5.3.3 The Electronic Portfolio for Student Reflection in Action and Transformation:

An Innovative Project

The UPR EPP in its mission of forming leading educators committed to reflective and transformable socio-humanistic practices, integrates the latest technologies to its curriculum methods and subjects. The emerging technologies have opened unprecedented possibilities in the learning process of those populations that are becoming more diverse and that not necessarily concur in time and space. These technologies constitute support tools for new forms of teaching, learning research, creation and evaluation. Their integration makes it necessary to design learning environments that will include varied activities and virtual formation experiences.

On the e-portfolio our teacher candidates as apprentices responsible for the construction of knowledge and meaning from within their own learning can rely on a tool for reflective learning and self-evaluation, and on authentic virtual spaces to gain a meaningful and transformational learning. These spaces for reflection, in turn, will allow them to explore and value their theories and practices in order to evaluate and reaffirm them, or re-propose, enrich and transform them. Bearing this in mind, we designed a reflective-formative e-portfolio as a tool that will make reflection in action and transformation easier for our teachers candidates.

E-Portfolio Project: Intense Effort for Innovation and Change.

The UPR EPP had a project called *Transformation of the College of Education.* This project was supported by the *Preparing Tomorrow's Teachers to Use Technology Grant (PT3)* from the U. S Department of Education. The main purposed was to integrate technology to the program that prepares teachers with on-line resources within classroom courses, and electronic portfolios. The E-Portfolio Project is part of an intense effort for innovation and change in our College. It, therefore, has the potential of influencing the curriculum, the level of technology integration, and the evaluation process, as well as the administrative process of decision-making related to program evaluation.

Meaningful Learning: Conceptual Framework of the E-Portfolio Project

With a constructive-reflective paradigm as starting point, a program that forms future educators should be based upon the principles of "meaningful learning." Meaningful learning requires dialogue and group experiences with which our students can get the opportunities of working together for constructing meanings and work on solving specific problems. The function of each educator who adopts a constructivist curriculum is to stimulate and offer learning experiences, and support activities that will involve students in critical thinking, constructive-reflective learning, social action, and creative action. The constructivist curriculum provides space for the critical construction of knowledge, instead of serving for its mere a-critical transmission. At these information spaces professors also construct new knowledge and are even receptive to the fact that some of their students' thoughts transcend their own.

The e-portfolio provides professors with an opportunity to interpret their formation experiences using internal cognitive and valuation operations. This way the professor is enabled to be involved in meaningful learning experiences.

The E-Portfolio Project: Achievements, Purposes and Scope

As in paper portfolios, an e-portfolio exhibits carefully compiled examples that allow education candidates to demonstrate their knowledge, competencies and disposition by means of projects and their development. The use of technology will make it easier for the process to become systematic, durable and practical. Some of the advantages of using the e-portfolio are the following:

- **Stimulates expression**: Allows the students to explore multiple forms of expression typical of their capability.
- **Stimulates technological competency:** Offers to the students opportunities for developing technological competencies and "information" literacy.
- **Stimulates collaboration:** Students can invite professors and peers to examine the portfolio and provide feedback. This stimulates collaboration inside the virtual learning community.
- **Facilitates communication:** Provides a space for collaboration and immediate electronic feedback that paper portfolios seldom provide. As a result professor-student, student-student, student in practice-cooperating professor, and professor-professor communication is faster.
- **Facilitates evaluation:** It allows to establish virtual revision links that ease the evaluation process, since the traditional portfolio presentation and review processes can be unpleasant, especially in the context of programs with large numbers of students.
- **Solves the storage problem:** It is easier for students to store their portfolios in a server and obtain digital copies that solve the storage space problem.

The E-Portfolio for teaching candidates will be progressive-reflective in nature. It makes it easier for teaching candidates to review periodically their personal and professional goals while they are preparing for their career. The portfolio shall also have repercussions for professors and academic administrators, by contributing to their professional development and their curriculum decisions. Some of the ways in which the e-portfolio can help students, professors, and academic administrators follow:

It will help candidates to:

- Reflect thoroughly, systematically and meaningfully upon their education theories, philosophies and practices.
- Facilitate their active-reflective learning, through which they can take control of their learning experience and of their educational process.
- Share their projects and ideas responsibly with their peers, professors and cooperating teachers
- Interpret their achievements and identify strengths and weaknesses to provide direction to their academic, personal and professional development.
- Explore and provide evidence of their creative, organization, reflective, critical, intellectual and technical abilities.

- Conceive and create a document with authentic credentials that could be very useful for searching for a job in the future.

It will help university professors to:

- Reflect thoroughly, systematically and meaningfully upon their education theories, philosophies and practices.
- Obtain information that will facilitate the restructuring of educational contents and experience necessary for forming future teachers.
- Develop and design constructivist teaching strategies and learning experiences.
- Foster the integration of the latest technologies to significant learning experiences.
- Provide other alternatives for authentic student evaluation

It will help academic administrators to:

- Reflect thoroughly, systematically and meaningfully upon their administrative theories, philosophies and practices in education
- Facilitate the decision taking process and the establishment of administrative policies at the different stages of planning, implementation and evaluation of teacher-preparation programs
- Facilitate the compilation of evidence m order to document the program accreditation processes

It should be pointed out that, even after the students graduate, the e-portfolio will continue to be used. For example, it will aid the inductive beginning-candidate and the experienced one to establish goals and guidelines to continue developing professionally

Integrating Faculty Competencies/Dispositions in the Reflective-Formative E-Portfolio

The candidates present evidence of their knowledge, skills and attitudes taking as framework the e-portfolio and the ten (10) Faculty competencies:

1. Content Knowledge
2. Knowledge of the Student and the Learning Process
3. Planning for Instruction
4. Implementation of Teaching and Research
5. Creation of Learning Environment
6. Communication
7. Integration of Educational Technologies
8. Assessment of learning
9. Community Relationship
10. Professional Development and Performance

Four phases plan to organize the e-portfolio work

The e-portfolio plan is organized into the following four phases: **(a)** compiles, selects and articulates; **(b)** systemizes, poses problems and contextualizes; **(c)** examines in depth, constructs and values; **(d)** re-states, transforms and undertakes.

Compiles, selects, articulates

In this first phase, the candidates shall compile evidence of their own formative experiences and authentic practices during their formative years. They shall also select specific evidence that represents their competencies, dispositions and goals relating them to the Integrating Principles of the E- Portfolio. It is suggested that during this process they pose questions such as these:

- What tangible evidence represents the intent of my competency, disposition and goals?
- Which evidences are examples of my formative experiences and authentic practices?
- To which integrating principles do the selected evidences respond?
- To what extent are these integrating principles coherent with my competencies, dispositions, goals and practices?

Describes, systemizes and contextualizes

Throughout this phase, the candidates will describe each piece of evidence once the, selection has been made. It is suggested that special attention be given to problematic circumstances or challenging situations related to the experiences and practices represented by the evidence. Bearing this in mind, they should emphasize on questions such as:

- What evidence did I choose?
- What formative experience(s) or authentic practice(s) do they represent?
- Who is/are related to this experience or practice?
- Where did this experience or practice take place?
- How did this experience or practice take place?
- When did this experience or practice take place?
- Why and for what purpose did this experience or practice take place?

Examines in depth, constructs and values

In the context of this phrase, the candidates shall reflect upon how and why the compiled evidence -both individually and as part of a whole- demonstrate a learning experience related to their personal and professional formation. Thus, they shall make in depth analysis, construct meanings and form evaluating judgments on the basis of their portfolio's activities and reflective experiences, using questions such as

- Why did I choose this evidence?
- What relationships and links exist between these evidences goals, values and philosophy?
- How can I interpret these portfolio activities and experiences in terms of their general impact on my personal and professional experience?

- What meaningful learning have I gained from these individual and group reflection experiences on the e-portfolio?

Re-states, transforms and undertakes

In this mature stage, candidates re-state their good and not so good ideas, in the light of their goals, values and philosophy. It is suggested that during their reflection they use the following guide questions so they enrich and transform their educational practices:

- After reviewing my ideas-- goals, values, philosophy-to what extent have I internalized them?
- What have been my greatest achievements, strong points and successful plans? My limitations and unsuccessful plans?
- What transformations would I integrate into my education practice?
- What future changes, innovations and collaborations would I propose?
- What would some of my projections and concrete proposals be?

Where do candidates look for evidence?

Next table present the EPP competencies aligned with InTASC and State Standards and the courses or instances where the candidates can look for evidences.

Evidence for Electronic Portfolio and InTASC, State Standards and EPP Competencies Alignment

	InTASC Standards	State Standards	EPP Competencies	EPP Learning Outcomes	Evidence/instances for E-Portfolio
The Learner and Learning	1 Learner Development	5 Diversity and Special Needs	2 Knowledge of the Student and the Learning Process	**2A.** Knowledge of the diverse ways in which students develop cognitively, socially, emotionally and physically, and of the diverse ways they learn **2C.** Knowledge and organization of strategies, resources and teaching-learning activities that address the diverse needs, interests and talents of students.	• Theory of Learning Course • Educational Psychology Courses • Human Development Course • Exceptional Child Course • Pre Practicum • Practicum
	2 Learning Differences	5 Diversity and Special Needs	2 Knowledge of the Student and the Learning Process	**2B.** Knowledge of student profile and diversity: family, culture, and community, through the use of various information sources.	• Theory of Learning Course • Educational Psychology Courses • Human Development Course • Exceptional Child Course • Pre Practicum • Practicum
	3 Learning Environments	4 Learning Environment	5 Creation of Learning Environment	**5A.** Knowledge of individual and group behavior in order to create an emotional environment of respect for the student, his/her culture, and individuality, based on healthy living standards which promotes positive interactions among all students. **5B.** Encouragement of active participation within the learning process among all students **5C.** Organization of a healthy, safe, appropriate, and stimulating learning environment.	• Theory of Learning Course • Educational Psychology Course • Human Development Course • Exceptional Child Course • Pre Practicum • Practicum
Content Knowledge	4 Content Knowledge	3 Content Knowledge	1 Content Knowledge	**1A.** Broad and in depth knowledge of subject matter. **1B.** Connections between subject matter and other disciplines. **1C.** Integration of standards with subject matter. **1D.** Organizes meaningful learning experiences for all students.	• General Education Courses • Specialty Courses • Methodology Courses • Pre Practicum • Practicum
	5 Application of Content	3 Instructional Strategies	4 Implementa-tion of Teaching and Research	**4B.** Selection and use of teaching practices, strategies, methods, and materials in order to promote of critical thinking and problem-solving skills in all students **4C.** Use and time distribution in order to achieve an effective implementation of teaching and educational objectives. **4D.** Research regarding the teaching and learning process in order to promote learning in all students.	• Research Course • Pre Practicum • Practicum
na	6 Assessment	6 Evaluation and	8 Assessment of learning	**8A** Selection, development, adaptation, integration	• Assessment and Evaluation Courses

	InTASC Standards	State Standards	EPP Competencies	EPP Learning Outcomes	Evidence/instances for E-Portfolio
		Assessment		and use of different means and techniques to gather information to assess learning that are appropriate and fair to all students. **8B.** Analysis of the information collected to make decisions regarding continuous learning and development of each student and about his/her educational practices. **8C.** Development and implementation of appropriate, fair and ethical procedures to evaluate students. **8D**. Organizes and clearly communicates assessment results to students and families.	• Pre Practicum • Practicum
	7 Planning for Instruction	2 Pedagogical Knowledge	3 Planning for Instruction	**3A** Alignment of objectives and instructional activities with the standards of subject matter and curriculum goals. **3B.** Selection and sequencing of appropriate teaching activities that are pertinent for the students and community, and the attainment of the objectives. **3C.** Short and long term planning according to curriculum goals and knowledge of students and their community. **3D.** Planning the use and distribution of time to achieve the learning objectives.	• Methods Courses • Pre Practicum • Practicum
	8 Instructional Strategies	3 Instructional Strategies	4 Implementa-tion of Teaching and Research	**4A.** Selection and use of a variety of appropriate teaching practices, strategies, and methods to promote learning among all students according to their different needs, talents, interests, and developmental levels.	• Research Course • Pre Practicum • Practicum
Professional Responsibility	9 Professional Learning and Ethical Practice	11 Professional Development	10 Professional Development and Performance	**10A.** Reflections on professional responsibilities, its practice and the effect of his/her decisions and actions on students, families, colleagues and the community at large based on the ethical principles of his/her profession and specialty. **10B.** Professional responsibility with academic requirements of the practicum experience. **10C.** Actively seeks his/her own professional Development	• Peace Education Course • Personal Development Activities • Workshops • Conferences
	10 Leadership and Collabora-tion	9 Family and Community	9 Community Relationship	**9A.** Knowledge of the various social contexts that condition education and the consideration of these in educational practice to support his/her learning and the welfare of all students. **9B.** Collaborative interaction with colleagues, families, the school community and other institutions to support the learning and the welfare of all students. **9C.** Participation in whole school activities.	• Social Foundation Course • Community work • Pre Practicum • Practicum

InTASC Standards	State Standards	EPP Competencies	EPP Learning Outcomes	Evidence/instances for E-Portfolio
		6 Communication	**6A**. Correction, appropriateness, and coherence in oral expression **6B**. Correction, accuracy and coherence in writing **6C**. Projection and effective articulation in verbal and non-verbal expression	• Reflection on *Mi trayectoria, Mi filosofía y Mi equipaje* • Writing Zone Workshops • Languages Courses • General Education Courses
		7 Integration of Educational Technologies	**7A**. Integration of technology to strengthen and promote active and meaningful student learning and the teaching process. **7B**. Uso de la tecnología para apoyar y fortalecer la evaluación del aprendizaje. **7C**. Use of technology to facilitate and enhance communication, collaboration, research, and creation.	• Technology Courses • Pre Practicum • Practicum

Data use to transform the e-portfolio experience

The first years implementing the e-portfolio demonstrated that the experience of identifying, reflecting and writing about evidence, required a greater degree of guidance. The majority of the students had difficulty completing the e-portfolio experience. For the year 2009, three professional reflective seminars, linked to the e-portfolio experience, were developed. The students were motivated to evidence competencies in the e-portfolio according to the recommendations listed in the following table.

Professional Reflective Seminars	Reflection guide	Competencies to work
FAED 4001 to enroll concurrently with EDFU 3012 (Foundations of Educational Psychology)	**Being an Educator** The seminar invites the students to reflect on themselves as educators and to consider the repercussions and justifications of their educational actions. The reflection revolves around the following: • The educational trajectory that led the student to the Department of Education. • The qualities that make a good educator and the diversity of educators and students. • The repercussions and justifications (for example, ethical, psychological, sociological, political) of an educators' actions.	• 2 Knowledge of the Student and the Learning Process • 10 Professional Development and Performance
FAED 4002 to enroll concurrently with Pre-Practicum	**Learning and Teaching** In this seminar the students are guided to focus on the activities of learning and teaching. They are invited to consider, in a critical and imaginative manner, the contents of their discipline, the interconnections between one and another, the diversity in human learning, the use of technology, and the development of critical thinking. In particular, the reflection revolves around the following subjects: • Disciplines and Interdisciplinarity • Diversity • Motivational environments	• 1 Content Knowledge • 4 Implementation of Teaching and Research • 7 Integration of Educational Technologies • 9 Community Relationship
FAED 4003 to enroll concurrently with Practicum	**Research while Teaching** This seminar seeks to have the students reflect on teaching as a research process. It is proposed they carry out the teaching practicum as an informal investigation where they can extract relevant information for their students' learning and education. The reflection revolves around the following issues: • Reasons to research education and learning • Issues or problems to informally investigate while teaching • Ideas on how to perform informal investigation while teaching	• 3 Planning for Instruction • 5 Creation of Learning Environment • 6 Communication • 8 Assessment of learning

Second change to e-portfolio conceptualization

After several years working with the model specified in the previous table, the Department conceived maximizing even further the e-portfolio experience. The idea consists in having the students, from the very first reflective seminar, present data of all the competencies for which they have evidence; and, continue to update as the candidates develop more significant evidence for each competence. In this manner, the e-portfolio becomes more progressive in nature, and reflects how the candidates change throughout their training. At the present time, this is the model implemented in the Department.