The Portfolio: A Tool for the Formative Assessment of Student Teachers

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ABSTRACT: This article proposes an experimentation of an evaluation tool, the portfolio, in the formative evaluation of trainee teachers in the college cycle. A grid of criteria will allow, and the follow-up, and the visibility of the evolution of the training of these future teachers of the sciences of the life and the earth to the Regional Center of the Trades of Education and the Training (CRMEF) of Tangier in 2017. Thus, it is clear from the results obtained by using the portfolio as an evaluation instrument that can be adapted to different learning/teaching situations, that the trainees appear to be more involved in the training process. This instrument is able to stimulate their self-evaluation. They are thus made aware of the importance of evaluation and given responsibility for it thanks to the added value that the portfolio offers them. It allows trainees to become aware of their strengths, to value their work and also to measure the progress of their skills by rectifying and correcting their own mistakes.

KEYWORDS: formative assessment, portfolio, self-assessment, errors, trainee teacher.

1 INTRODUCTION

Formative assessment is intended to regulate learning within the framework of a limited pedagogical process [1] and to allow the learner to correct himself, in order to master the knowledge and skills targeted in a teaching/learning process. It aims to provide the learner with the means to drive his or her learning [2] and to pilot his or her own learning process. It is in this sense that the tool we propose, the portfolio, allows for the pragmatic and scientific implementation of formative evaluation.

The formative evaluation at the regional training center is mainly based on classical tools such as tests, exams with closed questions (MCQ questions multiple choise, true or false...) or open questions. To our knowledge, no study has yet been done on formative evaluation using the portfolio approach. In our country, such an approach is often ignored, although it has many advantages in the evaluation process. Our questioning involves the quality of evaluation tools in the context of the relevance of the portfolio in the initial training of trainee teachers. Our objective is to highlight the function and role of this tool in their training.

The professional knowledge constructed by the trainee constitutes formalized statements alternating between reference knowledge for the profession (academic-scientific knowledge, knowledge prescribed by the educational institution, knowledge transmitted by trainers in the field) and knowledge constructed from experience.

Both novice and expert teachers develop changes in their theories through reflection on their own conceptions, problematization of their practice, and possible changes to their theories and practices [3].

However, the classic methods used until now in evaluation do not allow the follow-up or the progression of these trainees. Their work remains dependent on these old tools of summative/ certificative evaluation.

2   PROBLEMATIC

Since its introduction in the CRMEFs' teaching system in 2012, the portfolio, as a summative evaluation tool, has remained a dead letter. Following this state, a reflection has emerged inciting us to transfer and test the use of this tool to formative evaluation.

The research presented here is interested in the portfolio as a didactic engineering and the effects generated by its use on the evolution of trainees' learning. Nevertheless, although our experimentation involved several modules, we have chosen to limit our work to support activities for greater relevance and conciseness.

What then are the barriers and levers regarding the tools, processes used in these proposed support activities? What do students learn by taking ownership of the portfolio? is the portfolio a substitute for traditional formative evaluation tools? how does the portfolio help the trainer in the support of trainees? First, the text presents the theoretical framework, the methodology and the results that we discuss.

3   THEORETICAL FRAMEWORK

The portfolio is originally a methodical and organized collection of work done in artistic professions (photographer, architect, journalist) and it represents and marks their artistic evolution. The portfolio in education takes the two notions of representativeness and progression and turns them into an instrument for learning and evaluation [4]. It can include a variety of information, such as lesson plans, student information/evaluations [5]...

The use of portfolios to assess students has emerged as a result of the evolution of most training programs into observable outcome-based means of assessment. Trainees are asked to demonstrate that they have reached the level required to teach both pedagogically and in terms of subject matter content [6]. Furthermore, it is crucial to prepare future teachers to adopt a reflective and analytical approach to their work [7]. Therefore, we have adopted the portfolio as one element, among others, to develop in the trainees the spirit of reflection, analysis and self-evaluation.

It thus allows us to understand the strengths of the subjects, their learning processes, their progress and their training needs. It also attests to their professional development and the skills they have attained [8-12].

This professional development portfolio is the tool that "seems to best meet the needs of pre-service education, teaching and field practice since it emphasizes the intentional nature of the student in the development of their portfolio..." [13]. It is used to support training, stimulate reflection [14] and can be used by students to identify and demonstrate skill acquisition [15].

The portfolio device proposes a process through which the subject thinks about his/her profession. Once internalized, this process becomes the engine that allows the subject to create his or her own professional knowledge, which is the result of both objectification and subjectivation [16-17]. In other words, any training system represents a set of mediations aiming at processes of internalization of knowledge by the subject [18].

4   METHODOLOGY

In this article, the portfolio is designed as a formative assessment tool for part of the evaluation module. The teaching of the support strategy at the CRMEF is integrated into the evaluation module. It goes without saying that its importance is undeniable, not only in terms of certification, but above all in terms of the degree of capitalization of knowledge. Assimilating the teaching of this module would be a challenge to give academic support the quality it deserves.

The research presented in this article was carried out on a class of 30 trainee teachers of life and earth sciences at the CRMEF of Tanger.

By including the use of the portfolio in the formative evaluation, our concern is to allow the trainee to use this tool, not as a constraining task for which he/she fears the result sanctioned by a grade, as is the case with other classic tools (test, exam, control...), but as a support that allows him/her to progress while making the error a lever for transformation and progress.

The present work will focus on the portfolio as a tool for regulation, self-assessment and monitoring of trainees' progress in relation to the support activities carried out by the trainees.

Some programs allow students to determine what should be included in the portfolio [19]. Others mandate specific items to be included in the portfolio, specifying the number and type of required productions, and the type of commentary and

analysis that must accompany the productions. Most training programs probably use a mix of required and self-selected work [20].

For our study, we guided the teacher trainees on how to organize their portfolios as a tool for their formative evaluation. The content of the portfolio is in the form of a laminated document containing:

- A form on the first page containing personal information about the trainee teacher, the classes taken in charge (name of the training establishment, number of students, percentage of girls and boys, level, situation of the establishment, its socio-economic environment...)
- Skills and abilities that trainees should develop at the end of the tutoring course;
- A theoretical part on academic support: definitions, types of support, functions, approaches and tools of support, notes and circulars on academic support in SVT in college, all documents related to academic support;
- Internship activities related to tutoring and the productions of their students.

For each part of the module, the trainee teacher actively participates in the evaluation process by defining criteria and indicators. Their production is accompanied by a grid developed in group. The trainees are also asked to note the constraints and difficulties encountered in the development and implementation of their knowledge and skills in the establishment of internships.

5 RESULTS AND DISCUSSION

The results shown relate to the support and remediation activities established by the trainees for their students during their placement.

The "practice/theory/practice" paradigm adopted in the training of trainees makes it possible to raise the constraints and difficulties encountered during the implementation of support activities in the training institutions.

In principle, during the internships, the trainee teachers organize support sessions for their students. Back at the center, we found that the support activities carried out during the internship were nothing more than the resumption of classes under the same conditions, both in terms of teaching technique and in terms of the work space and illustrations. Following these observations, we scheduled sessions to plan the support strategy and some teaching techniques. As we progressed through the support sequences, we monitored and regulated the trainee teachers' production using the grids already developed in the group (Tab. 1)

Thus, in the portfolio, the support activities are noted from the diagnostic phase, the planning of the support to the verification test of the achievement of the objectives. In order to improve the acquisition of certain skills by the students in the training institutions, some trainees proceeded to diversify the teaching techniques (Philips technique, case study, group technique, technique 1, 2, 4, 8, 16,) and they prepared adequate sessions with an evaluation grid filled in by the students at the end of each session (Tab. 2). These grids make it possible to evaluate the teaching technique, the proposed activities, the work space and the facilitator (trainee).

Table 1. Example of an indicator grid developed in group by the trainees and the trainer

Indicators	Assessment and weighting				
	Very good 5	Good 4	Somewhat Good 3	Fair 2	To correct 1
Use of the results of the diagnostic evaluation					
Diversification of diagnostic tools					
Differentiation of students according to their needs					
Planning the support strategy					
Diversification of support methods					
Diversification of support activities					
consideration of the time of the support					
Adapting the work space to support activities					
support activities are adapted to the heterogeneity of the students.					
activities are consistent with the objectives.					
post-support evaluation situations consistent with the objectives					
Assessment of student progress and achievement.					

Table 2. Example of a grid for students to evaluate the teaching method

Indicators	Appreciations			
	Good ☺	Fairly good 😐	Medium 😊	Poor ☹
What do you think about group work?				
Do the activities facilitate learning the course?				
Are you satisfied with your participation in the group?				
Does the new space (library) support group work?				
What do you think of the facilitator?				
What is your opinion on group teaching? Compare it with the transmissive method ……				

Each trainee collects the grids completed by their students in the portfolio. The analysis of these grids allows us to guide the trainees in correcting their teaching style, and to get feedback on their strengths and skills to improve. Thus, the trainee teachers were able to develop and improve their own instruments of evaluation and support of their students with a diversification of tools, trying, each time, to adapt them to the contents of learning

The formative evaluation using the portfolio had an impact on the targeted practices, among others, an improvement in the acquisition of the support strategy planning approach, creativity and initiative of the trainees. Thus, we have noticed a change in their relational behavior. They became more motivated, tolerant and respectful of each other. They also became more creative with their students (Fig.1.).

Fig. 1.   Photos showing a model made by two trainees and their students (to facilitate the learning of a geological phenomenon (the phenomenon of erosion and sediment transport)

The teachers then became capable of planning support according to a scientific approach and we noted a diversification of the techniques and tools used in support. Through the self-evaluation process, they have learned to identify the points on which they need to improve. It's through the portfolio that the trainees value their progress. This can be summarized as follows (Fig. 2):
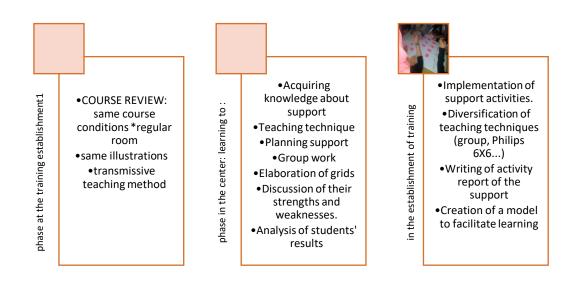

phase at the training establishment1
- COURSE REVIEW: same course conditions *regular room
- same illustrations
- transmissive teaching method

phase in the center: learning to :
- Acquiring knowledge about support
- Teaching technique
- Planning support
- Group work
- Elaboration of grids
- Discussion of their strengths and weaknesses.
- Analysis of students' results

in the establishment of training
- Implementation of support activities.
- Diversification of teaching techniques (group, Philips 6X6...)
- Writing of activity report of the support
- Creation of a model to facilitate learning

Fig. 2.   Diagram showing the progression of trainees

At the end of this process, the trainee will be able to develop his/her own support tools. He/she will have to acquire skills ranging from the analysis of students' results, dividing them according to their level, and the interpretation of these results, which will allow him/her to plan regulation activities with his/her own means. At the end of this training, the trainee will be asked to write a report on his or her activities concerning the support.

6   CONCLUSION

Through our experimentation with this evaluation tool, we note that the portfolio constitutes a substitute for the formative evaluation tools in effect (closed questions, open questions, etc.). It plays an important role in the support arrangements for trainee teachers. It demonstrates their efforts, progress and acquisition in one or more areas.

For this reason, it is preferable to rethink the practice of formative assessment both at the pre-service teacher training center and in primary and secondary schools.

The use of the portfolio as a lever for the improvement and development of professional skills and support for trainees is essential and is undoubtedly a tool that meets the requirements of the Ministry's strategic vision (2015 /2030) for teacher training.

The formative evaluation using the portfolio is not only intended to inform the trainee about the progress of his/her training. It is also essential for the trainer as it allows him/her to measure the gap between what the trainee has achieved and the objective he/she was assigned and helps him/her to assess whether the training strategy adopted meets the real needs of the learners. The portfolio is also a means of support, regulation and self-evaluation.

REFERENCES

[1] M. Fatihi. Formative Assessment, Foundation and Didactic Approaches. (2000).
[2] A. Harouchi. For effective teaching, the competency-based approach. Edition the Fennec. (2010).
[3] G. Fenstermacher, Les arguments pratiques dans la transformation morale de l'enseignement d'une discipline. Revue des sciences de l'éducation, XXII (3), 617-634. (1996).
[4] B. Plumelle. « The portfolio or portfolio of skills » International Review of Education of Sèves [Online], 43| December 2006. postedJune 23, 2011 URL: http://ries.revues.org/253; DOI: 10. 4000/ries. 253 (2011).
[5] A. Carneiro. The teaching portfolio as a (re) construction of the teaching practice. Academia Letters, Article 1794. https://doi.org/10.20935/AL1794 (2021).
[6] K. Zeichner. The adequacies and inadequacies of three current strategies to recruit prepare and retain the best teachers for all students, Teachers College Record, 105 (3), pp. 490-515, (2003).
[7] K. Zeichner., D.Liston. Reflective teaching, Lawrence Erlbaum, Mahwah, NJ. (1996).
[8] J. L. Antonek. The Student Teacher Portfolio as Autobiography: Developing a Professional Identity. Modern Language Journal, 81 (1), 15-27, (1997).
[9] P. Costantino, M. De Lorenzo, E. Kobrinski. Developing a Professional Teaching Portfolio. Boston: Pearson, (2002).
[10] B. R. Foster, M. Walker, K. H. Song A Beginning Teaching Portfolio Handbook. Upper Saddle River (NJ): Pearson. (2007).
[11] S. Paris, L. Ayres. Becoming Reflective Students and Teachers. American Psychological Association. (1994).
[12] S. Vanhulle, A. Schillings. Train competent teachers in reading-writing: social interactions, portfolio, and reflective writing. Brussels: Labor. (2004).
[13] R. Desjardins. Le portfolio de développement professionnel continu. Montréal, Chenelière Education. (2002).
[14] P. Seldin. The Teaching Portfolio: A practical guide to improved performance and promotion/tenure decisions, 3rd Ed., MA: Anker Publishing. (2004).
[15] K. Zeichner, E. Hutchinson. The role of the teacher portfolio as a tool to identify and develop teacher competences. Research and Training, 47, 69-78, (2004).
[16] A. Buysse, S. Vanhulle. Reflective writing and professional development: what indicators? Living Questions 5 (11), 225-245, (2009).
[17] S. Vanhulle. From knowledge in play to knowledge in-I. Reflective paths and subjectivation of knowledge in young teachers in training. Bern/ Neuchâtel: Peter Lang. (2009).
[18] A. Buysse. Controlling and structuring mediations: a basis for thinking about training. Swiss journal of educational sciences, 31 (3), 585-602, (2009).
[19] T. Schram, D. Mills. Using portfolios to mediate learning and inquiry among interns and teachers, Teaching Education, 7 (2), pp. 71-80, (1995).
[20] J. Barton, A. Collins. Portfolios in teacher education, Journal of Teacher Education, 44, pp. 200-210, (1993).