developing and maintaining electronic systems and training users to use electronic services.
- **Cybersecurity:** Protecting university electronic systems from cyberattacks.
- **Privacy and trust:** Preserving the privacy of users' personal data, and some users' lack of trust in electronic transactions.

University e-services are a powerful tool to improve the efficiency and effectiveness of university operations and provide a better educational experience for students. With continued technological advancements, university e-services are expected to witness further development and innovation in the future. The future of e-services can be developed through:

- Artificial Intelligence: Using AI to provide more personalized services.
- The Internet of Things: Connecting devices to each other and exchanging data.
- Virtual Reality: Experiencing services in a more realistic way.

Search procedures:

The instructional design of a case-based learning environment using a panorama model, according to the model of Mohammad Khamis (2015), and the procedures for designing a case-based learning environment using a panorama model in the current research proceeded according to the following stages of the model:

- The planning and preliminary preparation stage, which includes: forming a work team to design and produce a case-based learning environment using a panorama model, represented by the researcher, with the assistance of a specialized programmer; defining the responsibilities and tasks necessary for designing and producing a case-based learning environment using a panorama model;
- The analysis stage, which includes: analyzing the general needs and goals. This step includes identifying the general purpose of the current research, which is the lack of quality e-services among university students; identifying the learner characteristics on the basis of which the case-based learning environment using a panorama model is designed and produced; analyzing the general goals or objectives into their main and sub-components; and analyzing the available

resources and capabilities. Among the most important available capabilities that helped complete the research were the computer labs located at the faculties of South Valley University. All devices and their accessories were usable and connected to the internet, which contributed significantly to completing the required research tasks. • Electronic Content Design Phase: This phase includes defining the general objectives of the content, which are the goals to be achieved upon completion of the study of the electronic content in a Panorama-style case-based learning environment. The objectives were formulated using specific behavioral terms. The researcher relied on Bloom's digital taxonomy, which is appropriate for the nature of the current research. The researcher ensured that the formulation of the objectives was precise, observable, and measurable objectively, and that the objectives did not conflict with each other.

Test Design: The researcher designed research tools appropriate to the objectives and content of the Panorama-style case-based learning environment, which are administered to students before and after completing the study in the Panorama-style case-based learning environment. These tools are as follows:

1- Achievement Test: The aim of this test is to measure cognitive aspects related to developing skills to improve the quality of electronic services. The test items were formulated (70 items: 25 true/false, 25 multiple choice, 20 ordering). The test was prepared electronically, and the test settings were adjusted to display the questions sequentially. After completing all the test questions, the student's score on the test is displayed. Standardization and Control of the Cognitive Aspects Measurement Test: A sample of (30) university students was selected to pilot the test. The aim was to:

• Calculate the reliability coefficient of the achievement test.
• Calculate the validity of the test.
• Calculate the test time.

Calculate the reliability coefficient of the achievement test: Reliability means that the test produces the same results if it is re-administered to the same individuals under the same conditions. The goal of measuring the reliability of the test is to determine the extent to which it is free of errors that might alter the learner's performance on the same test from time to time.

The researcher calculated the reliability coefficient on the pilot sample of (30) students, and recorded their results. The researcher used Cronbach's alpha and the split-half method for both Spearman and Guttman using SPSS v26. a) Cronbach's alpha method: The researcher calculated the reliability coefficient for the achievement test using the SSPS program. A reliability coefficient of 0.957 was obtained, indicating that the test has a high degree of reliability.

b) Split-half method: This method calculates the correlation coefficient between the scores of the two halves of the test. The test is divided into two equal halves. The first half includes the students' scores on the odd-numbered questions, while the second half includes the students' scores on the even-numbered questions. The correlation coefficient between the two halves is then calculated. The researcher reached the following results.

Table(1)Test reliability Achievement Using half-split

Vocabulary	number	Correlation coefficient	Spearman- Brown reliability coefficient	Guttman's reliability coefficient
Part One	35	0.955	0.975	0.975
Part Two	35			

The previous table shows that the test's reliability coefficient is equal to (97.5%). This reliability coefficient indicates that the test has a very high degree of reliability. This provides a degree of confidence when using the test as a measurement tool in the current research, and indicates that the test can produce the same results if re-administered to the same sample under the same application conditions.

Calculating the Validity of the Achievement Test: The researcher calculated the validity on a survey sample of (30) students, whose results she monitored. The researcher used the internal consistency validity method and predictive validity using the SPSS v26 program.

- **Internal Validity:** Internal validity is calculated by the square root of the reliability coefficient (4). Therefore, the internal validity of the test is (98.48%), a high percentage that makes the achievement test valid for measuring what it was designed to measure.

a) Validity using internal consistency of achievement test items:

Table (2) Consistency shells Internal between test questions Achievement

Vocabulary	Correlation coefficient	Vocabulary	Correlation coefficient	Vocabulary	Correlation coefficient	Vocabulary	Correlation coefficient
1	** 0.765	19	** 0.605	37	* 0.454	55	** 0.776
2	** 0.523	20	** 0.472	38	* 0.425	56	** 0.554
3	** 0.678	21	* 0.430	39	** 0.505	57	** 0.578
4	** 0.503	22	** 0.802	40	* 0.394	58	* 0.455
5	** 0.651	23	** 0.501	41	** 0.670	59	** 0.662
6	* 0.451	24	* 0.457	42	* 0.418	60	* 0.481
7	* 0.378	25	** 0.622	43	** 0.617	61	** 0.470
8	** 0.553	26	** 0.564	44	** 0.566	62	** 0.637
9	** 0.621	27	** 0.608	45	** 0.588	63	** 0.485
10	** 0.756	28	** 0.804	46	* 0.422	64	* 0.456
11	* 0.426	29	** 0.434	47	* 0.440	65	** 0.702
12	** 0.738	30	** 0.673	48	** 0.466	66	** 0.522
13	* 0.444	31	* 0.422	49	** 0.677	67	** 0.686
14	** 0.422	32	** 0.601	50	** 0.606	68	** 0.644
15	** 0.774	33	** 0.652	51	* 0.397	69	** 0.515
16	* 0.443	34	** 0.543	52	** 0.750	70	** 0.530
17	** 0.571	35	** 0.695	53	* 0.459		

Table (2) Consistency shells Internal between test questions Achievement

Vocabulary	Correlation coefficient	Vocabulary	Correlation coefficient	Vocabulary	Correlation coefficient	Vocabulary	Correlation coefficient
18	** 0.578	36	* 0.405	54	** 0.637		

The table shows that the correlation coefficients between the vocabulary items and the total achievement test are all significant. There are (50) significant statements at the 0.01 level and (20) significant statements at the 0.05 level. This indicates a high degree of internal consistency between the vocabulary items and the total achievement test. This indicates that the achievement test has a high degree of validity.

Determining the time required to complete the test items: The researcher calculated the test time by calculating the time taken by the first student to complete the test and the last student to complete it, and calculating the average between them. The test time was (45) minutes. Thus, the test is in its final form, ready for application to the research sample.

2- Observation card: Its purpose is to measure skill performance related to developing skills to improve the quality of electronic services.

The card was adjusted and standardized as follows: A sample of (30) university students was tested for pilot testing of the card, with the following objectives:

• Calculating the reliability of the observation card.

• Calculating the validity of the observation.

Observation Card Reliability:

Reliability means that an observation card produces the same results if it is reapplied to the same individuals under the same conditions. The goal of measuring observation card reliability is to determine the extent to which it is free of errors that might alter an individual's performance on the same card from time to time. The researcher calculated the reliability coefficient on a survey sample of (30) students, whose results she monitored. The researcher used:

a) Cronbach's Alpha Method:

The reliability coefficient for the observation card was calculated using the (SSPSv26) program, and a reliability coefficient of (0.864) was obtained. This indicates that the observation card has a high degree of reliability.

b) Split-Half Method:

This method calculates the correlation coefficient between the scores of the two halves of the observation card. The card is divided into two equal halves. The first half includes the students' scores on the odd questions, and the second half includes the students' scores on the even questions. The correlation coefficient between the two halves is then calculated. The researcher reached the following results:

table (3) Observation card stability using split-half

Vocabulary	number	Correlation coefficient	Spearman- Brown reliability coefficient	Guttman's reliability coefficient
Part One	85	0.628	0.768	0.762

Part Two	85			

The previous table shows that the observation card's reliability coefficient is (76.2%). This reliability coefficient indicates that the observation card has a high degree of reliability. This provides a degree of confidence when using the observation card as a measurement tool in the current research. It is an indicator that the observation card can produce the same results if reapplied to the sample under the same application conditions.

2- Observation Card Validity

Validity refers to "the extent to which the instrument or measurement procedure can measure what it is intended to measure." The researcher calculated validity on a survey sample of (30) students, whose results she monitored. The researcher used the internal consistency validity method and predictive validity using the SPSS v26 program.

A- Internal Consistency Validity:

Internal validity is calculated by the square root of the reliability coefficient. Therefore, the internal validity of the observation card is (93.49%), a high percentage that makes the observation card valid for measuring what it was designed to measure.

• Electronic Content Development Phase:

Electronic Content Evaluation and Improvement Phase:

In this step, a pilot study was conducted on a sample of students to test the content in a case-based learning environment using the Panorama format, ensure the integrity of the content, and make all necessary adjustments to ensure it is suitable for the final test. The pilot sample consisted of (30) university students, who were randomly selected and had no prior experience with educational content provided through the electronic environment. The primary objectives of the study were as follows: verifying the validity of the content in the case-based learning environment using the Panorama format and its suitability for the learners' characteristics and learning styles; identifying any difficulties that students and the researcher might encounter during the research implementation and attempting to avoid or address them; verifying the validity of the electronic test presented to the students; allowing the researcher to gain experience in implementing the research; and obtaining students' opinions, suggestions, and observations regarding the electronic environment and the content.

The electronic content publishing stage: In this stage, the following was done: The electronic content was uploaded with its final processing through the environment's control panel, and access to the content was controlled, as the researcher has all the powers to control access to the electronic content in the case-based learning environment in the Panorama style, in terms of the ability to show or hide it. Also, the content does not appear to the learner until it is registered in the environment. The content was maintained and updated to monitor users' reactions to it and to update the adaptive content from time to time.

Conducting a pilot study:

In this step, a pilot study was conducted on a sample of students to test the

electronic content in the e-learning environment, ensure the integrity of the content, and make all necessary modifications to ensure its suitability for the final pilot. The pilot sample consisted of (30) university students, randomly selected from those with no prior experience with educational content provided through the e-learning environment. The pilot study was conducted in several steps:

• Obtaining approval from the research supervisors.

• Preparing and equipping the pilot site, which is the South Valley University computer labs, where all computers were updated and connected to the internet.

• The researcher met with the pilot sample students to explain how to use the environment and register.

• Pre-administering a cognitive test of the quality of electronic services.

• Allowing students to record their observations regarding the e-learning environment and e-content.

• Post-administering the research tools (achievement test and observation card) to the pilot sample.

Conducting the basic research experiment:

The research sample for the basic experiment consisted of (60) male and female students from the university of South Valley University. The researcher randomly divided them into two groups: a control group and an experimental group, each group consisting of (30) students, according to the experimental design of the research.

Research Results, Interpretation, and Recommendations:

First: Testing the Validity of the Hypotheses:

The First Hypothesis:

1. The first hypothesis states that "there is no statistically significant difference at the level (≤0.05) between the mean scores of students in the experimental group and the control group in the pre- and post-applications of the cognitive test for the tasks of improving the quality of electronic services, in favor of the post-application."

To verify the validity of this hypothesis, the researcher administered the achievement test to the research sample. After monitoring and analyzing the results using the Independent-Samples T-test as a parametric method (consistent with a sample size equal to or greater than 20 individuals), using the SPSS v26 program, the researcher concluded:

Table(4) Significance of the difference between the control group and the experimental group in the post-measurement in the achievement test

Groups	NO.	Average	Standard deviation	.Dr. H	t-value	pampering	Significance level
control group	30	52.12	3,145	57	18,834	0,000	Function at the level 0.01
experimental group	30	68.04	2,529				

The previous table shows that the significance level is equal to (0.00), indicating a statistically significant difference between the average scores of the control group and the experimental group on the post-achievement test in favor of

the experimental group (learning environment based on the Panorama model). The average score of the control group was (52.12), while the average score of the experimental group was (68.04).

Based on the previous results, the first hypothesis was rejected, indicating a statistically significant difference between the average scores of the control group and the experimental group (learning environment based on the Panorama model) on the post-achievement test in developing the skills to improve the quality of electronic services among university students, in favor of the experimental group.

As for the effectiveness of the environment in developing the cognitive aspects of developing skills to improve the quality of electronic services among university students, the researcher calculated the effectiveness using Black's gain rate equation for both the control group and the experimental group (learning environment based on the Panorama model), as follows:

control group

M	Statement	value
1	The Great End(P)	70
2	Average pre -application (M1)	16.90
3	Average post -application (M2)	53.10
4	Average Gain Ratio(MG)	1,2

experimental group (Panorama -based (learning environment

M	Statement	value
1	The Great End(P)	70
2	Average pre -application (M1)	17,13
3	Average post -application (M2)	67.03
4	Average Gain Ratio(MG)	1.65

By examining the two previous tables, it becomes clear that the adjusted gain rate of knowledge related to the quality of electronic services among university students indicates the effectiveness of the environment in the control group and the experimental group, as they achieved effectiveness equal to or higher than Black's proposed criterion for program effectiveness (1.2). However, the effectiveness of the environment in the experimental group (1.65) is greater than and higher than the effectiveness of the environment in the control group (1.2).

The Second Hypothesis:

1. The second hypothesis states that "there is no statistically significant difference at the level (≤0.05) between the mean scores of students in the experimental group and the control group in the pre- and post-applications of the observation card for the performance aspect of the tasks to improve the quality of electronic services, in favor of the post-application."

To verify the validity of this hypothesis, the researcher applied the observation card to the research sample. After monitoring and analyzing the results using the Independent-Samples T-test as a parametric method (consistent with a sample size equal to or greater than 20 individuals), using the SPSS v26 program, the researcher concluded:

Table (5) Significanceof the difference between the control group and the experimental group in the post-measurement in the observation card

Significance level	pampering	t-value	Dr. .H	Standard deviation	Average	number	Groups
Function at the	0,000	57,263	57	4,775	410.72	30	control group

level 0.01				6,205	486.75	30	experimental group

The previous table shows that the significance level is equal to (0.00), indicating a statistically significant difference between the average scores of the control group and the experimental group (learning environment based on the Panorama model) on the post-observation card in favor of the experimental group (learning environment based on the Panorama model). The average score of the control group was (402.72), while the average score of the experimental group was (486.75).

Based on the previous results, the first hypothesis was rejected, as there was a statistically significant difference between the average scores of the control group and the experimental group (learning environment based on the Panorama model) on the post-observation card in developing the skills of improving the quality of electronic services among university students, in favor of the experimental group.

As for the effectiveness of the environment in developing the performance aspects of developing skills of improving the quality of electronic services among university students, the researcher calculated the effectiveness using Black's gain rate equation for both the control group and the experimental group (learning environment based on the Panorama model), as follows:

control group

M	Statement	value
1	The Great End(P)	510
2	Average pre -application (M1)	82.33
3	Average post -application (M2)	412.70
4	Average Gain Ratio(MG)	1.42

experimental group

M	Statement	value
1	The Great End(P)	510
2	Average pre -application (M1)	82.07
3	Average post -application (M2)	496.90
4	Average Gain Ratio(MG)	1.78

By examining the two previous tables, it becomes clear that the adjusted gain rate of knowledge related to the quality of electronic services among university students indicates the effectiveness of the environment in the control group and the experimental group, as they achieved effectiveness equal to or higher than Black's proposed criterion for program effectiveness (1.2). However, the effectiveness of the environment in the experimental group (1.78) is greater than and higher than the effectiveness of the environment in the control group (1.42).

Interpretation and Discussion of the Research Results:

The results related to the first hypothesis of the current research revealed a statistically significant difference between the average scores of the control group and the experimental group (learning environment based on the Panorama model) in the post-application of the achievement test in developing skills to improve the quality of electronic services among university students, in favor of the experimental group.

As for the effectiveness of the environment in developing cognitive aspects of developing skills to improve the quality of electronic services among university students, the effectiveness of the environment in the experimental group

was greater than and higher than the effectiveness of the environment in the control group. The results related to the second hypothesis of the current research revealed a statistically significant difference between the mean scores of the control group and the experimental group (learning environment based on the Panorama model) on the post-test of the observation card to develop university students' e-service quality improvement skills, in favor of the experimental group.

As for the effectiveness of the environment in developing the performance aspects of e-service quality improvement skills among university students, the experimental group's score was greater than that of the control group.

The researcher attributes these results to several reasons, the most important of which are:

- The case-based e-learning environment based on the Panorama model provided a suitable environment. From a procedural perspective, the environment provided a specific methodological approach with clear objectives, supported by interactions that enabled students to interact with the environment. From a technical perspective, it provided an appropriate environment by presenting the educational content in the form of modules. At the beginning of each module, the general objective of the module study was presented, followed by the educational objectives to be achieved. The objectives were formulated in a clear, behavioral manner, using terms that were easy for students to understand. They clarified what was expected of them after studying each module, and interactive questions were provided to ensure students' comprehension of the concepts and information.
- The Panorama model adopted by this environment is represented by the skill being divided into educational modules presented via an interactive video clip containing a set of interactive questions that the student answers while watching the video. The student is not allowed to move to the next module until they have watched the entire module and correctly answered the questions within the module. This has kept the learner engaged and active in the learning process.
- The effectiveness of the case-based e-learning environment using the Panorama model has had a greater positive impact. This superiority is due to the fact that the use of case-based e-learning using the Panorama model helps track learners' performance as they interact with the environment. This helps determine the student's level and learning behavior, identify their learning problems, provide appropriate solutions, and provide the necessary educational assistance.

Research Recommendations:

In light of the findings of the current research, the researcher recommends the following:

- Utilizing the results of the current research at the applied level, i.e., in designing an e-learning environment based on case-based e-learning using the Panorama model, especially if the targeted learning outcome is cognitive achievement and the development of academic skills, especially if future

research supports these findings.

• The need to take into account individual differences among students in terms of their preferences and needs, their learning styles, and their level of knowledge.

• The need to consider the criteria for designing a case-based learning environment using the Panorama model in a manner consistent with learning styles to increase students' cognitive achievement and skill performance.

Suggested Research:

1. The current research was limited to examining the impact of its independent variables at the university level. Therefore, future research could address these variables within the framework of other educational stages, as results are likely to differ due to differences in age and level of experience.

2. Studying the independent and dependent variables of the research on a sample of people with special needs.

3- Conducting a descriptive study to establish the foundations and standards for designing case-based e-learning using the Panorama model in online environments.

4- The current research was limited to examining the effectiveness of case-based e-learning using the Panorama model as an independent variable. Therefore, future research may address the same independent variable in the context of its interaction with learners' readiness.

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