

# Design and validation of a music technology course for initial music teacher education based on the TPACK framework and the Project-Based Learning approach

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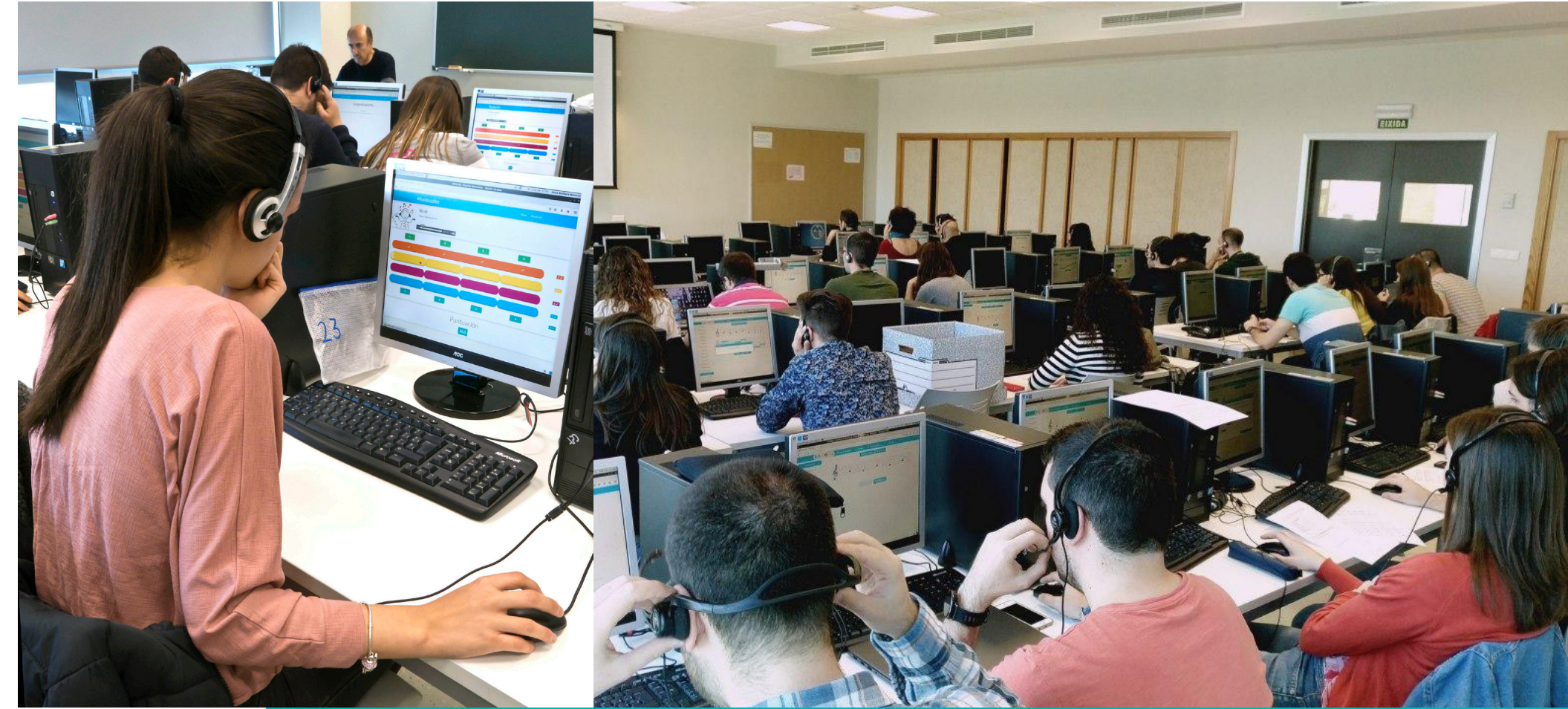


UNIVERSITAT DE VALÈNCIA

IUCIE Institut de Creativitat i Innovacions Educatives

## 1. Introduction

Initial teacher education curricula for primary school teachers tend to be heterogeneous in their approach to ICTs, with many universities now having removed general ICT training courses. This could well have led to ICT education and teacher training being neglected, leading to problems when teachers are asked to apply ICT skills in the classroom. ICT training is important, but the way that training is carried out is even more so: ICT content must be interrelated with teaching content [1]. Responding to this problem, this project outlines the design and validation of an ICT training course on Initial Training Program in Music Education. The course aims to serve as an opportunity for curricular integration, where pedagogical and disciplinary knowledge merge with music technology.



## 2. Conceptual Framework

The study focuses on the processes of the use and learning of technology as part of a holistic, constructivist and interactive framework, with an understanding of the role a teacher must fulfil in an educational institution [2]. The course design adopted a pedagogical model based on the following three elements:

- 1) Five of the seven components of ICT literacy [3].
- 2) The concept of Project-Based Learning (PBL) [4]
- 3) An interconnection of disciplinary, pedagogical and technological contents similar to the TPACK, or Technological Pedagogical and Content Knowledge model [5]; (Fig. 1)

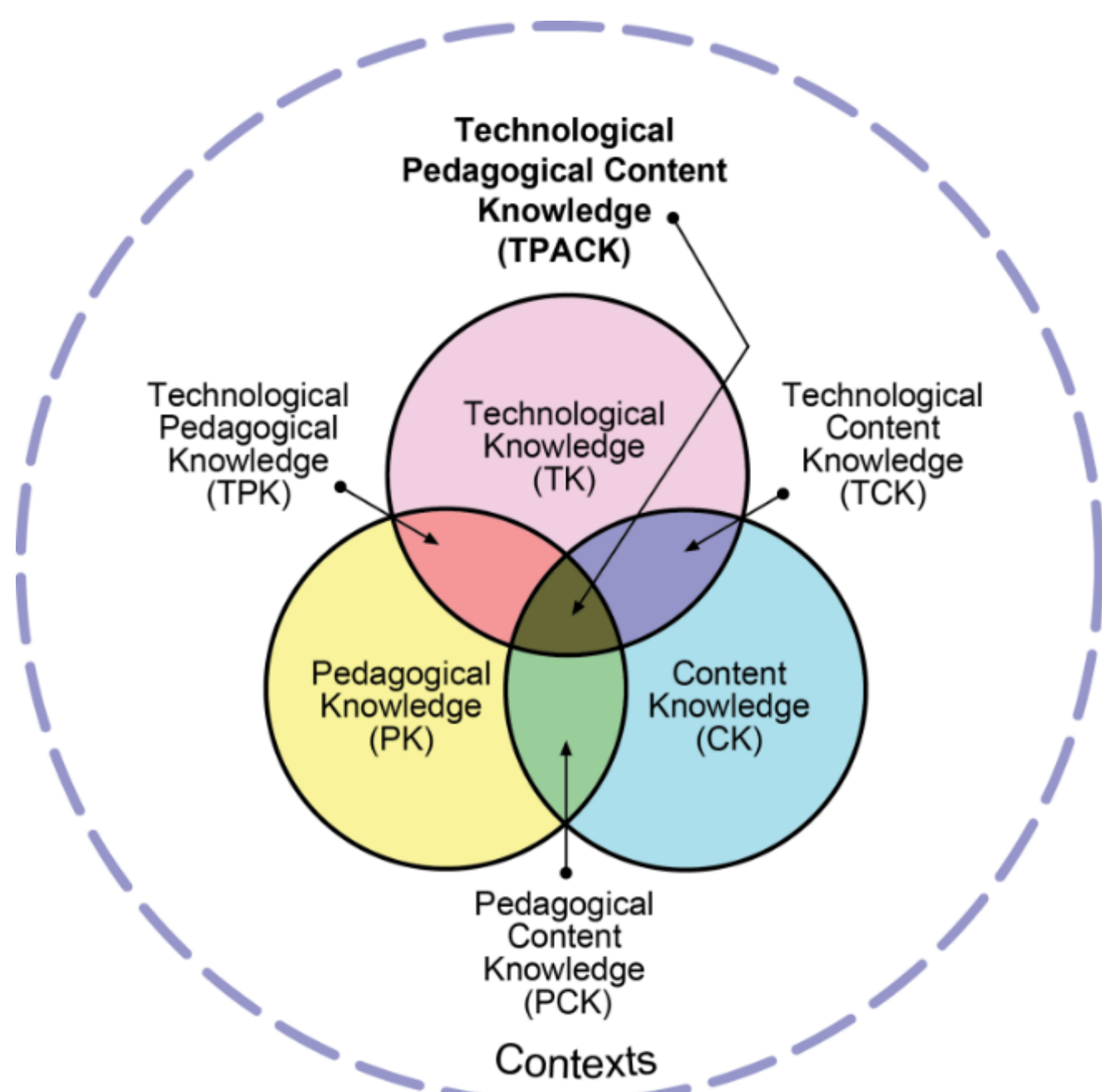


Fig. 1. The TPACK Framework (source: www.tpack.org)

## 3. Method

Through an exploratory-descriptive study, a training problem was detected and a teaching intervention was designed focused on the creation of educational objects. Data was collected using both qualitative and quantitative instruments, and was analyzed in order to triangulate both types of data and thus provide consistency in the conclusions.

### 3.1 Data collection techniques and instruments

- 1) Independent rubrics to provide a quantitative evaluation of the end products of each of the three projects.
- 2) An end-of-course questionnaire with three key questions to evaluate the pre-service teachers' attitudes towards music technology in the primary education classroom.
- 3) A second questionnaire for each participant in the form of an open-ended self-assessment to evaluate the course.

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## 4. Intervention design

The projects in the course consisted of the collaborative design of teaching materials that would help music teachers in their daily professional practice. The model organizes learning around three projects (Fig.2), that are centered on the students and their interactions with their peers and teacher in order to establish a zone of proximal development [6]. The participants were the 2017/18 and 2018/19 year groups (n=46) studying for an undergraduate degree in Primary Education, Majoring in Musical Education, at the Universitat de València.

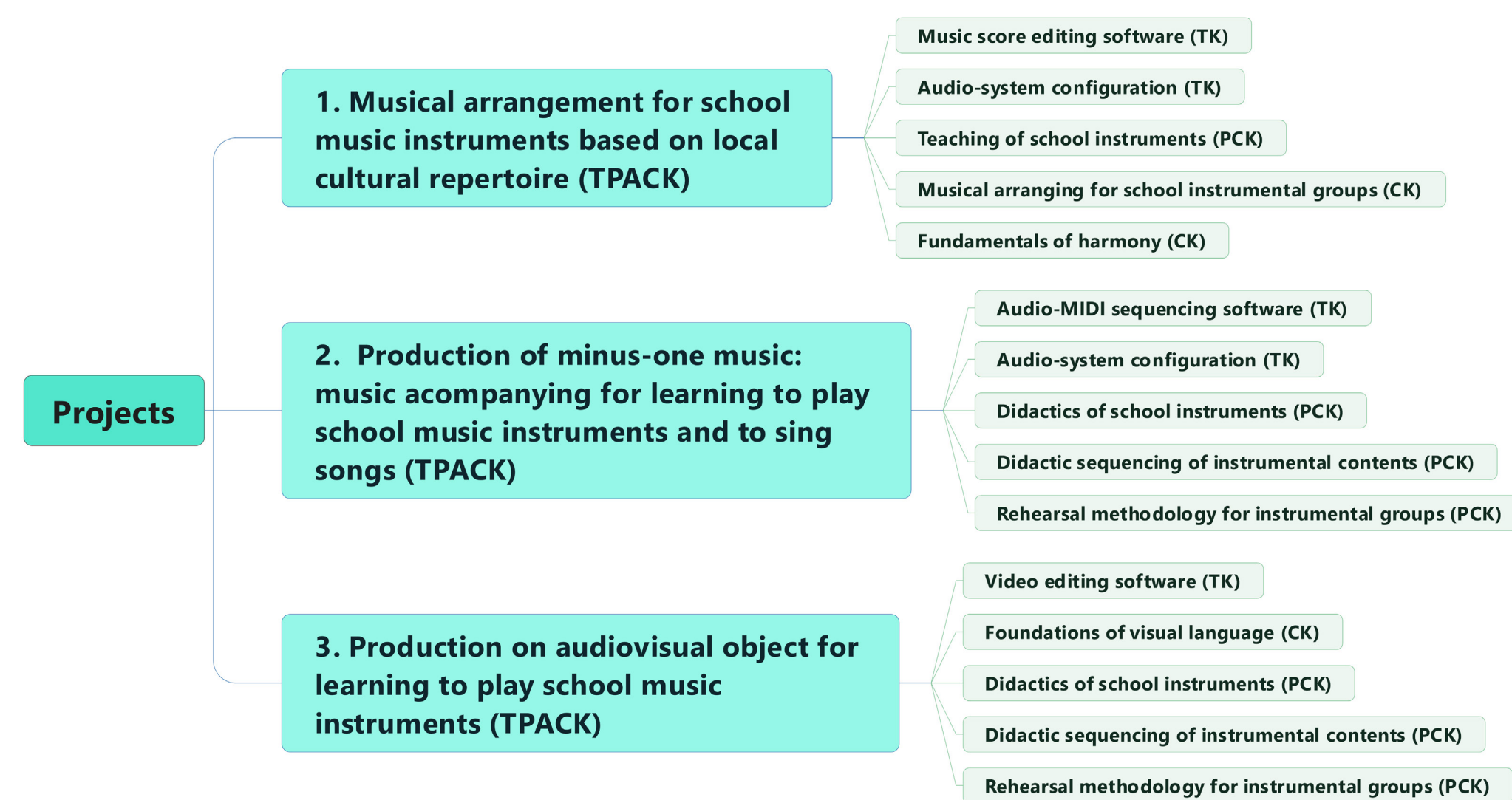


Fig. 2. The three projects consisted of the collaborative design of teaching materials

## 5. Results

The results show that the students generally considered the course to be well designed. The quantitative evaluation produced excellent results, with the average grade rising for the second year group (7.88/10) when compared with the first (7.37/10). The students' perceptions of the course were also very positive on the whole in all of the categories analysed, as discussed.

The qualitative and quantitative data obtained in this study has highlighted positive attitude results that are consistent with the existing literature on PBL in music education [7] and in other disciplines where the strategy has been employed [8]; [9]; [10]; [11]. In their self-assessment responses, students spoke of the academic value of the course, a confidence in their own skills, their willingness to use ICTs in future teaching contexts, the importance of ICTs in their degree program and the fact that the course surpassed their expectations in terms of achievement.