

# **The Electronic Portfolio - A Useful Tool to Support Technological Integration in the Classroom**

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## **The Issue**

At the end of the 1980s, the research done in cognitive psychology provoked a change of paradigm. A switch was made from adopting a paradigm that focused on teaching to one that focused on the students' process of learning. This change echoed the new realities and trends in education; namely, the recognition of the importance of: existing knowledge in the process of learning new material, the interaction with peers, significant learning, self-awareness as a learner, and being involved and engaging in one's own course of progression (UQTR, 2005).

From this point onward, learning was considered to be an active process where the student is the master of his/her own learning and sees his/her responsibilities increased. In such a situation where the student actively participates in his/her learning process, the teacher adopts a role of a guide in order to support the student throughout the learning process. Evaluation is an integral part of that process. The main task of the teachers is therefore to help the student throughout his/her learning process and to allow for adjustments to be made to his/her pedagogical intervention (MEQ, 2002).

How can the teacher help the students? How can the teacher make the students be more responsible, reflect on their learning process, increase their self-awareness? How can the teacher encourage the students to integrate the notions, abilities and behaviour learned, and to succeed in their studies? Within the context of this new paradigm, the electronic portfolio is one of the proposed tools that can be used to meet these new educational needs.

### **Definition**

The learner's portfolio is defined as a collection of the student's achievements which demonstrates the efforts, progress, and the knowledge that the student has acquired; and it develops over time(Goupil, 1998).

A portfolio is a dynamic tool which tracks the student's progress in his/her learning. The student is the key player in the construction of his/her portfolio. The assignments which the student must complete are accompanied by his/her comments relating to his/her perceived achievements and progress. This metacognitive activity allows the student to develop skills relating to self-awareness and self-assessment, and to get more involved in his/her own studies. A portfolio may also contain comments and thoughts from teachers or other education professionals.

A portfolio is not only an end-of-semester project. It is a learning tool which facilitates the evaluation process since it allows for the teacher to have a global overview of the student's progress (Amblard, 2004; Eyssautier-Bavay, 2004).

## A History of Portfolio Usage

At the beginning of the 1990s, the American and English-speaking teachers in Quebec started using the portfolio in their educational curriculum. The French teaching staff in Quebec will closely follow this example. In 2000, the school reform at the elementary and high-school levels in Quebec introduced the portfolio as one of the tools of record-keeping that maintains track of a student's progress on his/her way to achieving academic success (MEQ, 2002, p.5). More recently, this interest in the portfolio extended to European countries like France, Switzerland, and Belgium. More and more teachers are integrating the portfolio into their teaching practices.

## Types of Portfolios for the Student

There are three types of portfolios for the student: the learning portfolio, the presentation portfolio, and the evaluation portfolio.

The **learning portfolio** tracks various achievements that are significant to the student. It maintains a record of the student's progress, helps the student become aware of his/her learning progress, and teaches the student to make a self-assessment. The student must comment on the steps that are taken to complete his/her assignments.

The **presentation portfolio** requires the student to select his/her best achievements and justify his/her choice. The student learns to be critical of his/her work, adopting an approach of self-awareness. He/she is therefore able to identify his/her strengths and weaknesses, motivations, as well as his/her interest in the learning objectives he/she is pursuing in the development of his/her competencies.

The **evaluation portfolio** serves to illustrate the competencies that have been attained by a student in a program or those required by a student to be admitted into a program. The student knows from the beginning who will evaluate his/her work and what the evaluation criteria is (MEQ, 2002).

The three portfolios can be combined. They are generally used for different purposes and include characteristics of each of the above-mentioned portfolios (Van Tartwijk et Driessen, 2005).

The objectives of a student portfolio are numerous:

- to develop the metacognitive abilities of the student;
- to increase the student's motivation by being involved in his/her training;
- to allow for a evaluation not only of one work at one given instant, but of a collection of assignments done throughout the learning process (Eyssautier-Bavay, 2004).

## **Types of Support**

The student portfolio may appear in one of three formats: on paper, electronically, or in a combination of the two.

The paper portfolio (also called the traditional portfolio) can contain different documents such as texts written by the student, photographs/pictures, audiotapes, or videos. These documents may be included in a binder or a folder, for example.

The electronic portfolio (also called ePortfolio) can contain different electronic documents (Word, Excel, etc.), pictures/photographs, videos, sound recordings, or multimedia presentations. These documents can be stored on a CD, a removable disk, a server, a Web site, an I-Pod, and so on.

The hybrid portfolio, a combination of the paper and electronic portfolios, consists of the student's achievements on paper, as well as his/her comments (or the teacher's comments) on an electronic device, for example.

Of the three types of support, the electronic portfolio offers the most advantages. It is:

- Economical given the space it requires;
- Easy to review and edit;
- Possible for the student to add or delete files, or reorganize its content by adding links from one document to another;
- Possible to be posted on-line as a whole or in part, making it more accessible.

The electronic support also has its disadvantages. The first disadvantage relates to the very nature of the electronic support, which revolves around the computer. The access to a computer, the reliability of the network, the availability of human and technical resources, the disk space (if the portfolio is on a server), and the compatibility between documents are a few examples of factors that must be taken into account when dealing with work electronically. Another concern relates to the privacy of the information when it is stored/posted electronically. The portfolio naturally contains personal information written by the student or teachers (eg. personal thoughts, teachers' assessments, students' strengths and weaknesses). Therefore, to limit the number of people who have access to student portfolios, the use of a mandatory access code to view or modify the portfolio is an example of a safety measure that should be considered (Amblard, 2004; Eyssautier-Bavay, 2004; MEQ, 2002).

## **Practical Applications**

### **Integration in a program**

#### ***Development of the Portfolio by the Program Staff***

The establishment of a student portfolio requires time. First, the team of teachers has to take some time to reflect upon and discuss the ultimate goal of the portfolio, and choose

the desired type of portfolio and its format. The development of the portfolio also requires a consensus regarding its content:

1. What will the portfolio contain? The objective to be attained, the type of portfolio chosen, and the field of study are elements which will determine the content to be included in a portfolio. For example, a technical program, with or without an internship, and a pre-university program have different goals: one prepares the students for work; the other to pursue his/her studies in university. The content of the portfolio must therefore differ accordingly. Similarly, a portfolio could hold colligated documents or personal items. The content could be organized around a theme, or aimed at professional development, integrating knowledge, and so on.
2. Will the content be open-ended or will it be predetermined? It is possible to give the students the freedom to choose to present what they feel to be relevant material, or to have the teacher decide upon the content, with or without consulting the students. All of these factors depend upon the goal and the type of portfolio.
3. How will the content be structured? It is important to include a table of contents in the portfolio to serve as a point of reference.

Finally, one of the issues to be considered when implementing a portfolio into the curriculum is the method of evaluation. The evaluation criteria to be used must be established by the teachers of the respective programs. It is also important that the students be well informed with respect to these criteria. The difficulty in establishing a method of evaluation is related to the nature of the material that is to be evaluated. Given that the portfolio consists of documents, feedback, and comments, the criteria are mostly qualitative. Here are some examples of criteria that should be considered:

- the content is clear and univocal;
- the content is complete;
- the content is of high quality;
- there is evidence of a progression towards the targeted competency;
- there is evidence of a development of thought and a process of reflection on the part of the student given the relevance and consistency of the work that is submitted.

An ordinal scale (very satisfactory, satisfactory, not satisfactory) may be appropriate to gradually meet each criteria (Bélanger, 2003).

### **Using the Portfolio with the Students**

It is important to take the required time to appropriately introduce the portfolio to the students. For the students to be able to get acquainted with the portfolio and use it regularly, they must have a clear understanding of the objectives either as defined by the program or by the teacher, and be aware that they are responsible for developing their portfolio. If the goal is misunderstood, there is a risk that the students' effort will be put

into the presentation of the portfolio rather than into the analysis and self-assessment portions of the learning process.

The implementation of a portfolio also demands that students have a chance to reflect upon and discuss their work, for which they need adequate time. One of the objectives of the portfolio is that it develop the metacognitive abilities of the student, which requires time in and outside the classroom. Furthermore, to be better able to reflect upon his/her own work, the student needs to engage in exchanges with the teacher. As a result, sessions for discussion and/or feedback must be planned and scheduled. To ensure a successful implementation of the portfolio, one or several classes at the beginning of the program must be dedicated to having students adapt to the portfolio, and subsequent classes throughout the semester should be reserved for exchanges between the student and the teacher(s). (CEFES, 2005; Eyssautier-Bavay, 2004; Goupil, 1998).

### **Other Uses of the Portfolio**

The student portfolio may become a professional portfolio when the student in a technical program enters the labour market. A student in a pre-university program may continue to develop the portfolio in university. More and more faculties at the university level require a portfolio from their students. In practice, the student portfolio may also serve to attest to the academic achievements (assignments and work experiences) that the student considers to be proof of his/her development of professional competencies.

### **An Example: The Integration Activity in the Social Science Program**

The integration activity in the Social Science program is given during the final semester of the program. Since this is a pre-university program, there is no period of internship as in certain other technical programs. The competency that is to be met by the student through this integration activity is to have him/her demonstrate how the knowledge gained in the program has been absorbed and appropriated by the student. During this activity, the student has to assess what he/she has learned throughout the program. The student must also appropriate this acquired knowledge by applying it to a project and, finally, must also perform a metacognitive analysis of the entire process. This latter activity allows the student to have a global overview of his/her academic and professional development. The portfolio therefore becomes a good tool for this integration activity.

Given its format, the portfolio is a tool that contains the student's most significant work. The self-assessment component of the activity is applied to both the learning portfolio as well as to the presentation portfolio. These two types of portfolios also serve as a tool through which the student may apply his/her gained knowledge to a new cognitive activity. Finally, the metacognitive element of the integration activity is closely related to the development of the portfolio. Each document to be included in the portfolio, as chosen by the student, has to be justified.

## The Electronic Portfolio in Social Sciences at Cégep de Sherbrooke

The electronic portfolio designed for the Social Sciences program at Cégep de Sherbrooke encompasses all three types of portfolio: the learning, presentation, and evaluation portfolio. At the beginning, the goal of using the portfolio was to facilitate the student's level of self-assessment during the integration activity and to render this exercise more significant. The presentation portfolio, as well as the evaluation portfolio, was subsequently introduced by volunteer teachers during the pilot course three years ago.

The introduction of the learning portfolio has been more recent and more gradual. There are many students enrolled in the program at Cégep de Sherbrooke. For example, there were nineteen groups in the program in the Fall 2005 semester, with more than forty-five teachers with specific training who were divided into four profiles. The first trial was done in Fall 2004 according to the profile "Réalités internationales." In the Fall 2005 semester, the portfolio was used in two profiles ("Réalités internationales" and "Administration").

Currently, the development and format of the portfolio is the student's responsibility. His/her role is to complete the portfolios during the respective semesters. The teacher's role is to frequently remind the student to complete the portfolios. If need be, a teacher may review the portfolio and provide the student with feedback. Once the program will be evaluated, some adjustments may be made regarding the teacher's involvement in the process to ensure that the students be better monitored. The teacher who is responsible for the integration activity and chooses to use the portfolio also has the responsibility of evaluating the presentation of the portfolio as well as the metacognitive component with which it is accompanied.

The following illustration presents the sections of the portfolio.



The students keep their work (Word or Excel assignments, multimedia presentations, etc.) in the learning portfolio (section titled *Mes apprentissages*), throughout the semester. The students also fill out a [metacognitive questionnaire](#) (annex 1) that accompanies each document. That questionnaire not only causes the students to recognize the knowledge they have gained, but also encourages them to use and develop their critical thinking skills (by planning, evaluating, and assessing). They can equally become conscious of their weaknesses and can learn to improve them accordingly.

The presentation portfolio (section titled *Mes bilans*) is designed in a way that allows the student to add to it, ideally at the end of each semester, or at the end of his/her studies. Each [assessment](#) (of the semester) (annex 2) consists of four sections:

1. The first part is where the students identify their most significant achievements and justify each of their choices. This activity makes them practice self-analysis and allows them to better recognize their interests, strengths and weaknesses.
2. The second part consists of a [questionnaire](#) (annex 3) regarding the skills and attitudes that have been gained through and pertain to the Social Science program. By filling out this section semester after semester, the students are able to track their own progress. They may also make connections between what they have learned here and what awaits them in their future university program.
3. The third part presents the students with a goal-oriented component which they must complete. The inclusion of this step is justified by the fact that only one student out of five enters CEGEP with a relatively specific goal or professional direction in mind (Fédération des cégeps, 1999). Hyperlinks are included in the questionnaire and help guide the students towards potential university programs.
4. In the last part of this self-assessment section, the students reflect on their progress at a higher level and are invited to make conclusions about the process. This kind of reflection links all aspects of the student's life together, on both an academic and psychosocial level.

The presentation portfolio contributes to the student's assessments of his/her competencies, to the management of his/her academic career, and to the student's professional development.

The section titled *Mes réflexions* addresses three critical moments in the CEGEP student's life. Up until now, the content of this section has been left to the students' discretion. The few comments that were received from the students were generally positive.



1. The first analysis takes place after the student has completed his/her first two months of CEGEP. The first weeks are crucial to the student's integration into the school environment, from both an academic and psychosocial aspect. During that period, the student has to adopt a new behaviour; and adopt new standards with respect to his/her studies, emotional development, and social life. For some students, all of these changes come as a shock. Ducharme (1990) discusses the shock of autonomy that is felt by the student ("choc de l'autonomie").
2. The second analysis occurs after the completion of the students' first year of studies. The students are invited to confirm their confidence in their choice of program or to realize that they wish to pursue other interests. According to the SISEP ("Système d'indicateurs pour le suivi des étudiants par programme"), two out of five students drop out of their chosen program after the first year.
3. The third analysis is performed during the integration activity and addresses the transition from CEGEP to university.

The evaluation portfolio takes form of a metacognitive essay whose content is derived from the various self-assessments the students make in the section titled "Mes bilans" and/or the section called "Mes réflexions" The [evaluation criteria](#) (annex 4) are qualitative: the content must be complete, clear, done independently, attached to the document, and must demonstrate consistency between the chosen document and the self-assessment.

In conclusion, the electronic portfolio ensures the students a greater success rate, and guides them in their orientation process while allowing them to become acquainted with a tool that will be used in their university studies.

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## Annex 1

### Metacognitive Questionnaire

**Name of attached document :**

Why did I choose this document?

My answer:

#### **What have I learned?**

(This answer can be related to your competencies and abilities, the task that has been realized, the means that were chosen to accomplish this task, the necessary knowledge that was applied, and so on.)

My answer:

What went well in realising this assignment? Have I been efficient? Why?

My answer:

If I had to do it again, what would I do differently?

My answer:

## Annex 2

### Example of an assessment made at the end of the first semester

#### First semester

Given all that I have learned during my first semester, my most important achievements are the following:

Name of document (create an hyperlink)

Because....

Name of document (create an hyperlink)

Because....

Name of document (create an hyperlink)

Because....

In relation to the skills and attitudes pertaining to the Social Science program (fill out the questionnaire)

In relation to my professional development (fill out the questionnaire entitled “S’orienter au fil des sessions”)

To come to a conclusion at the end of this first semester,

I have discovered that ....

My greatest satisfaction is ...

My greatest disappointment is...

### Annex 3

#### Questionnaire regarding my abilities within the Social Science program

<b>My abilities</b>	<b>Degree of accomplishment</b>
	Poor, Fair, Average, Good, Excellent
Ability to perform research	1 2 3 4 5
Ability to use communication tools on Internet	1 2 3 4 5
Ability to use presentation software	1 2 3 4 5
Ability to analyse	1 2 3 4 5
Ability to synthesize	1 2 3 4 5
Ability to formulate a coherent discourse	1 2 3 4 5
Ability to apply knowledge to an analytical situation	1 2 3 4 5
Ability to have time management	1 2 3 4 5
Ability to think critically	1 2 3 4 5

Ability to perform self-assessment	1	2	3	4	5
Level of autonomy	1	2	3	4	5
Level of creativity	1	2	3	4	5
Level of ethics	1	2	3	4	5
Ability to receive criticism	1	2	3	4	5
Ability in French (written)	1	2	3	4	5
Ability in French (spoken)	1	2	3	4	5
Ability to comprehend an English document	1	2	3	4	5

Source: Plan-cadre du cours *Démarche d'intégration des acquis en Sciences humaines*, Collège de Sherbrooke, Sherbrooke, 2002.

## Annex 4

### Evaluation Criteria

#### Portfolio

- ④③ Each document is attached to the assessment pertaining to the relevant semester.
- ④③ There is a justification for each document, and it is complete and relevant.
- ④③ The questionnaire relating to the multiple competencies was filled out each semester.
- ④③ The last section of each assessment pertaining to each semester is also complete.
- ④③ The cover letter and résumé are included.
- ④③ Each document for the course “Démarche” is attached to the assessments pertaining to each semester.
- ④③ Each document for every other course is attached to the semester’s assessment.

#### Metacognitive Essay

##### Section 1 – Past progress

- ④③ The content is complete, precise, and clear.
- ④③ The minimum length has been observed.

##### Section 2 – Present progress

- ④③ The content is complete, precise, and clear.
- ④③ The minimum length has been observed.

##### Section 3 – Future progress

- ④③ The content is complete, precise, and clear.
- ④③ The minimum length has been observed.

##### Section 4 – Thoughts on the rites of passage

- ④③ The content is complete, precise, and clear.
- ④③ The minimum length has been observed.