e-Portfolio as a Tool for Reflective Learning

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Abstract
The development of online education in the pandemic context that humanity is facing today brings to the researchers and different practitioners to focus their attention to the issue of the e-portfolio, seen as a method/instrument and also as a framework for learning. Reflection, as a process of deepening knowledge and awareness of the learning, must also be an important part in the creation and usage of the electronic portfolio. The present study examines the opinions of teachers with reference to the electronic portfolio and the use of reflection in the context of its making. The survey involved 402 teachers and was conducted using an online questionnaire, containing 35 items, completed by the teachers voluntarily. The results indicate that the respondents are not very familiar with both the digital portfolio and the practice of reflection. In fact, research participants focus on the portfolio as a product, and this product is mainly the subject of reflection. An explanation for this situation can be found in the lack of digital skills and critical reflection. However, in order to support this hypothesis, it is necessary to extend the research.
Keywords: reflection, experience, electronic portfolio, e-learning.

1. Introduction and Theoretical Background

Reflection is the process of reasoning that involves intuition, reflective thinking, emotion and passion. It gives meaning and depth to learning and life experience by creating connections between the content studied and the student's personal life and learning experience. Reflection should be integrated into any type of experiential activity, regardless of its type or location. A prerequisite for authentic reflection is that students have a variety of formats and contexts available (Bruin et al, 2012)

In daily life, reflection occurs when faced with unexpected challenges and experiences. In a school setting it must be put into practice throughout the learning process. To this end, the reflective process must be carefully designed by the teacher to develop his/her students thinking skills. In his work "How We Think" (1960), Dewey differentiates the teacher's didactic actions, characterized by routine, from those based on critical reflection. The first type of action involves the application of certain patterns of behavior while the second involves interactivity, open mindedness to accept other opinions, examining the consequences of actions, self-interrogation, introspection and metacognition. These behaviors are exercised before an activity, during it (on action and in action) and at the end of the activity (Johns, 2013).

The process of reflection is described by a series of cycles (Kolb, 1984; Gibbs, 1988; Schön, 1983, 1991; Wain, 2007). One of the best known cycles belongs to Gibbs (1988) who identifies six stages: description, feelings, evaluation, analysis, conclusion and action plan. During each phase the teacher asks questions to help students to identify and clarify general issues, and to look for information necessary to propose an action plan (Gibbs, 1988; Mulder, 2018). Also, the teacher

must be a good observer being attentive to what students know, they have learned or they are willing to learn, giving them authentic working tasks which are meant to encourage reflective thinking during the learning process. The teacher's reflective thinking skills are: observation, (self) questioning, communication, judgment, decision making and (self) assessment, collaboration (Dulamă, 1996; Fariba et al, 2014).

Making and using an e-portfolio involves reflection: students reflect on what they have learned, how they have learned and how much they have learned. Step-by-step, developing their skills of reflection, metacognition and self-regulation of learning, students take control of their own way of learning.

The e-portfolio represents an instrument through which critical reflection can be put into practice and at the same time documented. It is referred to in terms of product and process. As a product, a portfolio represents a collection of materials realized by students, and it represents proofs of fulfilling work tasks, underlining the student's progress, the difficulties they encounter and the way in which these are overpassed. The e-portfolio, in contrast with the paper portfolio, offers access to digital materials, easy to use and revise and whose evolution in time can be followed.

Abrami and Barrett (2005) identify three categories of portfolios: the portfolio as an instrument to stock up information to be used in the process of learning, the portfolio of learning products (containing the learning results) and the portfolio as a process and space of work. The last type of portfolio contains artefacts of the learning process through which the process of learning with its intermediary difficulties and fulfilments are pointed out. The step-by-step evaluation of the portfolio made by the teacher may be formative, of process or progress. A product/result portfolio asks for a summative evaluation made by the teacher. Nastas (2013) classifies electronic portfolios into 3 categories. The first category, that of the learning portfolio, includes both the various materials and products done by the student during a course, semester or school year and his/her reflections on those works. The second category is assigned to the presentation portfolio that contains the most successful materials and products of the student, creating the possibility for him to form a critical vision regarding the way he accomplished his/her own work. The last category includes the evaluation portfolio that is used for appreciating the level of development of the student's competencies because it highlights the learning process and the final result. All three portfolio categories involve reflection either on the selection of portfolio components or upon them. Carleton University promotes the reflective portfolio and specify the learning objectives: to communicate accurately using scientific concepts, to relate concepts and make synthesis, to connect theory to real life applications and practice, to reorganise or revise theory, to base ideas on evidence, to critically reflect on his/her experiences and learning; to self-assess the learning process; to demonstrate critical thinking skills and creativity.

It is necessary that the students should be motivated enough to make portfolios, the environment playing an important role in this process, so that "this activity must be attractive and lay accent on active learning" (The Association for Education in Universities Initiative, The UK). Also, the stress must be put on both the quality of the materials and the learning experiences in the context they have been generated, as well as the results of learning. The moment when the e-portfolios become mere collections of photographs or other elements, they lose their educational value.

The literature identifies the essential stages after which the student can orient himself to build an electronic portfolio (Barrett, 2000; Magdas, 2012). The first step is represented by the sketching of the portfolio structure and the set up of requirements and success criteria. This approach is based on the pre-established educational objectives which are needed to select the materials that are to be inserted in the digital portfolio. The next stages imply the multimedia material gathering, out of which those that are to be used in the building of new knowledge (learning) are selected.

The penultimate stage is represented by the connection of the learning artefacts and their evaluation. The last step means the portfolio presentation in front of classmates and teacher, followed by the feed-back and the revision of the e-portfolio. Having into account that the portfolio is also a useful tool in a new learning process, this revision is obligatory. Reflection is present during every stage of building up the e-portfolio, although some authors dedicate a separate stage to it.

The assessment of students' e-portfolios, as well as their achievement, is made online. This approach is based on the objectives/aims and criteria such are: the number and the degree of complexity of the materials and their correctness, the diversity of the resources used to build the portfolio, students' skills in developing and using digital materials, the creativity and originality shown in fulfilling the tasks, etc.

2. Material and Method

The research consisted in a survey which had in view the investigation of the teacher's opinions about the e-portfolio and the role of reflection in achieving a portfolio.

The instrument used in the survey was a questionnaire (35 items), adapted by the researchers from Abrami et al. and applied online using Google. The questionnaire was structured according to three components: demographic items and items related to the e-portfolio and the role of reflection in achieving the portfolio.

The items related to the digital portfolio refer to the stages of achieving a portfolio and the portfolio components. The items referring to reflection have in view the steps in building up a portfolio in which reflection is present. To elaborate the answer to most of the items, the Likert scale with three and five levels was used. An item required a free answer from the respondents.

The Likert scale with three and five levels was used in filling in the questionnaire. The results were expressed in percentages. Regarding the answers on the five-stage Likert scale, the sums of percentages obtained at levels one and two and at levels four and five were interpreted as disagreement/ low frequency and agreement/ high frequency.

402 teachers were implied in the survey, their participation being voluntary. The great majority of the respondents (99.57%) were female. Most respondents are in the age group 30-34 years (12%) and 35-39 years (9.25%). The 18-24, 25-29 and 40-44 age groups constitute each about 8.50%. The other age groups represent under 5%. The respondents come from higher institutions all over the country. 53.98% of the respondents teach in preschool education, 23.39% in primary education and 23.63% of the respondents teach at higher levels (gymnasium, high school and university). Their teaching experience is as follows: under five years (35.57%), six to ten years (19.40%), eleven to fifteen years (13.18%), sixteen to twenty years (8.71%), twenty-one to twenty-five years (10.95%), twenty-six to thirty years (4.98%) and over thirty years (7.21%). 37.31% of the respondents teach in the urban area and 62.69% teach in the countryside.

3. Results and Discussions

According to the respondent's opinion, the stages in achieving a digital portfolio comprise: structure decision and portfolio contents (80.35% agreement); documentation and necessary material gathering to fulfil the work tasks (81.34% agreement); elaboration of the portfolio materials and establishing the connection between them (79.10% agreement); portfolio presentation, collecting the feed-back (77.11% agreement); revision of the portfolio (75.12% agreement). The highest degree of disagreement is registered referring to the last step (10.95%). The result is surprising as it leads to the idea that the respondents consider learning finished once the portfolio is made. In reality, not only the skills acquired by the students in the process of achieving the digital portfolio are transferable to a new context of learning, but also the portfolio components.

The respondents were asked to express their opinions referring to the frequency of the presence in the e-portfolio of a certain type of material of the typology suggested by the researchers. The results were divided into three categories in order to be interpreted: high/very high frequency, medium frequency and reduced or very reduced frequency. The hierarchy of the e-portfolio components, having into account their high or very high frequency in the portfolio is as follow: materials elaborated during the achieving the portfolio (64.68%), proofs of the learning process (54.23%) and reflections about the process of building the portfolio (54.23%); materials in a traditional format (53.98%); auto-evaluations of some portfolio products (52.99%); materials obtained during the documentation process (50.50%); the feed-back offered by classmates or the teacher (50.25%); electronic materials (video, audio, etc.) (47.01%). Ranking electronic materials on the last position may be attributed to a lack of high-level digital skills together with the low level of using digital means, and it makes the respondents unaware of the versatility of these materials and their efficiency during the learning process.

The respondents were asked to complete the list of portfolio materials and to justify their views (free answer item). The answers put in evidence respondents' concern for evaluation: the portfolio has to include initial and diagnostic tests, progress charts, test models, monitoring grid of each student's progress, students' self-assessments. The respondents also suggest that the digital portfolio must include book and film reviews, models of activity (problem solving, experiments), ppt's, useful link lists, photos, music recordings, movies (YouTube), books in pdf or other formats, materials having an electronic board as source, etc.

Another interesting result refers to the respondent's opinions concerning the item "My students enjoy building up an electronic portfolio". The percentage of the respondents who disagree with this statement (42.79%) is over that of the respondents who express their agreement (31.10%). However, 49.50% of the respondents agree with the statement "I encourage the students to use the portfolio in order to learn". 44.28% of the respondents agree that the student's electronic portfolios facilitate the monitoring of the student's learning process. In fact, achieving a portfolio, regardless of its nature (paper and pencil or digital) helps the students to understand how and how much they learn (41.79% agreement) and to deepen their knowledge (43.03% agreement). 50.25% of the respondents agree that building an electronic portfolio stimulates reflection.

In the respondents' opinions, reflection should be exercised on "requirements/criteria established by the teacher regarding the content and quality of materials included in the e-portfolio" (56.47% agreement), tasks given by the teacher (55.72% agreement) and learning outcomes (54.98% agreement). Equal agreement percentages (53.48%) were obtained referring to the items which mention reflection on: (1) the fulfilment of the teacher's demands about the process of achieving a portfolio; (2) the extent to which the objectives are met; (3) the (self) assessment tools and (4) the quality and usefulness of every material selected to be included in the portfolio. The respondents consider the reflection referring to the demands formulated by the teacher more valuable than that given to learning objectives (51.24% agreement). They also agree that reflection must target "the methods and resources used for reflection" (52.24%), "the feed-back received about the portfolio achievement" (51.99%) and "the revisions performed upon the portfolio materials" (50%). The results also show a difference of 5% to 10% between the answer to item "reflection targets learning results" and items "reflection targets former knowledge" (6.22% agreement), "reflection targets solving intermediary tasks" (10.20% agreement), "ways of revising the portfolio" (6.47% agreement), "reflection works upon the revision of materials in the portfolio" (4.98% agreement). Thus, in the respondents' opinions, reflection concentrates on the final outcomes, not on the intermediary results. The high percentage of undecided respondents with reference to the practice of reflection in the creation of the portfolio leads to the idea of the lack of habit of teachers to achieve reflection.

Conclusion

The results regarding both the portfolio and the reflection in the context of the development of the portfolio are around the average (50% agreement). They suggest the idea that the Romanian respondents are not familiar with digital portfolios; they see its elaboration as a linear, not cyclic process, which ends with a portfolio seen as a collection of materials which are not only digital. As a result of this view, the respondents associate reflection to the results, not to the process. Further research is necessary to establish if the results obtained in this study can be generalized.

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