The role of formative evaluation in the teaching/learning process at ISPITS in Morocco: Exploratory study of teachers involved in the health environment option.

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Abstract. Formative evaluation (FE) of teaching and learning (TL) is a pedagogical innovation in many educational systems around the world, such as Switzerland, France, and Quebec. In Morocco, the Higher Institutes for Nursing and Health Technology (ISPITS) has introduced FE into its training curriculum, including the Health and Environment (HE) option. Our exploratory study of teachers of this option at ISPITS (N = 60) aims to examine the current state of practices relating to this type of assessment at these institutes. The results of this research revealed that 75% of teachers do not use formative assessment tools, 55% find that it increases their workload, and 48% report its interest to both teachers and learners. Half of the teachers agree that formative assessment should be operationalized systematically in the training process. Our study reports the gap between what competent bodies designed and validated and the actual practices used. Consequently, we believe that narrowing this gap will undoubtedly contribute to the development of learners' specific skills in environmental responsibility and protection.

Index Terms— Environment, Formative evaluation, ISPITS, Learning, Morocco, Process, Teaching.

1 Introduction

Health sciences training programs have undergone several revisions to prepare future professionals for the reality of health care. A reality that imposes various challenges, including those concerning their relationship with the environment. Hence, there is a need to equip them with environmental responsibility skills. Furthermore, curricula development and evaluation methods have undergone major changes to support this training. Durand and Chouinard [1] believe that education systems must keep pace with the changes and demands of today's world and society, especially about the environment.

Indeed, McDonald et al. [2] confirm that large-scale assessment programs have been launched by the Organization for Economic Co-operation and Development, such as the Programme for International Student Assessment (PISA) [3], which recommends FE as a systematic part of TL. In this sense, Paquay [4] and Leroux [5] report several types of assessment, such as diagnostic, formative, and summative. According to Cisse [3], FE is a pedagogical innovation in the TL process. Likewise, Scallon [6] confirms that FE is a strategy that promotes learner success and regulates learning to achieve the pedagogical objectives assigned by curricula [7]. Between 1970 and 2000, French-speaking Switzerland's scientific

community and educational policies emphasized the importance of FE for learners [8]. In Quebec, a review by Black and Wiliam [9]shows that FE practices lead to effective and successful learning [10], [11].

In Morocco, the training system for nurses and health technicians has undergone a reform with the creation of the Higher Institutes for Nursing and Health Technology (Instituts Supérieurs des Professions Infirmières et Techniques de Santé, ISPITS). According to the Moroccan Ministry of Health, this renovation of the teaching curriculum includes the training program and assessment of learning. However, it is necessary to operationalize FE with tools that will enable learners to acquire specific skills in the promotion of a healthy environment and strengthen the role of nurses and health technicians in environmental protection. In this context, our research aims to explore the practice of FE by the Institute teachers in their pedagogical approaches.

As a result, teachers who use FE methods and techniques are better prepared to respond to the diversity of learners' needs by varying and adapting their pedagogical approaches [12], [13] and ensuring equity of outcomes. Consequently, teachers are invited to promote an effective and constructive FE culture [14]. Through this study, we will try to sensitize teachers to improve their TL practices at the ISPITS level through FE, which will teach learners their responsibilities to promote environmental protection.

FE offers a new practice, where teachers can devote their energies to creating teaching tools and strategies, rather than correcting papers [15], [16]. This is true, especially among learners of HE options about sanitary engineering, like solid waste management, drinking water supply, drinking water quality control, and liquid waste management. This is also true for civil engineering, such as housing hygiene, urban planning, and other skills enabling environmental conservation and protection.

This innovative FE strategy will enable self-regulation of learning [9] [17] and readjustment of teaching practices to ensure learner progress through feedback [18] and work with peers [19], and to encourage commitment, confidence, and solidarity within the class [5], [20].

This study has outlined the following specific objectives:

- Promote evaluative practices concerning teachers' FE at ISPITS level;
- Innovate FE modalities;
- Improve the TL of ISPITS learners through FE.

The present research will raise awareness among ISPITS teachers of the need to monitor the TL process of learners concerning the positive impact of professional nursing practices and health techniques on the environment. This enables the future support of the population for the protection of this environment. Thus, learners will acquire skills concerning environmental responsibility, which has become a fundamental part of the training curriculum for healthcare professions [21].

2 Methodology

To achieve the objectives of this study, an exploratory quantitative study was carried out at nine ISPITS in Morocco offering the HE option. This study was performed from April 04 to May 30, 2023, and the targeted population was teachers of the HE option (58% women and 42% men), with a respondent rate of 72.28%. Data collection was carried out using a computerized, self-administered questionnaire developed using the Google Forms tool and shared online with our targeted population. The data collected were analyzed using the descriptive statistics method with Excel software.

3 Collect and analysis of results

The questionnaire contained 26 questions, divided into four sections.

- **Axis 1**: socio-demographic characteristics.

Table 1. Socio-demographic characteristics.

	Suggested answers	Percentage
Age	Less than 30 years	08.33%
	Between 30 and 40 years	58.33%
	Between 40 and 50 years	20.00%
	More than 50 years	13.34%
	Part-time teacher	13.30%
Seniority	Less than 5 years	45.00%
	Between 5 and 10 years	23.30%
	Between 10 and 20 years	26.70%
	More than 20 years	05.00%
Your educational level	Bachelor's degree undergraduates from IFCS	01.70%
	Bachelor's degree Graduate from IFCS	23.30%
	Master's degree in nursing education and health technology	61.70%
	PhD	13.30%

Table 1 demonstrates that 58% of teachers are between 30 and 40 years old, 45% of these teachers have been teaching for less than 5 years, and 62% have a master's degree in nursing and health technology education.

- **Axis 2**: Knowledge of FE:

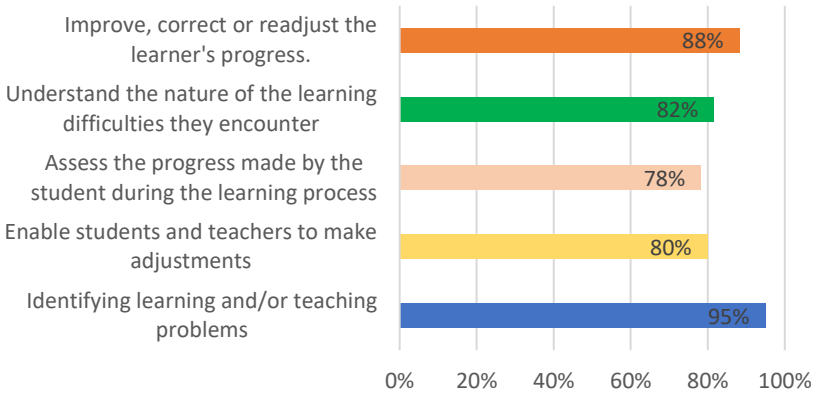

Fig. 1. Objectives of FE according to teachers

According to **Fig 1**, almost all teachers consider that FE enables them to identify TL problems, improve and readjust teaching strategies, and understand learners' difficulties.

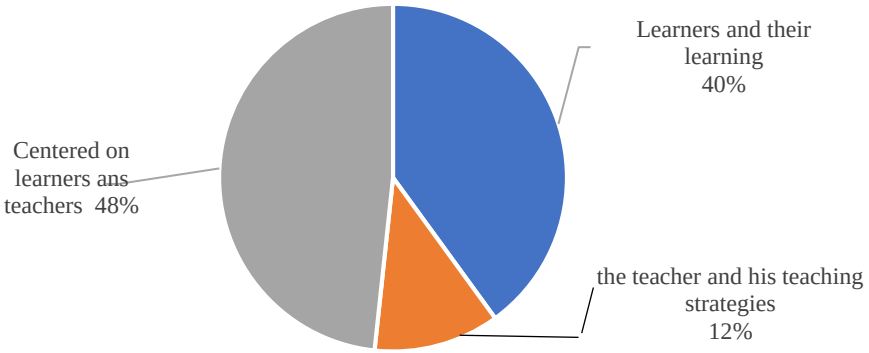

Fig. 2. The target population for FE.

Fig. 2 shows that only 48% of teachers believe that FE is centered on learners and teachers.

- **Axis 3**: Implementation of FE:

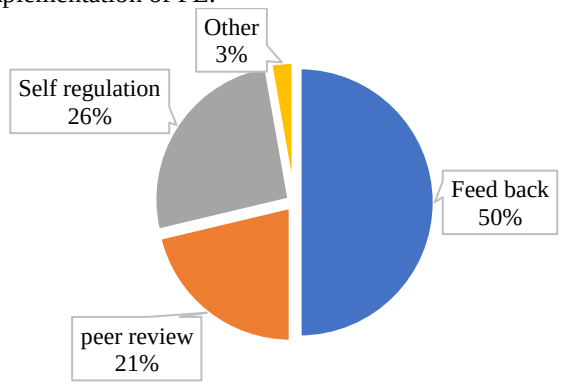

Fig. 3. The systematic use of evaluation practices teachers.

Fig 3 shows that 50% of teachers use feedback as an FE modality, rather than the other modalities recommended in their FE assessment practices.

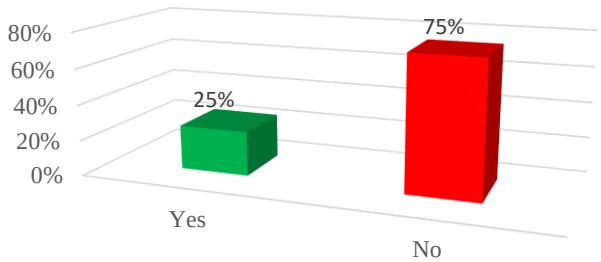

Fig. 4. Use of a FE tool by teachers.

Fig 4 shows that 75% of ISPITS teachers do not use FE tools, which requires ongoing training and awareness-raising for these teachers for effective FE.

- **Axis 4**: Perception and attitudes of ISPITS teachers:

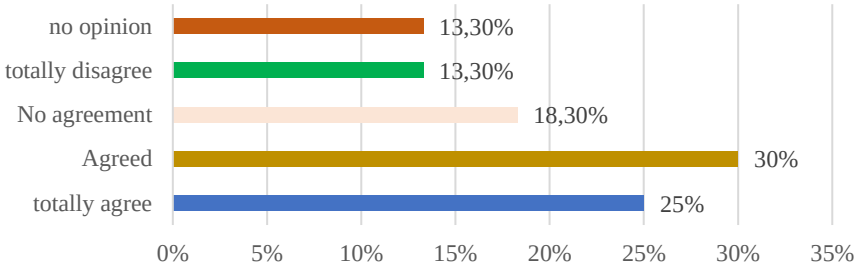

Fig. 5. Teachers' views on the increase in workload due to the implementation of FE.

Fig 5 shows that half the teachers agree that FE increases their workloads.

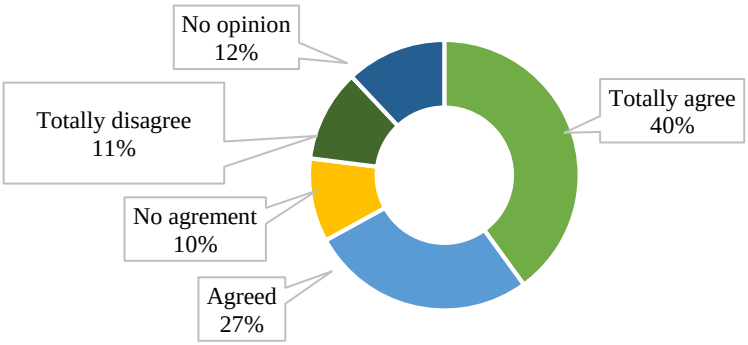

Fig 6. Teachers' views on the need for the higher education and/or health authorities to implement clear official instructions insisting on the implementation of FE.

According to **Fig 6**, half the teachers agree, to strongly agree (67%), that FE should be systematically applied at ISPITS.

4 Results

Our study showed that 62% of the teachers involved in the SE option have a master's degree in nursing and health technology pedagogy, and 13.30% have a Ph.D. (**Table 1**). This is a favorable factor for introducing FE, as prescribed in the learners' training descriptions. Raising the competencies of these teachers will enable the development and promotion of FE as an effective and reliable evaluation practice for both learners and teachers. The study also showed that all teachers are aware of the objectives of FE (**Fig 1**), making improving their evaluation practice easier by providing support throughout the learner training curriculum. **Fig 2** shows that only 48% of teachers believe that FE is teacher- and learner-centered, which makes it necessary to program ongoing training in docimology to acquire skills in diversified evaluative practices.

Also, our study revealed that 50% of teachers especially practice feedback (**Fig 3**) as an FE modality at the expense of self-regulation and peer evaluation, showing the need for teachers' training in FE modalities. The survey showed that 75% of teachers do not use FE tools (**Fig 4**), which calls for reflection on evaluation practices at the ISPITS level to improve learner training. Half of these teachers feel that FE is a workload (**Fig 5**), which calls for a review of pedagogical approaches to this evaluation paradigm. Lastly, 50% of the teachers

involved in this SE option think that the FE practices described in the training descriptions should respect the orientations of the competency bodies.

5 Discussion

Our present study deals with the interest of FE in the TL process at the ISPITS level in Morocco. This innovative pedagogical practice [15] needs to be introduced and situated systematically with well-established tools [16] following the example of certain countries such as Switzerland [8] and Quebec [22] which have insisted on FE in their learner training curricula. This research showed that 61.70% of teachers have a master's degree in pedagogy, which enables them to situate FE in a valid way within ISPITS. Additionally, all of these teachers prove that FE enables the progression and construction of learning to be monitored, which is in accordance with Scalon [6]. It also enables pedagogical strategies to be readjusted to achieve the targets assigned by the curricula, which corroborates with the statements of Allal [7].

This study also revealed that only 48% of teachers believe that FE is centered both on learners and teachers. whereas William [9] and Broadbent [17] insist on the role of FE in regulating learning and reflecting on teachers' evaluation practices. Our research shows that 75% of teachers do not use FE tools, which is not in line with the findings of Andres et al [14] and Leroux [5], [23]. For these researchers, the latter tools make it possible to vary teaching approaches and adapt them to the needs of learners. We believe that adopting these approaches and implementing a well-instrumented EF will have positive effects on the quality of learning, including that relating to the development of their environmental responsibility and their duty to raise competencies of the challenges posed by the environment to the health of the world's population. Our study has shown that half of all teachers believe that FE is a workload for them, which has prompted some countries to systematically operationalize this evaluative practice [8] to improve learner training [22].

6 Conclusion

Our study has shown that FE is a factor causing changes in evaluation practices at ISPITS in Morocco. It needs to be located and practiced validly and systematically, enabling the pedagogical approaches used by teachers at these institutes to be readjusted. This innovative practice also enables learners to continue progressing and building their learning. As for the specific skills required to protect the environment, this research aimed to explore the practice of FE in the training curriculum for nurses and health technicians through the creation of projects.

This contributes to encouraging and reflecting on professional practices, to play a part in the preservation of the environment, which constitutes a challenge for all professionals worldwide. Further studies will be desirable to address the impact of FE on the TL curriculum within ISPITS.

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References

[1] M.-J. Durand et R. Chouinard, *L'évaluation des apprentissages: De la planification de la démarche à l'évaluation des résultats*. Éditions MD, 2012.
[2] E. W. McDonald, J. L. Boulton, et J. L. Davis, « E-learning and nursing assessment skills and knowledge – An integrative review », *Nurse Educ. Today*, vol. 66, p. 166-174, juill. 2018, doi: 10.1016/j.nedt.2018.03.011.
[3] F. Cisse, « Appropriation de la politique d'évaluation des apprentissages du Ministère de l'Éducation du Québec, une décennie après son implantation : analyse des pratiques d'évaluation formative d'enseignants montréalais du secondaire », Université du Québec à Montréal, 2016. Consulté le: 10 novembre 2022. [En ligne]. Disponible sur: http://oatd.org/oatd/record?record=oai%5C%3Awww.archipel.uqam.ca%5C%3A11200
[4] L. Paquay, *L'évaluation des compétences chez l'apprenant: Pratiques, méthodes et fondements*. Presses univ. de Louvain, 2002.
[5] J. L. Leroux, « DES PRATIQUES D'ÉVALUATION DES APPRENTISSAGES QUI INTÈGRENT L'UTILISATION DES TIC ET DU WEB 2.0 AU COLLÉGIAL: QUELS BESOINS ET QUELS DÉFIS! », p. 38, avr. 2017.
[6] G. Scallon, *L'évaluation formative des apprentissages*. Presses Université Laval, 1988.
[7] L. Allal, « Acquisition et évaluation des compétences en situation scolaire », in *L'énigme de la compétence en éducation*, De Boeck Supérieur, 2002, p. 75. doi: 10.3917/dbu.dolz.2002.01.0075.
[8] L. M. Lopez, « L'évaluation formative des apprentissages des élèves : entre innovations, échecs et possibles renouveaux par des recherches participatives », *Quest. Vives Rech. En Éducation*, nº N° 23, Art. nº N° 23, nov. 2015, doi: 10.4000/questionsvives.1692.
[9] D. Wiliam et M. Thompson, « Integrating Assessment with Learning: What Will It Take to Make It Work? », in *In: Dwyer, CA, (ed.) The Future of Assessment: Shaping Teaching and Learning. (pp. 53-82). Routledge: New York, NY, USA. (2008)*, C. A. Dwyer, Éd., New York, NY, USA: Routledge, 2008, p. 53-82. Consulté le: 5 juin 2023. [En ligne]. Disponible sur: https://doi.org/10.4324/9781315086545
[10] C. Deaudelin, M. Petit, et L. Brouillette, « Assurer la présence enseignante en formation à distance : des résultats de recherche pour guider la pratique en enseignement supérieur », *Tréma*, nº 44, Art. nº 44, mai 2016, doi: 10.4000/trema.3411.
[11] A. Mastracci, « L'évaluation formative comme aide à l'apprentissage ».
[12] M. Poumay, J. Tardif, F. Georges, et G. Scallon, *Organiser la formation à partir des compétences: Un pari gagnant pour l'apprentissage dans le supérieur*. De Boeck Superieur, 2017.
[13] M. Poumay, « EVALUATION FORMATIVE - DÉFINITION, JUSTIFICATIONS THÉORIQUES ET ILLUSTRATIONS - », p. 26, 2003.
[14] T. Andrews, G. Wilson, et N. Sheldon, « Learning conversations to support peer review in online and blended learning environments », présenté à Proceedings of the European Conference on e-Learning, ECEL, 2014, p. 29-35.
[15] U. Aylwin, « Apologie de l'évaluation formative », vol. 8, 1995.
[16] J. Weiss, « Évaluer plutôt que noter », *Rev. Int. D'éducation Sèvres*, nº 11, Art. nº 11, sept. 1996, doi: 10.4000/ries.3264.
[17] J. Broadbent, S. Sharman, E. Panadero, et M. Fuller-Tyszkiewicz, « How does self-regulated learning influence formative assessment and summative grade? Comparing online and blended learners », *Internet High. Educ.*, vol. 50, p. 100805, juin 2021, doi: 10.1016/j.iheduc.2021.100805.
[18] V. Shute, « Focus on Formative Feedback », *Rev. Educ. Res.*, vol. 78, p. 153-189, mars 2008, doi: 10.3102/0034654307313795.
[19] C. D. Gaskamp et E. Kintner, « Development, evaluation, and utility of a peer evaluation form for online teaching », *Nurse Educ.*, vol. 39, nº 1, p. 22-25, 2014, doi: 10.1097/NNE.0000000000000007.
[20] J. L. Leroux, « DES PRATIQUES D'ÉVALUATION DES APPRENTISSAGES QUI INTÈGRENT L'UTILISATION DES TIC ET DU WEB 2.0 AU COLLÉGIAL: QUELS BESOINS ET QUELS DÉFIS! », p. 38.
[21] « Établissements de Santé Résilients Face au Changement Climatique et Écologiquement Viables - Orientations de l'OMS ». https://www.who.int/fr/publications-detail/9789240012226 (consulté le 5 juin 2023).
[22] P. Black et D. Wiliam, *Inside the black box: raising standards through classroom assessment*. Granada Learning, 1998.

[23] J. L. Leroux, « L'évaluation des compétences au collégial un regard sur des pratiques évaluatives », 2010, Consulté le: 6 mai 2023. [En ligne]. Disponible sur: https://eduq.info/xmlui/handle/11515/1342