What is the status of evidence based practices among teacher education instructors in Spain? descriptive study

Samuel P. León & Marta Ferrero

Teacher education instructors attribute the same efficacy to sound and null (or weak) evidence based practices

INTRODUCTION

- Pre-service and in-service teachers hold a great number of erroneous ideas about what works in education.
- University education plays a central role in correcting misconceptions among educators and teaching them educational practices based in the best available scientific data.
- However, evidence based approach is not always addressed in the faculties of education.
- The **main goal** of this work is to explore how teacher education instructors in Spain score the efficacy of a series of educational strategies which differ in the available evidence supporting them.

METHODS

- **Participants**: 120 teacher education instructors from 9 independent Spanish regions.
- **Procedure and Materials**: Participants were contacted by email to complete an on-line two-parts questionnaire. First part contained items about background information. Second part included 33 items about the efficacy of different learning strategies. These items hold robust (ER), medium (EM) or null/negative (EN) evidence about their efficacy in academic achievement of students. Participants scored the efficacy of each item through a 10-point Likert scale.

DISCUSSION

- Well-tested practices are not clearly distinguished from other kind of practices in faculties of education. It is essential to change this fact to promote an evidence based education approach in schools.

- Future investigations should clarify if the present results remain the same when controlling for some variables of the sample (for example, teaching subject and scientific output).

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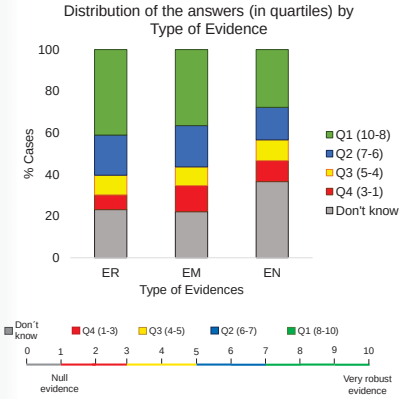
RESULTS



For the frequency of the type of responses by evidence

	Value	df	p	Cramer's V
X^2	15.2	16	0.513	0.125
N	120			

Descriptives

	ER	EM	EN
N	109	108	108
Missing	11	12	12
Mean	7.19	6.74	6.58
Median	7.36	7.00	7.00
Standard deviation	1.44	1.85	1.86
Minimum	1.00	1.00	1.00
Maximum	10.0	9.50	10.0

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What is the status of evidence-based practices among teacher education instructors in Spain?

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A high quality teaching is mainly guaranteed if teacher are equipped with an evidence-based repertoire of pedagogical skills (Ingvarson & Rowe, 2008). However, both pre-service and in-service teachers hold a substantial number of erroneous misconceptions about education (i.e. Dekker, Lee, Howard-Jones, & Jolles, 2012; Etxegaray-Bengoa and Soriano-Ferrer, 2015; Ferrero, Garaizar & Vadillo, 2016; Fuentes and Risso, 2015; Tardif, Doudin, and Meylan, 2015; Washburn, Binks-Cantrell and Joshi, 2014). Along with ongoing training offered to educators, university education plays a central role in correcting misconceptions among educators and teaching them educational practices based in the best available scientific data. However, in many training colleges teacher education students are often invited to rely on observation and hard-earned experience rather than on rigorous, high quality research and evidence when selecting educational methods for the classroom (Seidenberg, 2013), and study programmes do not always include authoritative educational research findings (Moats, 1999). The main goal of this study was to explore how teacher education instructors in Spain scored a series of educational strategies which differ in the available evidence supporting them.

Method

Participants. The sample included 120 teacher education instructors (72 female) from 9 different independent regions in Spain. The mean age of the sample was 46.59 (*SD* = 9.44).

Procedure. To participate in the study, we sent personal invitations to the institutional electronic mail service of the teachers of all the Faculties of Education in Spain.

Materials. We elaborated a two-part questionnaire. The first part contained an informed consent form and requested background information about the participants: Sex, age, university degree, degree speciality, years of experience in teaching, working languages, number of subjects annually covered, subjects covered, number of scientific

publications in the area of education, and a number of questions about the type of evaluation and materials employed during lectures.

The second part of the questionnaire contained 33 statements about educational practices. These items were extracted from different sources, such as meta-analyses, unsystematic reviews, and national reports. Eleven of them were refer to practices which had been proven to be highly efficacy for the majority of students and across a great range of subjects and circumstances. Five items were related to educational practices less effective than the first ones, or only effective under specific circumstances. Seven items refer to practices that hold no evidence or negative evidence about their effectiveness in academic achievement. The remining 10 items were just exploratory. For each question, participants judged the degree of effectiveness of each statement by a 10-point Likert scale. The answer options ranged from (1) “not at all effective” to (10) “very effective”. Participant selected (0) to express “don’t know”.

Result

Table 1 shows descriptive data for the questionnaire items grouped by three types of evidence (see explanation below). As can be seen, both means and medians have a close range for each type of evidence. This led us to make an analysis of the topology in the response.

Table 1: Descriptives by type of evidences

	ER	EM	EN
N	109	108	108
Missing	11	12	12
Mean	7.19	6.74	6.58
Median	7.36	7.00	7.00
Standard deviation	1.44	1.85	1.86
Minimum	1.00	1.00	1.00
Maximum	10.0	9.50	10.0

Figure 1 shows how the answers to the survey are distributed in response ranges for each type of evidence. The question ranges were divided into quartiles, Q1 being the first quartile (from 10 to 8), Q2 the second quartile (from 7 to 6), Q3 the third quartile (from 5 to 4) and Q4 the fourth quartile (from 3 a 1). Scores of 0 (for "Don't know") were computed as another answer range. The questions were grouped by three different types of evidence. ER refer to statements with Robust Evidence, EM to claims with Medium Evidence (effective only under certain circumstances), and EN to assertions with Null or Negative Evidence.

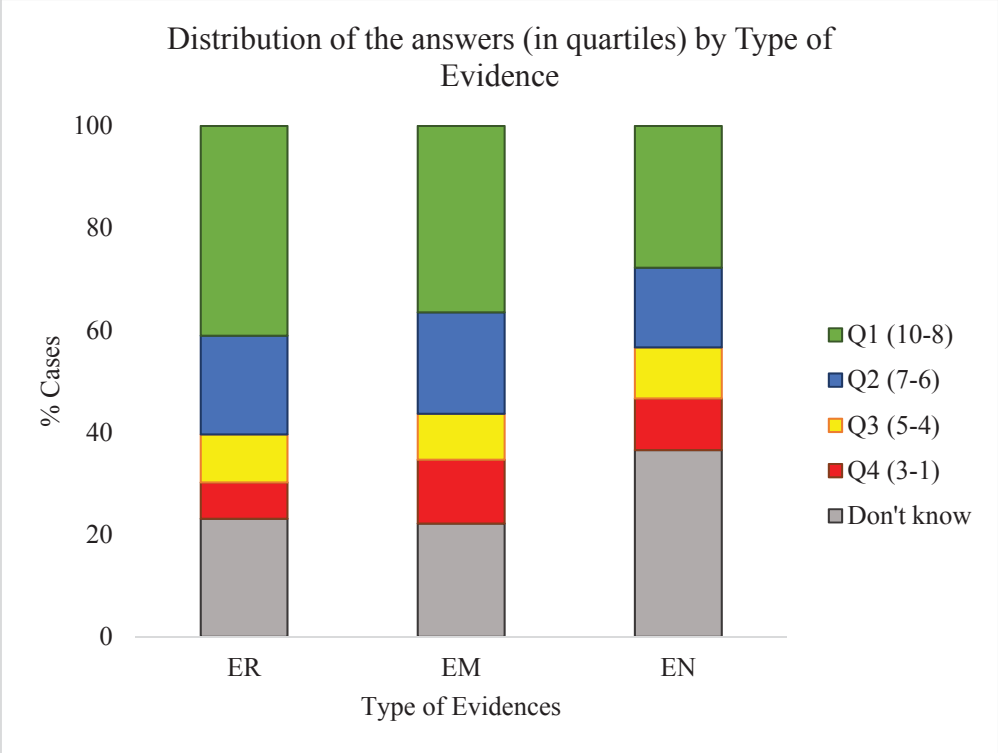

Figure 1. Distribution of the answers for each type of evidence. ER = Robust Evidence, EM = Medium Evidence, and EN = Null or Negative Evidence.

To analyze the distribution between the different types of responses, a frequency contrast based on Chi-square was performed. Table 2 shows the results of this analysis. As can be seen, this analysis does not show differences between the response patterns for the different evidences, χ^2 (16) = 15.2, $p > 0.05$.

Table 2. Frequency of the type of responses by evidence

	Value	df	p	Cramer's V
χ^2	15.2	16	0.513	0.125
N	120			

Discussion

The adoption of evidence-based practices by in-service teachers is imperative to offer a high quality education to all the children without exception. However, both in pre-service and in-service training courses, the most robust evidence-based strategies and practices are not explicitly addressed or do not occupy a preference place in relation to other practices with weaker or null effectiveness. The aim of this study was to explore the knowledge of teacher education instructor about evidence-based educational practices.

In general, the results of the present study showed that teacher education instructors judged equally effective all the items of the questionnaire, at the expense of the available evidence. Additionally, they chose “don`t know” answer for a notable number of items. Altogether, these data might be interpreted as if Spanish teacher education instructors do not clearly distinguish between different practices as a function of their degree of effectiveness.

The results of the present study underline the need of improving the knowledge of teacher education instructors in Spain about evidence-based practices. Otherwise, it is very likely that in-service teachers will not adopt the most effective pedagogical approaches in the exercise of their profession. This fact might seriously compromise academic achievement of students.

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