

Study of Portfolio in the Practicum: an Analysis of PLE-Portfolio

Estudio de los Portafolios en el Practicum: Análisis de un PLE-Portafolio

Cebrián-de-la-Serna, M⁽¹⁾ ; Bartolomé-Pina, A.⁽²⁾ ; Cebrián-Robles, D.⁽¹⁾ ; Ruiz-Torres, M.⁽³⁾

(1) University of Málaga. (2) University of Barcelona. (3) Catholic University of Manizales

Resumen

Los portafolios han demostrado ser eficaces en la enseñanza universitaria cuando parten de ciertos prerrequisitos -p.e. ratio-. La literatura especializada coincide en apuntar que, aún existiendo condiciones, no es una metodología generalizada en las universidades. En los nuevos grados, y en casi todas las titulaciones y áreas de conocimiento, encontramos la asignatura del Practicum que podría disponer de condiciones para el uso de ePortafolios. Por lo que, nos preguntamos en el área de Educación: ¿Qué condiciones existen para la utilización de ePortafolios en el practicum de los grados de Educación en España?, ¿qué nivel de utilización se evidencian? y ¿qué problemas de comprensión manifiestan los estudiantes al documentar las evidencias en los ePortafolios? La investigación presenta dos estudios: uno de metodología descriptiva con 31 entrevistas a gestores del Practicum de todos los grados en 10 Facultades de Educación, junto con el análisis de contenidos mediante categoría de 256 guías del Practicum de todos los grados de 36 Facultades de Educación en España. Un segundo estudio de análisis de contenidos analiza las 592 anotaciones de 212 estudiantes al presentar y evaluar las evidencias en el ePortafolios. Los resultados revelan que hay 11 estudiantes por tutor con 2,88h de media para tutorizar y evaluar con ePortafolios. Siendo el correo (entre el 37,77% y el 46,66%) seguido de las plataformas las tecnologías más utilizadas. Las eRúbricas y anotaciones de vídeo ayudan a documentar las evidencias, sin embargo, los estudiantes siguen mostrando dificultades en ciertas competencias.

Palabras clave: Educación Superior, Practicum, Autorización, Evaluación por Portafolios, Rúbrica y Anotaciones de vídeo

Abstract

The portfolios proven effective in university education when they show certain prerequisites, for instance, the ratio. The specialized literature agrees to notice that even existing some conditions, it is not a generalized methodology at universities. In the new grades and knowledge areas is found the subject of external practices that would be able to show conditions for using the portfolios. Whereas, there are some questions in the educational area: What conditions exist for the use of the portfolios in the Practicum of the education grades in Spain? What level of utilization are evident? What problems of understanding, the students express about the documentation of evidences in portfolios? The research performs a mixed methodology: a first quantitative study with descriptive methodology, interview to 31 coordinators of Practicum of all grades in 10 (20%) Faculty of Education, along with a qualitative study and content analysis of 256 Practicum guides of all grades of 36 (72%) Faculties of Education of public universities in Spain. A second case study, perform a content analysis of 592 annotations of 212 students to show and evaluate the evidences in ePortfolios of the Practicum of the degree of Pedagogy. The results reveal that there are 11 students per tutor 2,88h medium for tutoring and assess ePortfolios. Being mail (between 37.77% and 46.66%) followed by the platforms most used technologies. The eRúbricas and video annotations help document the evidence, however, students still show difficulties in some competences

Keywords: Higher Education, Practicum, Tutoring, Portfolio Assessment, Rubric; Video Annotation

Fecha de recepción
6 de Julio de 2015

Fecha de aprobación
30 de Octubre de 2015

Fecha de publicación
11 Noviembre de 2015

Reception Date
2015 July 6

Approval Date
2015 October 30

Publication Date:
2015 November 11

Autor de contacto / Corresponding author

Cebrián-de-la-Serna, M. University of Málaga (España). C/ Turquesa 4. 29730 – Rincón de la Victoria.
Málaga (España). Email: mcebrian@uma.es

The Portfolio is a methodology with a long tradition in Higher Education (Barberá, Gewerc Barujel & Rodríguez Illera, 2009; Guder, 2013; Hartnell-Young et al., 2007; Jafari & Kaufman, 2006). It allows for formative assessment at universities (Rodríguez Gómez, Saiz Ibarra & García-Jiménez, 2013); while representing a real evaluation mode (Yang, Tai & Lim, 2015) and a problem-solving learning approach to “lifelong learning” (Faulkner, Aziz, Waye & Smith, 2013; Guder, 2013; Heinrich, Bhattacharya & Rayudu, 2007). One methodological principles behind Portfolios is to focus teaching on learning, i.e. favouring students’ personal learning styles and focusing on Vygotsky’s Zone of Proximal Development (Klenowski, 2004; p. 45-46), in order to create a communication bridge between students’ self-reflection on learning experiences and teachers’ mentoring and evaluation of evidence (Zeichner & Wray, 2001).

As a methodology, Portfolios have undergone a major transformation with the rise of technology, especially since the development of Web 2.0 (Barrett, 2015; Hilzensauer, 2007). They have enhanced their chances with digital Portfolios, or ePortfolios, a methodology as well as a technological support facilitating autonomy and self-regulation of student learning (Jenson, 2011).

Every ePortfolio has the following three basic functions (Barrett & Wilkerson, 2015): Firstly, they facilitate students documenting their evidence of learning -Documentation-. Secondly, evidence of learning allows students to maintain a better communication with their teachers and peers about their lived experiences -Communication-. Thirdly, ePortfolios allow for teachers’ Evaluation as well as peer-assessment and students’ self-assessment of their own learning process (Bahous, 2008).

In the process of creating ePortfolios with the above three basic functions, students use multimedia technologies and exchange multimedia evidence of learning -videos,

pictures, reports, files and a variety of products (Monedero Moya, Cebrián Robles & Cebrián of the Serna, 2015). There must be minimum educational requirements -teacher training, appropriate curriculum, student availability, ratio, etc. in order to maintain an acceptable level of quality for these elements and processes. Indeed, ratio has become a determining factor for tutoring and assessing learning with ePortfolios. Whereas digital media allows for greater productivity that facilitates the teaching practice, it does not spare the time required to design, plan, tutor and assess ePortfolios.

Additionally, ePortfolios have been creditable for over a decade, mainly because they comply with the seven principles for evaluation, according to the Reform of European Higher Education 2020 (Boud & At. all, 2009). They promote “ongoing learning”, which requires self-regulation competences, leading to learning eventually occurring in non-academic settings in the future (Steffens, 2008).

Federated PLE-Portfolios of Multimedia Evidence

In a society where learning takes on a greater role, informal learning models can become attractive for formal education. If we look at how informal learning takes place in everyday moments of our lives, we will see how we use an ever expanding variety of technological resources to manage and organise our agenda, buy and meet our needs and communicate and exchange experiences with co-workers, family and friends, etc. In these processes, we use a wide range of multimedia codes and messages such as the exchange of pictures, videos, whatsapps, etc. By doing so, we are shaping new informal learning environments, enhanced and supported by advanced technologies that lead to a whole new world of Personal Learning Environments (hereinafter PLE) (Peacock, Gordon, Murray, Morss, & Dunlop, 2010).

Autor de contacto / Corresponding author

Cebrián-de-la-Serna, M. University of Málaga (España). C/ Turquesa 4. 29730 – Rincón de la Victoria.
Málaga (España). Email: mcebrian@uma.es

These daily practices where we communicate and exchange experience online makes this an attractive model for formal learning and taking in ePortfolios as a suitable methodology for assessment by collecting, documenting, analysing, etc. In sum, we learn with *multimedia evidence*.

What is a Federated PLE-Portfolio of Multimedia Evidence?

We aim for the most personalised ePortfolio a user can possibly create by selecting services and tools from the Internet. In this context, federation technologies enable interaction among different federated tools that allows users to create their own Personal Learning Environment (hereinafter PLE) for each project. This is what we call a *federated PLE portfolio*. With only one click, users can log in the various federated tools, using their primary access from Google, Facebook or university identity service all over the world (*e.g.* RedIRIS, EduGAIN, Sined, Café, etc.). We believe federated tools provide the following advantages:

- A more personalised environment and easier access: “Only one click away”.
- ePortfolios closer to users’ PLEs.
- Learning here becomes a unique experience that demands unique pedagogical and technological solutions.
- “We want the Internet to be our platform”: We seek a technology solution that evolves at the same pace as the Internet.
- We understand ePortfolios should allow for and encourage multimedia evidence so that users can benefit from informal learning situations, and because of the following reasons:
 - The rise and growing importance of multimedia codes in human communication and in the knowledge society.
 - Evidence of learning is easier to document through multimedia codes.

- ePortfolios promote different learning styles (Klenowski, 2004: p.44), which will require different multimedia codes.
- It is necessary for some competences to require multimedia evidence to be analysed.
- Finally, students value and engage more with formal learning when they can connect with learning environments outside school (Kaufman & Jafari 2006: p.26) that are usually peppered with multimedia messages and technology.

Users can select a variety of tools depending on the type of project they are doing to create a federated ePortfolio of multimedia evidence. In order to facilitate the three above-mentioned processes in ePortfolios, tools like eRubrics [1] are essential to formative assessment per competence. So are technological systems that allow documenting and analysing multimedia evidence, such as OVA (Open Video Annotation) [2], which facilitates analysis and collective discussion on evidence presented in video. This paper does not focus on the importance of these tools for developing ePortfolios, although there is extensive literature on the impact of eRubrics (McConnell, 2013; Martínez-Figueira, Tellado-González & Raposo-Rivas, 2013), video notes (annotations) on learning (Mu, 2010; Friend & Militello, 2015), and the new possibilities for teachers’ initial training with eRubrics, video annotations and ePortfolios (Hansen, 2006; Gallego-Arrufat & Raposo-Rivas, 2014; Bartolomé, Martínez-Figueira & Tellado-González, 2014; Rich & Hannafin, 2009; Miller & Carney, 2009; Cebrián-Robles, Cebrián-de la Serna & Monedero-Moya). There are also studies on how the features and functionality of PLE-Portfolios are ideal to monitor and assess student learning during the Practicum.

Tutoring and Assessing the Practicum Using Federated PLE-Portfolios of Multimedia Evidence

The Practicum in Spain is a university course, where students do external practice, and future teachers (and other occupations)

must complete their externships. Both Practicum and externships have gained great relevance in all areas of university grades in the last few years in Spain. While some grades have a long history in externships - Health Sciences, Education, etc. - they can still be the subject of research in all grades, as externships have become the axis of formative assessment in all university qualifications (Zabalza and Berraza, 2013: p.46). This is because externships offer an unique opportunity to acquire professional skills. The question remains, however, how should we assess and organise this type of learning? (Tejada Fernández, 2005; Tejada Fernández & Bueno, 2013).

The Practicum and the externships count on suitable conditions for using, experiencing and researching on the impact of ePortfolios. On one hand, students learn outside university, so the Practicum course finds here an important ally in technologies, as it requires distance teaching (Gallego-Arrufat & Raposo-Rivas, 2014). On the other, learning in the Practicum is usually directed toward students' personal reflection, where they link their practical experience to theories learnt at university (Zeichner & Wray, 2001). There are different views, however, on what should be learnt within the Practicum and the externships (Berraza Zabalza, 2013, p.22)-. Likewise, learning in the Practicum follows a process consistent with what has been described earlier regarding how ePortfolios are created. Finally, ratio becomes an important factor when tutoring and assessing ePortfolios. The ratio and teaching load of the Practicum in most Spanish Faculties of Education justifies the use of this methodology. What conditions and requirements must Spanish Faculties of Education meet in order to use this methodology/technology in the Practicum? To what extend are ePortfolios being used? When are they actually used? And what difficulties do students encounter when documenting and assessing the evidence they upload to their ePortfolios?

Method

This research addresses two objectives which are part of the I+D+i 2014-16 Project [3], namely: 1. To examine the presence of Portfolios in tutoring and assessing learning during the Practicum in all educational grades in Spain. 2. To explore students' difficulties when presenting and assessing their evidence in PLE-Portfolios (pedagogical and technological model to be tested in this project).

In order to meet the above two objectives, this study will use techniques to collect and analyse data from two methodological approaches: 1. In order to meet the first objective, we suggest an initial exploratory descriptive study (Buendía Eisman, Colás Bravo & Hernández Pina, 1998, p.123), which involves conducting interviews with Practicum coordinators from all educational grades across Spain, as well as analysing the contents of the teaching guides used in all educational grades across Spain. 2. We suggest a content analysis by categories and level of proximity between individuals and these categories, with the aim to carry out a "Q-analysis" or "connectivity analysis" and remove "models of perception" (Buendía Eisman, Colás Bravo & Hernández Pina, 1998, p.317-319) when submitting and assessing PLE-Portfolio evidence. The approach we used is a case study based on two strategies: 2.1) to analyse conversations between Practicum tutor and students when submitting and assessing eRubric evidence, and 2.2) to analyse entries or annotations regarding a particular learning evidence presented by a 4th year Pedagogy student in a 3 minute video within the Open Video Annotation tool (hereinafter OVA). Here, group annotations of two student groups -those with and without previous experience in the Practicum- will be compared.

1. Descriptive Study: Interviewing Practicum Coordinators and Analysing Practicum Guides at Spanish Faculties of Education.

In order to meet the first objective, a *descriptive study* was conducted, which

involved conducting 31 interviews with coordinators from all grades in 10 Faculties of Education at a national level. Additionally, a *content analysis* of 256 teaching guides from all grades at 36 Faculties of Education was conducted at a national level. Instruments were validated during the first half of 2014-15 year, data collected during the second half. The questionnaire was first printed out to be used in face-to-face interviews, then each person responsible for this research project in each university uploaded the data onto an online questionnaire. A first descriptive analysis was conducted in the study, where some variables and items were selected for the first objective.

The questions raised for the first objective were as follows:

Question 1. What are the conditions for using ePortfolios in the Practicum in all educational grades in Spain?

The items raised in the interviews and the analysis of teaching guides aim to gather information on the average number of students and teaching hours per tutor at university, as well as the number of mandatory presence-based classes and webinars. Likewise, they also aimed to gather information on the number of hours teaching guidelines assign to ePortfolios, to personal study and to presence-based/online seminars. By raising these questions, we aimed to find out and weigh the level of workload teachers deal with when using ePortfolios as a methodology to tutor and assess the Practicum.

Question 2. To what extent are ePortfolios being used by coordinators and in Practicum teaching guides?

To answer this question, we selected items that would relate to the presence of ePortfolios in the guides, based on the model suggested by Faculties and coordinators.

2. Study of PLE-Portfolio Annotations

The second study involved two strategies representing the same event or difficulty students encountered when presenting their evidence in ePortfolios: On the one hand, student-tutor *communication on the assessment* of evidence requested by eRubrics; and on the other, *self-assessment and discussion on acquired learning* presented in multimedia evidence. Therefore, the same *content analysis* technique was conducted for the second objective, by using categories when presenting evidence in ePortfolios, especially when text comments are entered in *eRubric* and *OVA* tools.

With this objective in mind, Question 3 was raised: *What comprehension problems do students report when documenting evidence in ePortfolios?*

To answer Question 3, a content analysis was used by exporting *eRubric* entries or annotations to Excel and then analysing Q-categories with tools such as *QCMap* or the *OVA* statistical tool (Figure 1). All the annotations of each video segment were selected and then exported to Excel for analysis.

The two strategies developed were as follows:

Strategy 2.1. Tutor-student conversations were analysed at the exact moment assessment was taking place with *eRubrics*. The group included 13 students from the Grade of Pedagogy, observed during their Practicum and Grade Final Project (hereinafter GFP) (2011-15 academic years), which consisted of 3 courses with different timing: Practicum I: first half of 3rd year (7 students). Practicum II and GFP: second half of 4th year (the same 6 students in both courses).



Figure 1. Comparing different groups with OVA statistics

As shown in Figure 1, a 4th year student of Practicum II Pedagogy presented her experience in a video, and the rest of students (from 2nd and 3rd year of Pedagogy) made their annotations in two groups: those who had previous experience in the Practicum and those who didn't. The first image shows Group 2 annotations, and the other two images (middle

and bottom) show Group 1 annotations. By comparing both images, Group 2 seems to have made many annotations in a video sequence where Group 1 has left an empty “valley”. The last image shows Group 1 annotations in this “valley”, made through two small windows and orange lines.

For the purpose of this study, a new feature was created for the eRubric, which allowed for text annotations in each element of the eRubric (Competence, Indicator and Evidence) (Figure 2). Such annotations could then be exported for analysis, along with other variables of interest: date, portfolio, student, text comment

or in which eRubric element was the annotation registered. A total of 209 annotations were collected and analysed, corresponding to: Practicum I (164 annotations) Practicum II (31 annotations) and GFP (14 annotations).

The screenshot shows the 'Área personal de' (Personal area) of the eRubric system. On the left, there's a sidebar with navigation buttons like 'Deshacer' (Undo) and 'Guardar cambios' (Save changes). Below it, sections for 'Tutor Univer. Práctica' and 'Tutor Univer. Prácticas Externas' are visible, with a note that evaluations are not anonymous.

The main area displays several annotations:

- Annotation 1:** Titled 'explicando como evaluamos' by 'Autor'. Date: 07/11/2014 - 12:05. Content: 'En esta anotación te explico cómo vamos a trabajar y evaluar. Tu puedes añadir anotaciones para preguntar o pedir que te explique todo el proceso de evaluación, alguna duda que tengas sobre lo que se te pide en la rubrica en la evidencia, alguna duda del por qué te puntuó la entrega de una evidencia. Ahora solo te he evaluado en estas evidencias que he visto, no te preocupes si te sale rojo en la evaluación general es normal, porque la rubrica aborda otras tareas que no has realizado aun y que no puedo evaluar, y la rubrica siempre hará una media de todas las evaluaciones de tareas. Este rojo irá cambiando seguro, no te preocupes. También en los diarios podrás ver como te evaluamos y podrás mejorar tu diario para la siguientes semana, con lo que la rubrica puede ayudarte a mejorar. Te animo a que hagas preguntas sobre la evaluaciones en esta anotaciones. Al menos para ver que puedes anotar, realiza una respuesta a esta anotación con algún comentario. Un saludo y ánimo.'
- Annotation 2:** Titled 'RE: explicando como evaluamos' by 'Autor'. Date: 07/11/2014 - 15:27. Content: 'La verdad es que no me había dado cuenta de que no estás todo evaluado, y me asuste al ver la evaluación en rojo. Pero gracias por las aclaraciones. La verdad es que es un sistema muy práctico para poder ir mejorando poco a poco. Un saludo'
- Annotation 3:** Titled 'Enhorabuena felicitaciones' by 'Autor'. Date: 18/12/2014 - 14:22. Content: 'Sin duda el taller ha representado un esfuerzo y un aprendizaje único, donde habeis puesto a prueba vuestras competencias de programación e intervención. Enhorabuena'
- Annotation 4:** Titled 'seminario 8' by 'Autor'. Date: 21/01/2015 - 09:54. Content: 'Está muy bien, la musicilla acompaña... igual hubiera sido interesante oír tu voz, pero no desmerece en absoluto el trabajo Enhorabuena'
- Annotation 5:** Titled 'RE: seminario 8' by 'Autor'. Date: 21/01/2015 - 12:41. Content: 'Muchas gracias. Si dispongo de tiempo este fin de semana pruebo lo de la voz, para hacerlo como mis compañeros. Un saludo'

On the right side, there are two rating scales for 'Bien' (Good), 'Muy bien' (Very good), and 'Excelente' (Excellent). The first scale shows 'Bien (65.00%)', 'Muy bien (85.00%)', and 'Excelente (100.00%)' with corresponding checkmarks. The second scale shows 'Correcto (65.00%)', 'Bien (65.00%)', 'Muy bien (85.00%)', and 'Excelente (100.00%)' with corresponding checkmarks.

Figure 2. Example of text annotations in different elements of a student's eRubric: Competence, Indicador and Evidence

Strategy 2.2. In the second strategy, annotations presented by a 4th year Pedagogy student in a 3 minute video were analysed by comparing annotations from 2 groups of students: those with and without previous experience in the Practicum. The 2 groups shared the same task, laboratory and teacher. Group 1 consisted of 150 students from 2nd year of Pedagogy, with no previous experience in the Practicum. Group 2 consisted of 50 students from 3rd year of Pedagogy, with previous and recent experience in Practicum I. The task was based on the meta-cognitive self-

regulation theory of classroom learning (Paris & Newman, 1990; Paris & Winograd, 1990; Klenowski, 2004: 28-29; Barrero González, 2001), and raised four questions to guide students' annotations. A total of 346 annotations were collected and analysed, which represented 13,008 words in the database of the OVA tool. The method used to analyse annotations in both strategies involved examining the proximity measure between individuals and categories, in order to conduct a "Q-analysis".

Population and Sample

The population of the first study included all Spanish Faculties of Education. The sample involved 31 interviews with coordinators from 10 public Faculties of Education across Spain and with different student group sizes. From 82 universities, 50 are publicly owned (state-owned) and 32 are private, so that the selected sample of universities represents 20% of public universities in Spain [4].

As for the analysis of Practicum teaching guides, we downloaded all publicly accessible guides from all educational grades at every Spanish Faculty of Education. In those cases where guides were not accessible, they were obtained by directly requesting them to Practicum coordinators via email. A total of 256 Practicum guides were gathered and analysed from educational grades at the faculties of education of 36 universities, representing 72% of public universities in Spain.

For the second objective, a *case study* was conducted in one of the universities in the project. The first strategy was to gather all conversations between the university tutor and 12 students of Pedagogy, during the Practicum sessions in 2014-15 year. Such strategy involved: 7 students of Practicum I (3rd year) and 5 students of Practicum II and GFP (4th year) (the same students in the latter two courses), who registered 209 annotations in conversations with their tutor. The second strategy was to analyse 383 annotations made by two groups of 150 2nd year-students and 50 3rd year-students, both studying the Grade of Pedagogy. All together, there were a total of 592 annotations to be analysed.

Instruments

Objective 1 used two instruments, designed with similar categories and items in order to cross data from two information sources: 1) interviews with coordinators and 2) analyses of teaching guides. Both sources involved all university grades at Spanish Faculties of Education (i.e. Nursery, Primary, Pedagogy and Education/Social Pedagogy). This study

analysed data collected on items that were considered of interest. Such items were extracted from only two out of seven Practicum courses involved in this study, namely: Natural Sciences and Technology & Media (Tejada Fernández, Serrano Angulo, Ruiz Bueno & Cebrián Robles, 2015).

The items involved in the study of the two instruments (Objective 1) were as follows: Practicum sequence, type of Practicum, No. of students per tutor, No. of hours invested per student, No. of presence-based and online seminars for tutoring, technology resources used for tutoring and assessment, use of portfolios for assessment and No. of hours assigned to portfolios for personal study and webinars.

The two instruments for collecting data were validated by experts using the Delphi method, a widely used method in the area of education (Blanco-López, España-Ramos, González-García & Franco-Mariscal, 2015; Cabero-Almenara, 2014; Cabero-Almenara et al., 2009; Cabero-Almenara & Osuna, 2013) to validate instruments. In this case, it involved selecting experts -inside and outside the research project- based on three aspects: years of professional experience, number and quality of publications in the field (Practicum, Educational Technology and Teacher Training), and self-rating of their knowledge. The resulting data was calculated using the Coefficient of Competence (Kcomp) (Martínez, Zúñiga, Sala & Meléndez, 2012). Results in all cases showed an average experience of more than 0.09 points.

According to the above two strategies, the data collection instruments for Objective 2 were as follows: For the first strategy, an eRubric validated by the same experts and procedure that validated Objective 1 instruments. A second round of validation was additionally carried out in a presence-based Focus Group of twelve experts, who were working for a day and a half. As for the second strategy, a task was designed based on the four meta-cognitive dimensions according to literature (Paris & Newman, 1990; Paris &

Winograd, 1990; Klenowski, 2004: 28-29; Barrero González, 2001). Such dimensions were adapted to four simple questions raised for guiding this exercise.

The video shows the self-assessment of a 4th year-student of Practicum II course (Pedagogy Grade), who was doing her externship in a private Nursery, Primary and Secondary Education School. In the video, the student answers four questions about her work as a counsellor at the school.

The text given to the 2 student groups of 2nd and 3rd year -those with and without previous experience in the Practicum, respectively- to analyse the video included the following wording: *Which can you answer? Read the questions below. To answer, use the capitalised words as Tags, exactly the way they are written:*

1. *COMPETENCE: In which aspect you think you are competent in what you do? In which aspect you think you are not? Why?*
2. *PROBLEMS: What tasks or problems do you have that are the most and least difficult to cope with? Give an example of each. How do you usually cope with each of them?*
3. *SELF-REGULATION: How do you usually organise your work and learning? What did you learn about how you learn?*
4. *SELF-DETERMINATION: What do you like about what you are going to learn? In which aspect do you think you can become competent in this university grade or externship?*

As shown in Figure 1, the first image from the top shows Group 2 annotations (3rd year students) while the image in the middle shows Group 1 annotations (2nd year students). The third and final image shows the “valley” that is subject to our analysis, which shows annotations in two small windows and in orange lines. Then annotations can be exported using Tags, time sequence, groups, etc. among other system data.

Results

1. Descriptive Study: Interviewing Practicum Coordinators and Analysing Practicum Guides at Spanish Faculties of Education.

Research questions: 1. *What are the conditions for using ePortfolios in the Practicum of Education Grades in Spain?* 2. *To what extent are ePortfolios being used by coordinators and in Practicum teaching guides?*

The analysis of data from interviews with coordinators found that the average number of hours invested on ePortfolios per tutor is 40.41h (during the Practicum). Also, there is an average of 11 students per academic tutor at university.

Considering that Practicum courses are taught in four-month periods, if we divide the average tutoring hours (40.41h) by the 14 weeks in four months, the resulting average tutoring hours per week per tutor (responsible for 11 students) are 2.88h. These figures are undoubtedly based on the level of individual performance, ongoing assessment and tutor-student interaction, and thus greatly determine a great deal the potential use of the ePortfolio methodology.

Table 1. Technological Resources Used for Monitoring and Assessing the Practicum in Education Grades

	Nursery Education	%	Primary Education	%	Social Pedagogy	%	Pedagogy	%
University platform	15	33.33	17	36.17	5	33.33	9	37.5
Email	17	37.77	19	40.42	7	46.66	10	41.66
ePortfolio platforms	1	2.22	1	2.12	1	6.66	2	8.33
eRubric platforms	0	0	1	2.12	0	0	1	4.16
Other online service and open tools	5	11.11	3	6.38	1	6.66	0	0
Social media	1	2.22	1	2.12	0	0	0	0
None	0	0	1	2.12	0	0	0	0
Other strategies	6	13.33	4	8.51	1	6.66	2	8.33

Table 1 shows that Email (37.77% to 46.66%) followed by the University Platform (33.33% to 37.5%) are the most widely used technology resources in the Practicum in all Education Grades. The third place is for ePortfolios (2.12% to 8.33%). Rubrics seem to have a rather negligible value in almost all grades, although it is the Grades of Pedagogy and Social Pedagogy that use them the most.

In the analysis of teaching guides, Portfolios were more used than any other method, with an average of 117.58 hours that students devote to analysing guides, compared to 134 hours students invest in personal work. However, it is worth noting that the term “portfolio” is usually associated with memory, so students might have seen it as a procedure for collecting and storing information, rather

than as an assessment methodology, where we know it has a major educational value. Rubrics were also used in the analysis of teaching guides, showing similar low values as Portfolios (5.8%). Also, students invest more hours in Rubrics in presence-based seminars (18.76h) as opposed to webinars (5.17h).

From the analysis of teaching guides we find that, in all grades, the very nature of the Practicum is mainly related to students’ Collaboration-oriented work (60%), followed by Intervention (8.20%), Observation (16.8%) and Other Practices (5%). These differences can be explained by the fact that the analysis covers all practice sequences, and it is known that the first few externships are likely to involve more observation than intervention.

Table 2. Nature of the Practicum according to Sequences

Practice Sequence	I	II	III	IV	V	Only 1 Practicum	Total # of Guides	%
Observation	40	2	1	0	0	0	43	16.80
Collaboration	48	69	24	6	0	7	154	60.16
Intervention	2	6	9	2	1	1	21	8.20
Other Practices	4	7	2	0	0	0	13	5.07
No Record	10	8	5	2	0	0	25	9.76
Total #. of Guides	104	92	41	10	1	8	256	100
Sequence %	40	35.93	16.01	3.9	0.39	3.12		

2. Study of eRubric and OVA annotations.

Research question: 3. What comprehension problems do students report when documenting evidence in ePortfolios?

Strategy 2.1.

From 209 annotations registered by students and teacher in all three elements of the eRubric, the “Clarifying Doubts” category was predominant in Practicum I, II and GFP.

As observed in Practicum I competences, doubts prevailed in the “Ability to write a

weekly diary” and “Ability to draft a research and school improvement project”, while in Practicum II doubts prevailed exclusively in “Ability to write a weekly diary”. The GFP did not report any annotation in this category. This data reveals that students often struggle to develop the competence required to write a weekly diary during the Practicum. It should be observed that the number of annotations decreases when moving from Practicum I to GFP, as the latter includes presence-based weekly sessions.

Table 3. Categories

	Explaining Assessment	Clarifying Doubts	Congratulating Students	Total
Practicum I	35.37%	56.10%	8.53%	100%
Practicum II	22.58%	51.62%	25.80%	100%
GFP	7.14%	78.58%	14.28%	100%

In Indicators, doubts in Practicum I were reported in “Student (S) detects, describes and clearly analyses a problem” and in “(S) identifies the most salient features of the socio-cultural environment at their school”. In Practicum II, doubts were mostly observed in “(S) suggests a research or innovative intervention that is feasible, given the available time and context”. In the GFP, doubts were exclusively seen in “Quality of Project contents”.

In Evidence, doubts in Practicum I focused in “(S) relates practical experience to what was learnt at university” and in “(S) successfully using other audiovisual codes to present evidence”. In Practicum II, doubts were observed in “(S) quotes authors and theories when writing”. In the GFP, doubts were predominant in “Level of personal reasoning” and “Accuracy when using methodology”.

Table 4. Categories and Elements

Practicum I	Explaining Assessment	Clarifying Doubts	Congratulating Students	Total
Competences	30.77%	60.26%	8.97%	100%
Indicators	13.05%	86.95%	0%	100%
Evidence	49.20%	39.69%	11.11%	100%
Practicum II	Explaining Assessment	Clarifying Doubts	Congratulating Students	Total
Competences	0%	33.33%	66.67%	100%
Indicators	50%	50%	0%	100%
Evidence	27.27%	72.73%	0%	100%
GFP	Explaining Assessment	Clarifying Doubts	Congratulating Students	Total
Competences	100%	0%	0%	100%
Indicators	0%	100%	0%	100%
Evidence	0%	33.33%	66.67%	100%

In Practicum I, there is a greater number of annotations in Competences and Indicators in the category “Clarifying Doubts”, particularly 60.26% in Competences and 86.95% in Indicators. In Evidence, annotations were predominant in “Explaining Assessment” (49.20%).

In Practicum II, the category “Congratulating Students” reported the highest number of annotations with 66.67% in Competences. In Indicators, the categories “Explaining Assessment” and “Clarifying Doubts” each reported 50% of annotations. As for Evidence, the highest number of annotations (72.73%) was observed in “Clarifying Doubts”.

Annotations in the GFP were fully observed in “Explaining Assessment”, in the same way as “Clarifying Doubts” were in Indicators, whereas 66.67% of annotations were seen in the category “Congratulating Students”.

Strategy 2.2.

The content analysis performed was classificatory. First, an intuitive analysis of contents was performed in order to get a first approach to the data. By isolating significant elements in the annotations, we identified and extracted the predetermined conceptual categories: Competences, Problems, Self-Regulation and Self-Determination. The analysis of categories also allowed to identify students’ subjective criteria, categorised as Subjectivity, No Category and No Analysis Conducted.

Group 1 consisted of 150 students with no previous experience in the Practicum, who entered 132 annotations. The text in these annotations was broken down into an inventory of 186 registration units, which were classified according to their functional or subjective criteria (predetermined categories).

Group 2 consisted of 50 students with previous experience in Practicum I, who entered 156 annotations, broken down into 197 registration units.

Therefore, the overall content analysis was conducted on 383 registration units from 288 student annotations, classified in 7 categories (the number of categories per student ranged

from 1 to 3). A first analysis result shows that, Group 2, despite being one third the size of Group 1 reported more annotations, and thus more registration units.

Table 5. Categories Classified by the Functional or Subjective Criteria of Student Annotations from Group 1 and 2

		GROUP 1 No experience in the Practicum)		GROUP 2 (Experience in Practicum I)	
		Total	%	Total	%
PREDETERMINED CATEGORIES	Competence	57	45.23	36	29.75
	Problems	30	23.81	17	14.05
	Self-Regulation	8	6.35	12	9.92
	Self-Determination	31	24.61	56	46.28
Subtotal		126	100	121	100
OTHER CATEGORIES	Subjectivity	34	56.67	33	43.42
	No Category	20	33.33	20	26.32
	No Analysis Conducted	6	10.00	23	30.26
Subtotal		60	100	76	100
Total Registration Units		186		197	

Table 5 shows that Group 1 students -those with no previous experience in the Practicum-, reported a greater number of annotations in “Competences” (45.23%) followed by “Problems” (23.81%). The registration units were classified in the two aforementioned categories, as students managed to identify the skills or competences needed to do their externships as school counsellors in the Practicum. Likewise, we analysed whether these competences were learnt in their university courses or not. These competences are considered necessary to carry out externships. Group 1 showed more confidence and strength than Group 2 when it came to knowledge, skills and competences acquired from working as educators at schools. This aspect was less evident in Group 2, where Competences scored 29.75%, followed by “Problems” (14.05%), even though Group 2 students had previous experience in Practicum I.

Likewise, Group 2 reported 46.28% of annotations in the category “Self-Determination”, whereas Group 1 reported 24.61%.

As for predetermined categories, “Self-Regulation” reported the least number of annotations: Group 1 with 6.35% and Group 2 with 9.92%. This means that students are unable to understand, identify and assume as their own the meta-cognitive skills that can enhance their learning process.

The statistical graph in Figure 1 shows where annotations were made. Both groups scored very similarly, except for the small “valley” in Group 1. Annotations made by Group 1 in this “valley” (shown in time sequence 0.46) refer to the “Competence” and “Self-Determination” categories, which proves that Group 1 showed more interest than Group 2. Students in Group 1 were challenged by sentences like “Thanks to my current knowledge, I am able to administer an IQ test, since we learnt the necessary competences to do so in the Diagnosis course. However, I would not be able to counsel, as we didn’t learn to do it, and I am not even sure about the concept of counselling itself”. Indeed, “counselling” was the competence students struggled with the most, finding it difficult and confusing.

Discussion and Conclusions

The first question raised in this study on the conditions and nature of the Practicum with regards to the use of ePortfolios will be addressed in the next paragraph. According to the data found in the study, individual ePortfolios, given the above mentioned numerical limitations (11 students, 2.88h), call instead for group ePortfolios, where students would be able to share resources and exchange experiences. Then individual ratings could be anonymously told to group members in order to get their feedback. We believe that these numbers are still halfway to what is desirable in order to get all the possibilities ePortfolios can offer (Klenowski, 2004). We aim to conduct deeper statistical analyses with more available data by the end of this project to discover the differences that can be extracted from the various Education Grades (Nursery Education, Primary Education, Pedagogy and Social Pedagogy) as well as the nature of the Practicums (I, II, III and IV).

The second question raised in this study was on the usage level of ePortfolios in the Practicum. When Practicum coordinators were asked if they use specific platforms for ePortfolios, they reported low percentages in general, the highest of which was in Pedagogy with 8.33%. But this level of use does not respond to reality, as many teachers use university platforms (Aguaded Gómez, Tirado Morueta & Gómez Hernando, 2011; Zapata-Ros, 2014) to manage their courses. According to literature, there should also be a wide presence and use of LMS platforms (Moodle, Sakay, Ilias, etc.) in tutoring and assessing the Practicum. What we can say is that teachers use platforms in the Practicum with the same methodology as they do in their other courses. The significant differences found in the use of email (37.77% to 46.66%) as opposed to ePortfolios shows that they use platforms as a means of communication to exchange files, while using emails to clarify doubts. Elaborating on this idea, ePortfolios could be used as platforms (such as Mahara) within the category “university platform”; and teachers

could carry out the Portfolio methodology by using other university platforms. Undoubtedly, there remain many open questions to be addressed. For example, while email is the most used method, we do not know whether it is used inside or outside platforms and in which externships, and neither do we know the email models and tools that are used. We will necessarily have to wait to find out when we address the following objective of the project: to ask academic tutors about their externships.

The third question raised in this study has to do with problems and difficulties in assessing evidence in ePortfolios. Based on this study of the number of annotations students made, and the lower number reported when students attended presence-based seminars, ePortfolios facilitate learning via student-teacher communication. This was the case for the low annotations registered in GFPs. This is partly due to the fact that, while GFP is a course of high interest among students, they compensated its difficulty with presence-based tutor visits almost every week.

Another conclusion of this study reveals the ease with which tools used in the ePortfolio of this project -eRubric and OVA- generate meta-cognitive processes, especially in self-assessment and personal reflection. This aspect is consistent with previous research studies on the positive impact of ePortfolios on students' personal reflection when comparing groups with and without ePortfolios (Cebrián de la Serna, 2011). Despite this, documenting evidence remains a problem for students and teachers, as can be inferred from the fact that annotations are mainly found on “Clarifying Doubts” in Elements and Categories.

In any case, we still need to equip ourselves with tools for assessing learning, considering assessment as “an opportunity to learn rather than to pass” (Cano, 2012). Likewise, multimedia evidence is required to improve the documentation process, as we have seen how video annotations improve the analysis of such evidence. For communication and meta-cognitive processes to have a major impact on learning, it will be necessary to further study

and research certain competences with tools like eRubrics and OVA, to examine the problems students struggle with at the time of presenting, talking, analysing, thinking and assessing evidence in ePortfolios. In the future, we hope to be able to count on the replication of this methodology at the seven universities involved in the project. As a result, the number of students (and annotations) using the same validated rubrics with the same methodology and tools -eRubric and OVA- will provide us with greater representation to allow us to extrapolate results and make comparisons with other groups.

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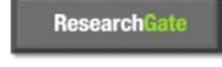
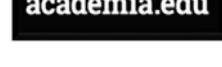
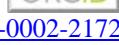
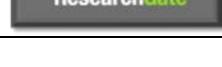
Notes

^[1] eRúbric Service <https://gteavirtual.org/rubric>

^[2] Open Video Annotation –OVA- Service <https://gteavirtual.org/ova>.

^[3] Funded by Spanish Plan of R+D+i Excellence (2014-16) No. EDU2013-41974P. Project entitled: “Study of the Impact of Federated eRubrics on Assessing Competences in the Practicum”. <http://goo.gl/u07aN>

^[4] Basic Data of the Spanish University System. Academic Year 2013/2014. Spanish Ministry of Education, Culture and Sport. <http://goo.gl/vxkQfX>

Autor	To know more / Saber más
Cebrián-de-la-Serna, M. (mcebrian@uma.es). University of Malaga (Spain). Resident in c/Turquesa 4. Rincón de la Victoria. 29730 - Malaga (Spain). University full professor, expertise in university teaching, educational and technological education. See background at: http://gtea.uma.es/mcebrian	 0000-0002-0246-7398   
Bartolomé-Pina, A. (abartolome@ub.edu). University of Barcelona (Spain). Accredited as full professor. Resident in Barcelona. Expertise in Media and learning technologies. See background at: http://goo.gl/wpezd2	 0000-0002-8096-8278   
Cebrián-Robles, D. (dcebrian@uma.es). PhD in Engineering and Education. University of Malaga (Spain). Interim Substitute Teacher at the University of Malaga. Expertise in Science Didactics and developing webtools for Education. See background at: http://danielcebrian.com/	 0000-0002-3768-1511   
Ruiz-Torres, M. (mayerlyzulayr@hotmail.com). PhD from the University of Malaga. Professor at the Catholic University of Manizales (Colombia). Resident in Manizales (Colombia). Expertise in university teaching and learning.	 0000-0002-2172-0395 



Revista **EL**ectrónica de **I**nvestigación y **E**Valuación **E*E-Journal of Educational Research, Assessment and Evaluation***

[ISSN: 1134-4032]

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