

A proposal to analyse the progress and difficulties of Higher Education teacher training¹

Hamed Al-Lal, Soraya; Pineda Alfonso, José Antonio.; Pérez Rodríguez, Noelia; Navarro-Medina, Elisa; Duarte Piña, Olga

Department of Experimental and Social Sciences Pedagogy. Faculty of Educational Sciences. University of Seville, Spain

Abstract

This article presents an ongoing research study whose purpose is to describe and analyse the progress and difficulties participants face in a university teacher training programme offered by the University of Seville. The training programme and the different parts of the research strategy are described.

Keywords: Teacher education; Higher education; Training programme.

¹ This study is part of a larger research project entitled *Pedagogical training of university teachers. Progress and obstacles in a training programme focusing on improving teaching practice* (EDU2016-75604-P), financed by the Ministry of Economy and Competitiveness 2016 R&D fund.

1. Introduction: Pedagogical training of teachers working in the faculty of Higher Education at the University of Seville

International organisations have been insisting on the need for university teaching training (UNESCO, 1998) and the standardisation of teaching and research processes (European Commission, 2014) for decades. This concern is supported by a review of the studies that have been conducted over the last 30 years whose results indicate that teachers do not have the necessary skills to adequately carry out their teaching tasks and have very little knowledge about effective teaching practices (Amundsen & Wilson, 2012).

On this basis, several international research projects have reported results of the progress and obstacles encountered by the participants of different university teacher training programmes (Gibbs & Coffey, 2004). Several successful strategies for teaching practices have been put forward: peer review, self-analysis, video-analysis, portfolios, improvement courses, but it is Ken Bain's (2004) study that has undoubtedly had the most international influence.

The situation in Spain is similar, a high percentage of teachers continue to use traditional methodologies, even though studies indicate that a more student-centred teaching is necessary (Zabalza, 2007). Studies also show that the figure of university teacher trainer needs to be professionalised (Cruz Tome, 2003) and that there is a need to create pedagogical work-teams (Gómez, Escofet & Freixa, 2014) and use training strategies based on 'improvement courses' (IC) in the teaching practice itself, which should favour not only methodological change but foster the construction of a new identity for teaching professionals (Arancibia & Badia, 2015; Conde-Jiménez & Martín-Gutiérrez, 2016; Porlán (Coord.), 2017).

Considering these aforementioned approaches, and inspired by advances made in successful international experiences (De Alba, Duarte, Hamed, Navarro & Porlán, 2017; Porlán (Coord.), 2017), for the past four years the University of Seville has been developing the Pedagogical Training and Innovation Programme for Teachers (FIDOP for its acronym in Spanish). This programme has three stages: during its first year, participants attend a 100-hour Initiation Course, during which they reflect on their usual teaching practice, design and experiment with two Improvement Courses (ICs)², and carry out a thorough follow-up of their results, incorporating gradual and sustained changes into their classroom practice.

²These Improvement Courses are inspired by the idea of reflection *on* and *about* teaching practice (Schön, 1992), and by the classic format of action research (Stenhouse, 1985). Likewise, they are supported by the long research history of the IRES Project (Research and Renewal of the School), based on an interaction between innovation and curricular experimentation and professional teacher development (García-Pérez & Porlán, 2000; Porlán & Rivero, 1998).

The ICs comprise a conscious and studied reflection and reformulation process on the teaching methods used in class, the content and purpose of the teaching materials used and the evaluation model that follows in order to build a Personal Pedagogical Model that guides the teaching action. During the second year, participants join a Pedagogical Training and Innovation Network (REFID for its acronym in Spanish) comprising teams of teachers from related areas, led by an experienced person from within the network. During this period, participants continue to design and experiment with their ICs. In the third year their objective is to put their IC results into practice during an entire semester class. At the end of each academic year the participants of the programme present the results of their completed ICs at Educational and Pedagogical Innovation Conferences. For a review of the FIDOP programme and completed ICs, see Porlán (Coord.), (2017).

2. Research Purpose and Objective

The research question that this study, which is in its second year, seeks to answer is the following:

*How does university teachers' **pedagogical** knowledge evolve when they participate in a training programme focused on improving **classroom teaching** practice?*

The following objectives have been established to address this question:

1. *Describe and analyse changes in participants' understanding and practices due to the FIDOP programme, as well as the obstacles and difficulties they face.*
2. *Characterise and define reference guidelines that may develop during the changes that take place in participants' understanding and practices.*
3. *Identify the training programme's strengths and weaknesses.*
4. *Establish conclusions that allow it to be reconstructed and improved.*
5. *Generate training materials that can be transferred to other universities.*

3. Methods

3.1. Methodological approach

The research study has a multi-methodological focus, and its second stage takes a case-study approach, as recommended by various authors (Collier & Elman, 2008; Denzin & Lincoln, 2005; Erickson, 2012). The reasons justifying this choice are the study's use of a variety of procedures and sources for the collection and analysis of qualitative and

quantitative information, the interconnections between them and the interpretative and constructivist approaches taken. The purpose of this complementary and plural strategy (Cohen, Manion & Morrison, 2011; Creswell, 2012) is not simply to juxtapose approaches, but to ensure that reductionist tensions between qualitative and quantitative, subjective and objective and empirical and interpretative are minimised.

As a consequence, this study uses a combination of techniques and instruments such as: Likert questionnaires and open-ended question surveys, semi-structured interviews, and analyses of the written records generated by participants of the training programme during the course, etc.

3.2. Studies, stages, participants and instruments

The study analyses two general areas within the project. It first analyses the curriculum: the participants' understanding and practices of the curriculum considered relevant and pertinent to the teaching profession (see table 1) and secondly, the professional, an understanding of the following categories: the Personal Pedagogical Model, the students' learning, the discipline itself, the identity of teaching professionals and the difficulties of improving teaching.

Table 1. Categories and subcategories of the first area, the 'curriculum'

CATEGORY	SUBCATEGORY
Content	1.1. Content type 1.2.a. Organisation of contents: Hierarchical 1.2.b. Organisation of contents: By interaction 1.3. Sources for the construction of the contents: problems, students' ideas, Disciplines and subjects 1.4. Stated Obstacles/Difficulties for the ideal preparation of content 1.5. Ideal model of stated content 1.6. Content prepared as problems
Method	2.1. Actual methodological model 2.2. Methodological sequence (includes the meaning of the activities) 2.3. Adjustment of sequence of activities to student ideas 2.4. Stated Obstacles/Difficulties of methodological difficulties 2.5. Stated Ideal Methodological Model 2.6. Stated Possible Methodological Model
Evaluation	3.1. Classification of student ideas (types, progression and obstacles) 3.2. Evolution and comparison of students' initial and final ideas 3.3. Evaluation and analysis of the practice itself and reformulation and improvement of the design 3.4. Evaluation criteria and what to evaluate 3.5. How to evaluate (instruments) 3.6. Grading 3.7. Evaluation obstacles/difficulties 3.8. Stated Ideal Evaluation Model

Source: Authors Own (2016).

Both areas of analysis are addressed through the two studies presented in Figure 1.

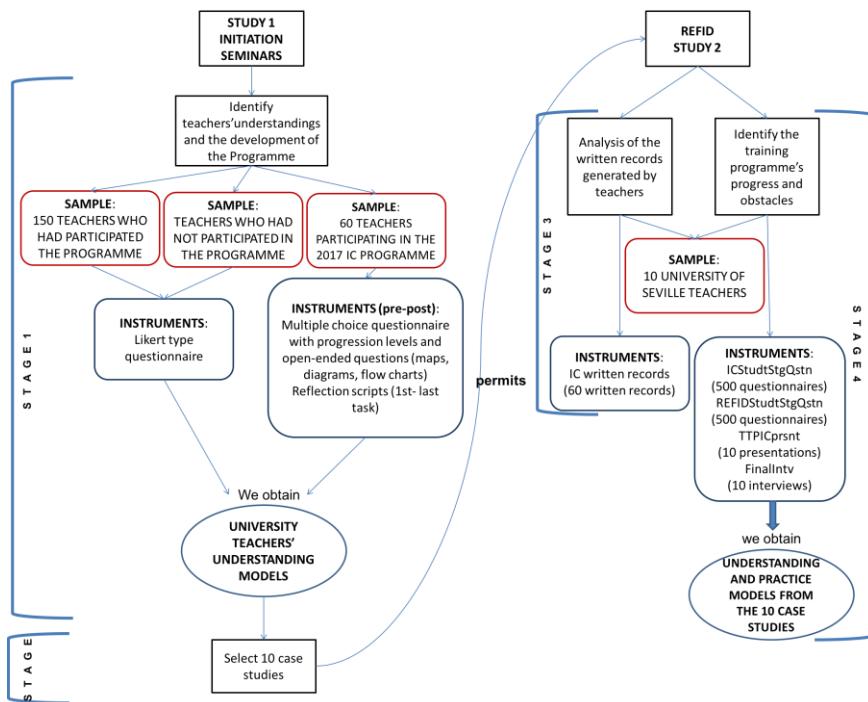


Figure 1. Studies, stages, participants and research instruments. Source: Authors Own (2016).

Two questionnaires have been designed for Study 1: a yes/no question, a Likert type questionnaire and an open-ended question survey. The purpose of the yes/no questionnaire (*University Teacher Pedagogical Understanding Questionnaire*) is to gather information from two groups regarding their understanding of the categories under analysis: those teachers who had participated in the programme during the academic years prior to 2017 (approximately 150), and from a similar sample who had not participated in the programme so that the differences emerging from the results of each group could be analysed. The following structure was proposed for this: a) Introduce the study; b) Collect participants' personal information; c) Provide instructions on how to answer the questionnaire, indicating the different values represented on a scale from 1 (completely disagree) to 6 (completely agree) and how they apply to the importance of the possible difficulties hindering teacher improvement (1 being of no importance and 6 very important) and the ability to influence whether they can be overcome or not (1 being not possible and 6 very possible) and d) Explain the items to answer. In total, the questionnaire comprises 68 items.

To confirm that the questionnaire clearly and appropriately addresses the categories and subcategories of the areas under analysis, we asked nine experts in a variety of relevant fields such as Educational Research, Research Methodology, General Pedagogy, Experimental Sciences Pedagogy, and Pedagogy in the Social Sciences, to validate the process while considering two criteria: *Relevance* or degree to which the item is appropriate to the model, category and subcategory in which it is included, and *Clarity* or degree to which the item can be easily understood by the participants. Additionally, the experts were asked to provide observations and suggestions to reformulate those items when they did not meet the aforementioned criteria.

The purpose of the open-ended question survey is also to gather information on the understanding of the categories and subcategories under analysis, but from only those teachers who had begun the programme in 2017, just before starting the Initiation Course, and is based on questions regarding the specific context in which they teach. At the end of the courses the final synthesis task produced by the participants will be analysed (task 10) and the results compared with the initial results of the aforementioned open-ended question survey. This pre-post comparison will be presented at the aforementioned Conference.

One result emerging from this first study is a selection of 10 teachers who represent the diversity of models and understandings present in the samples used. These cases are the research sample for Study 2, which focuses on analysing the progress and obstacles they faced during the training programme. The instruments that will be used are: 60 written records and tasks carried out by those 10 teachers during the 2017 Initiation Course and 1,000 yes/no questionnaires which those teachers' students will take. The results from these questionnaires will provide data regarding the changes and improvements which the 10 teachers have introduced into their practice, in addition to serving as a contrast to the information provided by the teachers themselves; the 10 presentations given by teachers at the Teaching and Educational and Pedagogical Innovation Conferences, which include the design and development of the IC applied to teaching strategies during the programme's second year, as members of REFID; 10 semi-structured interviews given at the end of the process in order to triangulate the information between the initial and final statements of the 10 chosen teachers carried out in Study 1, the written records generated during the training programme's two years and the results emerging from the questionnaires answered by the teachers' students.

SPSS v.24 will be used to analyse the data obtained from the first study's yes/no questionnaires, which will include data on: frequencies, percentages, means, medians, standard deviations, factor analysis by principal components, contrast tests and effect size, etc. And a *content analysis* methodology recommended by various authors (Bardin, 1986, Downe-Wamboldt, 1992; Krippendorff, 2004; Polit & Beck, 2006) will be followed when

handling qualitative information, in order to prepare and categorise units of meaning based on valid and replicable inferences. ATLAS.ti version 8 will be used for this task.

A triangulation process among the researches will maximise the validity of the analysis. Each researcher will carry out a separate analysis and they will subsequently meet to discuss the results and establish a possible consensus. A multiple triangulation approach to the study is justified by using different sources and techniques for collecting and analysing data (Patton, 2002).

This article has outlined the training programme under study and the problem, objectives and research strategy underway. We hope to be able to present results at the next International Conference on Higher Education Advances.

References

- Amundsen, Ch. & Wilson, M. (2012). Are We Asking the Right Questions? A Conceptual Review of the Educational Development Literature in Higher Education. *Review of Educational Research*, 82(1), 90-126. DOI: 10.3102/0034654312438409.
- Arancibia, M. M. & Badia, A. (2015). Concepciones de profesores de secundaria sobre enseñar y aprender Historia con TIC. *Revista Electrónica de Investigación Educativa*, 17(2), 62-76. Recuperado de <http://redie.uabc.mx/redie/article/view/608>.
- Bain, K. (2004). *Lo que hacen los mejores profesores universitarios*. Valencia: Universidad de Valencia.
- Bardin, L. (1986). *El análisis del contenido*. Madrid: Akal.
- Cohen, L., Manion, L. & Morrison, K. (2011). *Research methods in Education*. New York (NY), Estados Unidos: Routledge.
- Conde-Jiménez, J. & Martín-Gutiérrez, A. (2016). Potencialidades y necesidades de mejora en la formación de profesores noveles universitarios. *Revista Electrónica de Investigación Educativa*, 18(1), 140-152. Recuperado de <http://redie.uabc.mx/redie/article/view/767>.
- Creswell, J. W. (2012). *Qualitative inquiry & research design: Choosing among five approaches* (4th ed.). Thousand Oaks, CA: Sage.
- Cruz Tome, M.A. (2003). Necesidad y objetivos de la formación pedagógica del profesor universitario. *Revista de Educación*, 331, 35-66.
- De Alba, N., Duarte, O., Hamed, S., Navarro, E. & Porlán, R. (2017). Una propuesta para la innovación docente y la formación del profesorado universitario. En *V Congreso Internacional de Docencia Universitaria (CINDU)*. Vigo, España.
- Denzin, N.K. & Lincoln, Y.S. (2005). Introduction: The discipline and practice of qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (2 nd). Thousand Oaks, CA: Sage.
- Downe-Wamboldt, B. (1992). *Content Analysis: Method, Applications, and Issues*. Health Care for Woman International, 13, 313-321.

- Erickson, F. (2012). Qualitative Research Methods for Science Education. In: B. Fraser, K. Tobin & C. McRobbie (Eds.), *Second International Handbook of Science Education. Springer International Handbooks of Education*, vol 24. Dordrecht: Springer.
- European Commission (2014). *Report to the European Commission on New modes of learning and teaching in higher education*. Luxembourg: Publications Office of the European Union.
- García Pérez, F. F. & Porlán Ariza, R. (2000). El proyecto IRES (investigación y renovación escolar). Biblio 3W, Revista Bibliográfica de Geografía y Ciencias Sociales, (Revista electrónica de la Universidad de Barcelona, 205, Consultado el 5 de septiembre de 2011: <http://www.ub.es/geocrit/b3w-205.htm>.
- Gómez Serra, M., Escofet Roig, A. & Freixa Niella, M. (2014). Los equipos docentes en la educación superior ¿utopía o realidad? *Revista Española de Pedagogía*, 259, 509-523.
- Krippendorff, K. (2004). *Content analysis: an introduction to its methodology*. Thousand Oaks, California: Sage Publications Inc.
- Porlán, R. & Rivero, A. (1998). *El conocimiento de los profesores*. Sevilla: Díada.
- Porlán, R. (Coord.) (2017). *Enseñanza universitaria. Cómo mejorarla*. Madrid: Morata.
- Schön, D. (1992). *La formación de profesionales reflexivos. Hacia un nuevo diseño de la enseñanza y el aprendizaje en las profesiones*. Barcelona: Editorial Paidós.
- Stenhouse, L. (1985). *Investigación y desarrollo del currículum*. Madrid: Morata.
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*. 3. ed. Thousand Oaks, CA: Sage Publications.
- Polit, D. F. & Beck, C. (2006). *Essentials of nursing research methods, appraisal, and utilization*. Philadelphia: Lippincott Williams & Wilkins.
- Zabalza, M.A. (2007). *Competencias docentes del profesorado universitario. Calidad y desarrollo profesional*. Madrid: Narcea.