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DESIGN, SCENARIO DEVELOPMENT, AND EVALUATION OF THE COURSE 'NATIONAL HEALTHCARE SYSTEM' VIA THE MOODLE PLATFORM

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ABSTRACT

Despite the reforms implemented since the 1980s, our educational system still faces various constraints, including the predominance of the classic and traditional teaching model. This content-centered approach does not allow for the development of certain skills, such as those recommended as 21st century skills. Among the currently popular approaches aimed at refocusing teaching on the learner is the distance learning (DL) mode of education. However, before generalizing the application of any new mode of education, its effectiveness must first be verified by empirical research. Our research is part of this framework, as it aims to determine the effectiveness of DL on the learning of nursing students as well as their perceptions and judgments concerning this approach.

In this perspective, the present study aims to achieve two major objectives:

-To design and scenario the "SNS" (National Health System) course for nursing students in the undergraduate cycle.

-To evaluate this DL learning device.

Indeed, this evaluation was based on the perceptions and judgments of future teachers at the Higher Institute of Nursing and Health Techniques in Tetouan (ISPITS). This course uses the Moodle platform as a workspace and provides beneficiaries with assignments and various activities. The platform also constitutes a space for discussions and exchanges thanks to the use of the forum and messaging. To collect information on the impact of using this DL process on the success of learner learning, we used the analysis of a questionnaire survey to which future teachers responded.

It was found that future teachers had a positive perception of the DL teaching of the SNS course through the Moodle platform. On the one hand, users found that navigation through the platform was easy and that the use of the learning environment was clear. On the other hand, they approved of the idea of using DL in their studies and judged this pedagogical practice indispensable.

This work is part of the perspective of reforming higher education, particularly the training system of trainers engaged in ISPITS.

INTRODUCTION

The swift advancement of Information and Communication Technologies (ICT) in recent years has ushered in a transformative era for education and training. This progression, however, is not without its challenges, as aptly highlighted by Dawes (2001), who notes that implementing changes amid potentially adverse circumstances poses significant hurdles for educators. Recognizing the pivotal role of ICT in shaping modern societies and the future of education, it becomes imperative to identify and overcome obstacles hindering the seamless integration of these technologies into educational systems.

Despite acknowledging the importance of ICT in schools, teachers continue to grapple with obstacles during the adoption process, as noted by Balanskat, Blamire, and Kefala (2006). This underscores the need for a nuanced understanding of the challenges faced in order to enhance the quality of teaching and learning. The dynamic landscape of the 21st century prompts fundamental questions about the future of students, the

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evolving roles of teachers, and the trajectory of teaching and learning approaches within the Moroccan university system.

The advent of the COVID-19 pandemic in March 2020 compelled educational institutions in Morocco to reassess their teaching practices. The ensuing necessity for robust, adaptable educational strategies has emphasized the urgency of leveraging ICT effectively for both present and future educational landscapes. The proposed reform of higher education by the Council for Higher Education, Training, and Scientific Research in 2021 manifests a dedicated commitment to addressing these challenges. This reform not only envisages training programs to facilitate the adoption of new technologies by teachers but also promotes hybrid learning approaches and outlines procedures for validating online courses.

While the effective use of digital technologies depends on national policies, its success is equally contingent upon the active engagement of stakeholders, namely teachers and learners, in incorporating these technologies into their learning processes. Against this backdrop, our Master's thesis project in Nursing Science Pedagogies at the ISPITS of Tétouan gains significance. This project provides a practical opportunity to apply theoretical knowledge acquired during our training process, aiming to design and implement an online course on the National Health System. The objective is to make fundamental concepts accessible through effective pedagogical methods, combining practical application, feedback mechanisms, collaborative activities, and personalized learning. Beyond this, the project aspires to reach a broader audience by addressing the challenges faced by learners who encounter difficulties in traditional, in-person education, thereby contributing to a more inclusive and robust Moroccan education system.

This endeavor recognizes that successful integration of ICT in education demands not only theoretical alignment with national policies but also a meticulous consideration of socio-economic dimensions, innovative approaches to distance education, and well-defined scenarios for each stage of project development. As we embark on this journey, our project endeavors to fill existing gaps in the literature, contribute to the ongoing dialogue on the future of education in Morocco, and align with the broader goals of educational reform.

METHODOLOGY

1. Research Type

Every research endeavor requires the researcher to make an appropriate choice of methodology in order to achieve its objectives. Indeed, the methodology depends on the nature and purpose of each research endeavor (Karsenti & Savoie-Zajc, 2000). The objectives of the current research are to evaluate the knowledge imparted by the training, as well as the techno-pedagogical context they experienced, the uses they developed, the potential issues they encountered, and the improvement suggestions they recommend. To achieve this aim, we have adopted a quantitative approach, which seeks to quantify data in the form of numbers and employs statistical analyses with the potential for generalizing the obtained results. The quantitative approach aims at measuring and analyzing variables using a questionnaire administered to a sample of future teachers who will be involved in our research action and constitute the target population for this study.

2.Participants

The target population consists of master's students in Nursing Science Pedagogies and Health Techniques at ISPITS. In research, two sampling techniques are available: random or probabilistic sampling techniques and non-probabilistic sampling techniques based on reasoned or empirical choice. Random sampling techniques facilitate the extrapolation of results to the entire population but require an up-to-date sampling frame of the units to be surveyed (Akouete-Hounsinou, 2012). However, obtaining an exhaustive list of students is not straightforward. The non-probabilistic sample by reasoned choice is appropriate for this research. The assumption is that the distribution of characteristics within the population is the same. In other words, any sample would be representative and consequently yield accurate results (Pires, 1997).

Surveying the entire population of subjects is practically impossible (Sanfaçon, 1993). According to Savoie-Zajc (2007), sampling encompasses all the decisions underlying the choice of the sample. This author states that sampling and the choice of the sample must be consistent with the epistemological, theoretical, and methodological positions of the research type

undertaken. Indeed, several factors determine the sample size; these include the type of research, financial and time constraints. However, the size of the population is the most important factor in determining the sample size. The following table provides an estimation of the sample size based on the size of the target population.

Target Population	Sample
10	10
100	80
1000	278
10000	370
20000	377
30000	379
40000	380
50000	381
75000	382
100000	384

Table 1. Sample Size Based on Target Population (Sanfaçon, 1992)

To better understand the components of the sample devised in this study, it is important to note that the sampling exclusively consists of master's students specializing in Nursing Science Pedagogies and Health Techniques at ISPITS in Tétouan. We distributed 30 copies of the questionnaire to the participants. The final number of valid responses received is 30. This represents a response rate of 100%.

Questionnaire			Age
Target Population	Number		30 à 50
	Distributed	Validated	
Master's students	30	30	

Table2. Sample Summary

3. Method of Data Collection

Data collection was carried out using a questionnaire. This instrument aligns with the quantitative approach and the objective of the current research. The questionnaire is among the most commonly used tools for data collection in the social sciences (Akouete-Hounsinou, 2012). It is a preferred, standardized, and relatively neutral tool for respondents (Lapointe, 2011; Sanfaçon, 1993). Indeed, it is less time-consuming, compatible with a large sample size, and offers the advantage of anonymity. Moreover, responses are comparable, as the same questions are posed in the same terms to each respondent (Akouete-Hounsinou, 2012).

In the questionnaire, we opted for closed-ended questions of the Boolean type (Yes/No) and multiple-choice questions. These facilitate data processing. The judgment scale utilized in this research is the Likert scale.

4.Instrument Validation Process

To render the questionnaire usable, we subjected the questionnaire development project to a panel of experts and peers. The critical perspectives of these experts and peers were essential for a form of validation of our methodological tool. The recommendations from these individuals were incorporated to finalize the questionnaire development project, which had to adhere to at least two conditions:

- Easy-to-understand questions.
- Relevant questions.

To ensure the optimal administration of the questionnaire, a pilot test was conducted to verify its comprehensibility for respondents. The questionnaire was administered to 4 teachers. This small group aided in making some modifications, particularly in terms of question clarity.

5. Verification of the Reliability of the Evaluation Tool

The results of the Cronbach's alpha measurement for this test are presented in the table:

"Summary of Observation Processing"			
		N	%
Observation	Validated	27	90,0
	Excluded	3	10,0
	Total	30	100,0

Reliability Statistics	
RALO	Number of Elements
0,90	30

The measured value of Cronbach's alpha is 0.908. To interpret this value, we have adopted the scale proposed by De Vellis (2012) and summarized in the table. According to this table, our evaluation tool exhibits respectable reliability, as the obtained Cronbach's alpha value falls between 0.8 and 0.9.

Coefficient alpha	Fiabilité
Inférieure à 0,60	Inacceptable
Entre 0,60 et 0,65	Indésirable
Entre 0,65 et 0,70	Minimalement acceptable
Entre 0,70 et 0,80	Acceptable
Entre 0,80 et 0,90	Très bonne
Supérieure à 0,90	Envisager de raccourcir l'échelle

Table3. Interpretation Scale for Cronbach's Alpha Coefficient Values

6. Method of Data Analysis

Descriptive statistical analyses were performed on the questionnaire items. To present the data in a clear manner, we utilized graphs and diagrams.

7. Ethical Precautions

It is crucial to be aware that surveys often lead participants to disclose personal information, which can significantly affect their willingness to participate (Boro, 2011). In order to approach the teachers and their students in a lawful manner, a formal request was submitted to the institution's director for obtaining prior permission. Additionally, the participants were informed about the objectives of our research while ensuring anonymity.

RESULTS

1. Pedagogical Course Design: Content Selection and Presentation

The SNS course is well-structured to adhere to the pedagogical requirements of designing an online learning system. It consists of three systems, each associated with specific functions:

Entry System: It manages the flow of students at the module's entry and provides a brief overview of the course and its objectives.

Learning System: The content and learning activities are well-developed at this level.

Output System: It supports the management of student flows upon module completion by assessing the knowledge acquired by the learner and directing them towards the areas not well assimilated.

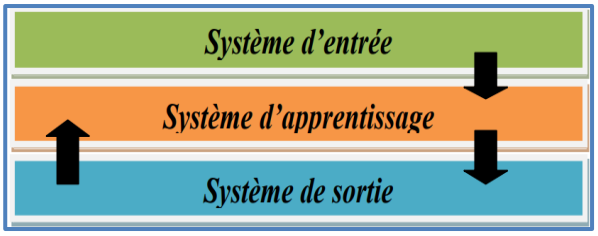

Figure 1. The Three Systems of a Training Module

1.2. Educational Course Scenario

Storyboarding plays a significant role in both traditional and flipped classrooms, necessitating careful consideration of sequencing and progression. This study adopted the following model:

Titre du cours	Le Système National de Santé Marocain (SNS)
Objectif général	A la fin de la formation les bénéficiaires seront capables de connaitre les différentes composantes du SNS ainsi que son organisation.
Public cible	Les infirmiers et techniciens de santé de la délégation provincial de Tétouan qui passeront l'examen d'aptitude professionnelle pour l'accés au grade principal.

Table 4. Educational Course Scenario

Thème I	OA intermediaire	Activités	Contenus clés	Approches pédagogiques	Charge De Travail Estimée
Concepts généraux : définitions et généralités.	A l'issue de cette section les participants seront capables de définir le SNS et l'offre de soins.	-Forum de discussion, pour Identifier et évaluer l'état des prérequis des participants. - Vidéo explicative, Permet de clarifier et de se focaliser sur certains points du thème. - Fichier PPT du cours. - Test formatif (QCM) afin de favoriser la progression des apprentissages et de renseigner les participants sur les acquis et les éléments à améliorer.	-santé. -santé publique. -système de santé. -système national de santé (SNS) -l'offre de soins .	Méthode active	Ouvert Pdt 03 jours. 07 jours 10 min

Table 5. Pedagogical Scenario of the First Section

2. Design, Implementation, and Evaluation of the Online Course on the Moodle Platform

The Moodle-mediated learning environment at ISPITS in Tetouan was chosen to host the SNS course. Moodle, as a content management system with its pedagogical and communication functions, would facilitate fruitful interactions among the various course participants, overcoming temporal and spatial constraints.

2.1. Educational Course Scenario

The Moodle platform containing the SNS course enables us to:

- Provide all the necessary information and instructions to follow the course.
- Foster interaction among various course participants through a forum and access to the ISPITS Moodle platform hosting the course.
- Ensure active engagement by encouraging students to frequently consult it for course-related information and to complete evaluation exercises, particularly formative assessments.

2.1.1. The access page to the Moodle platform of ISPITS in Tétouan

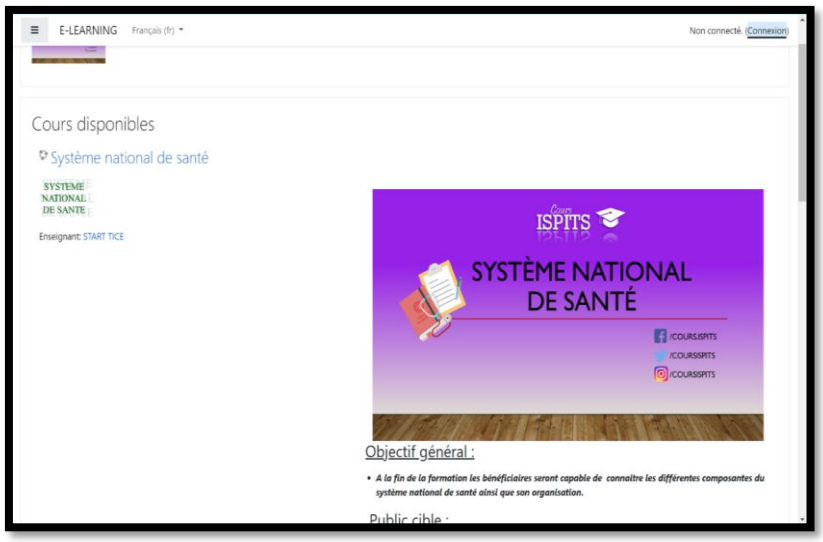

Figure 2. The access page to the Moodle platform of ISPITS in Tetouan

2.1.2. The Course Support in the Form of an Explanatory Video Capsule

Figure 3. The access page to the Moodle platform of ISPITS in Tetouan

2.1.3. Course support in PPT format

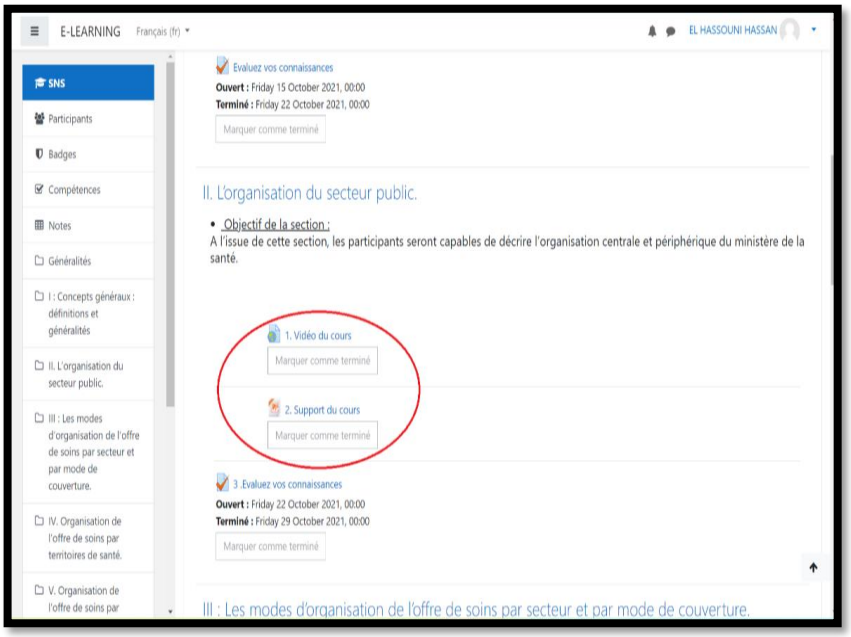

Figure 4. Course support in PPT format

Multiple-choice question activities include:

- Fill-in-the-blank test, which features a text with missing words.
- Drag and Drop test to assess course comprehension.
- Formative test (true or false) to encourage learning progress and inform participants about their achievements and areas for improvement.
- Self-assessment test to evaluate participants' level of content assimilation.

2.1.4. Screenshot depicting the formative Multiple-Choice Test (MCQ)

Formative Multiple-Choice Test (MCQ) to encourage learning progress and provide participants with feedback on their achievements and areas for improvement.

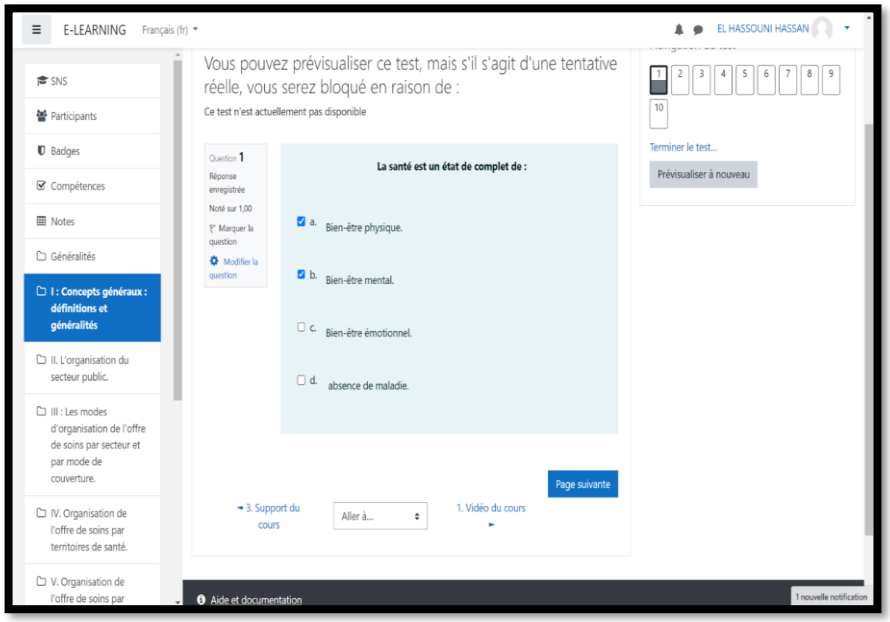

Figure 5. Formative Multiple-Choice Test (MCQ)

2.1.5. Fill-in-the-Blank Test

Fill-in-the-Blank Test: A text-based exercise involving filling in the missing words in a passage.

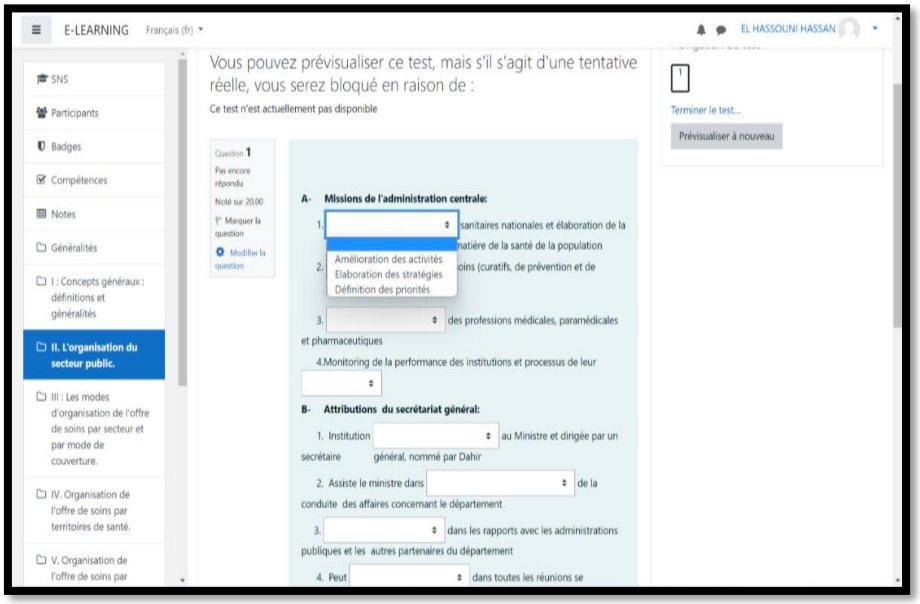

Figure 6. Formative Multiple-Choice Test (MCQ)

2.1.6. Drag and Drop Test

Drag and Drop Test designed to assess the assimilation of the course content and the learning objectives targeted by the course.

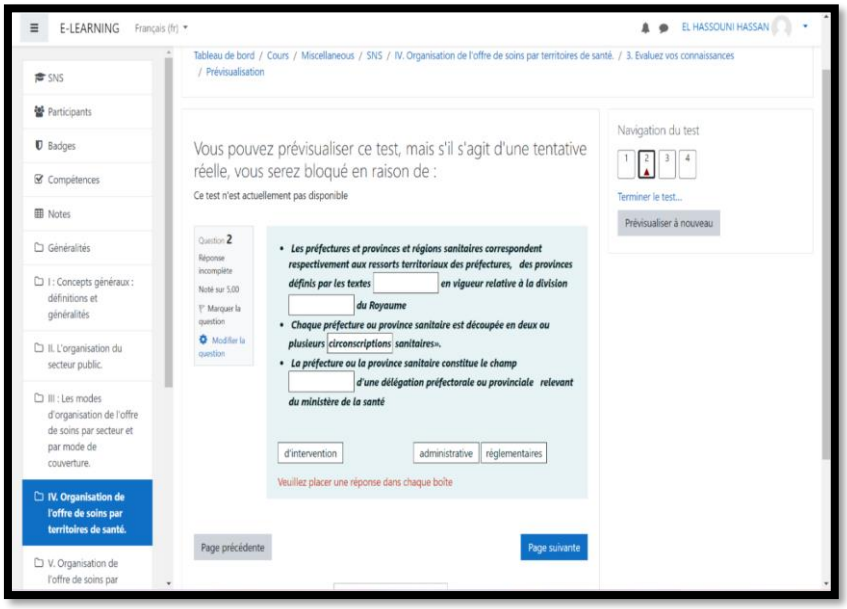

Figure 7. Drag and Drop Test

2.1.7. Formative True or False Test

Formative True or False Test aimed at promoting learning progress and informing participants about their achievements and areas for improvement.

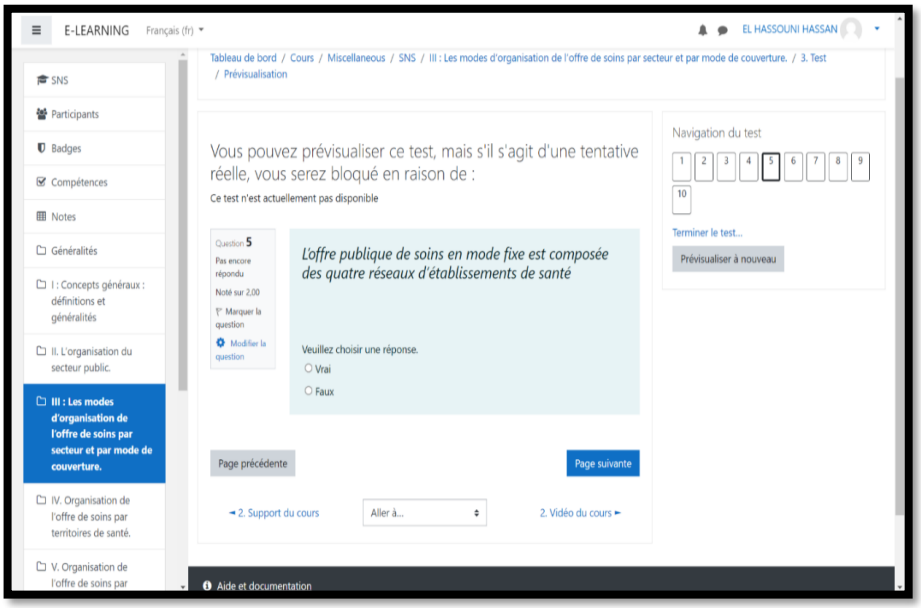

Figure 8. Formative True or False Test

3. Formative True or False Test

1. **Are the course objectives clear?**

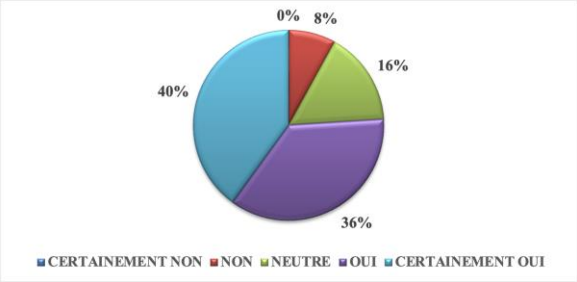

Figure 9. Learners' Perception of course Objectives

The results of the questionnaire administered to the students revealed that 66.66% of the respondents had a positive perception of the course scenario and its objectives, whereas only 8% of the respondents expressed dissatisfaction with the course structure. This dissatisfaction could be attributed to other factors, such as language-related issues.

2. Does the course Meet your Expectations?

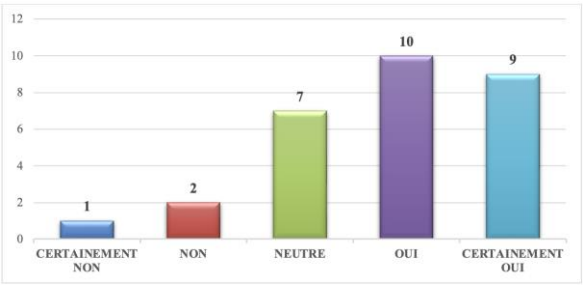

Figure 10. Learners' Perception Regarding Their Expectations

The results indicated that 65.5% of the students were satisfied with the course in relation to their expectations, while 30% stated that the course did not meet their expectations.

3. Is Accessing Various Course Resources and Activities Easy?

Regarding this question, we can observe that more than half (58.1%) of the respondents found accessing various course resources and activities to be easy, while 41.9% of the learners reported facing difficulty in accessing the different resources.

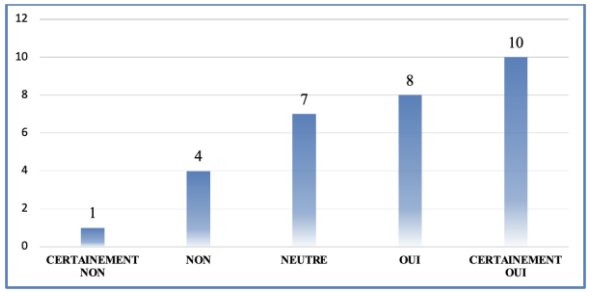

Figure 11. Students' Feedback on Access to Various Resources and Activities

4. Did You Enjoy This Distance Learning Experience?

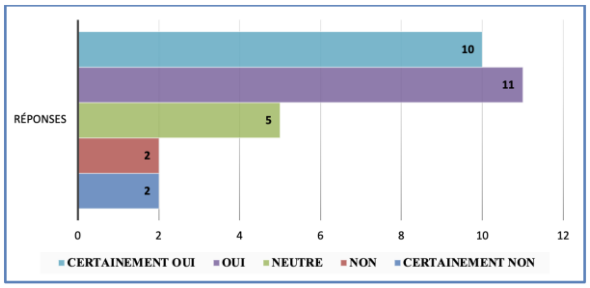

Figure 12. Students' Appraisal of the Online Learning Experience

Seventy percent of the surveyed prospective teachers are convinced of the increasing role of online education in the future. Consequently, their involvement in this field will need to rise as well.

5- DISCUSSION

In this study, all students (n = 30) participated in the survey, indicating their interest in this new pedagogical practice. Their commitment to the online course was evident through active participation on the Moodle platform, and the majority pledged to submit assignments for the formative assessment, with satisfactory results. Data were systematically collected through a replicable framework.

Overall, students exhibited a positive perception of the distance teaching of the National Health System (NHS) course via the Moodle platform. Results revealed that 67% of students found the course structure to be good, and 80% affirmed that the course followed a coherent framework with rich content that stimulated their learning. Additionally, 65% considered the course content and activities (exercises, assignments, tests) to be relevant to the course objectives, potentially enhancing student appreciation and engagement. This aligns with

Murray's (1984) findings, emphasizing the significance of well-structured courses in the teaching and learning process.

A majority of students (66.66%) expressed a positive impact regarding the clarity of objectives, their structure, and their connection to learning activities and formative assessment processes. This echoes McGorry's (2003) emphasis on the importance of these elements in online courses. Furthermore, in line with Karaman's (2011) study highlighting the flexibility of distance education, 84.61% of learners perceived the course pace as suitable to their learning rhythm.

Flexibility in online learning methods, deemed crucial by learners for quality education (Mbwesa, 2014), was supported by 50% of students who communicated with peers and teachers to address specific learning issues. Moreover, 77% confirmed the establishment of collaborative work during assignments, emphasizing the value of well-organized and collaborative group work, a method appreciated by many students.

Critical to learner motivation and understanding, interactions between teachers and students during synchronous meetings were deemed useful by 80% of respondents. Regarding the perceived ease of technology use, over half of the users (54.8%) found platform navigation easy, and 58.5% considered teacher-uploaded resources easily accessible and downloadable. This positive feedback on usability aligns with Nielsen's (1994) efficiency, error prevention, satisfaction, and user-friendliness criteria.

Students positively perceived the guidance provided, with 77.2% confirming that guides and tutorials offered a clear introduction to platform usage, encouraging course engagement and enhancing satisfaction. However, technical support proved challenging, with 61.3% encountering technical issues accessing the platform.

In terms of overall appreciation for distance education, 70% of students approved of its utility in their studies, deeming it an indispensable pedagogical practice.

6- CONCLUSION

This work has led to several reflections and conclusions regarding education. Indeed, we have proposed a distance learning system for the benefit of students enrolled in the nursing undergraduate program. The system is innovative and holds promise for optimizing skill development. However, further similar research would be necessary to deduce and identify the determining factors and conditions required for the potential integration of high-quality distance education with a significant impact on higher education learning outcomes.

Effective distance education with a well-adapted pedagogical scenario that addresses learners' needs and expectations (such as support, monitoring, interaction between learners and instructors, varied pedagogical activities, availability of learning materials, formative assessments, and feedback) contributes to its success. This aligns with the findings of Riyami (2018), which showed that "student support by instructors and collaboration among learners are essential factors for student engagement in distance education." Furthermore, interactions between learners and instructors are highly correlated with learner satisfaction (Kuo et al., 2014), as also observed in our study.

It's important to highlight that learner found the platform well-suited to their technological tool manipulation needs. This explains their acceptance and satisfaction with their course. The more learners perceive their ability to use the educational platform, the more likely they are to accept it. Experienced internet users tend to find it easier to accept online learning tools compared to less experienced learners (Piccoli et al., 2001). Thus, the obtained results support what has been harmoniously suggested in the literature on the subject (Davis, 1989). The ease of use of the educational platform is a determining factor in the acceptance process, as it influences usage intention and consequently learner satisfaction with their course.

Although the results of this research shed light on a topic at the heart of educational research debates, the present study, like any research, has limitations primarily related to two criteria: the sample size and respondent subjectivity. Concerning the sample size, the limited number of questionnaire responses forces us to limit our conclusions based on the obtained results. Regarding subjectivity, it's important to note that some research participants may subjectively express opinions based on

their perception of an element rather than on practices or real facts. Their perceptions might be based on opinions, stereotypes, or misconceptions related to distance education.

In conclusion, the results of this research have raised new reflections that pave the way for new directions in the pedagogical engineering of distance learning. Villiot-Leclercq (2020) stated, "Awareness has emerged at all levels (individual, collective, institutional) of the role of distance learning engineering in opening new avenues on fundamental dimensions such as scenario design and the role of stakeholders, including students, in design, as well as supporting actors and their training in digital culture and distance learning."

This innovative work aligns perfectly with the perspective of pedagogical reform in the higher education system, particularly the reform of the nursing education and training system.

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