Successful Erasmus+ Projects: Some Case Studies

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Abstract. The analysis of successful projects provides valuable information for finding inspiration and learn from good practices to implement them in future projects. In the case of Erasmus+, there is a very rich project database with catalogued projects that allows access to them what is very useful to analyse the published data of good practice or success stories projects. In the research that is being carried out, reason for this article, a group of good practices or success story projects related to eLearning have been selected, they have been analysed based on the information found on the Erasmus+ Projects Results Platform, their coordinators have been surveyed to gather more information from the projects and interviews are being carried out with those coordinators whose projects have been, and continue to be, useful beyond the funding period even in the pandemic crisis. This article presents the methodology for the interviews and the first results obtained in four of them as an example. The main results for the success and sustainability have been the importance of analysing the needs of students and/or teachers in innovative themes, the integration of the project outcomes into the teaching-learning processes and a good relationship with the project partners. All that using ICT as a tool to better implement the project activities with an easy access from any place, at any time and with any type of device.

Keywords: Education · Technology · European projects · Interactive learning environments · Electronic learning

1 Introduction

The world is becoming increasingly technological with a greater use of Information and Communication Technologies (ICT) in the daily life of any person. Bank transactions, public administration management and shopping are becoming more digital and sometimes require the use of specific apps. This gives rise to the need to empower people with the necessary skills to participate effectively in a growingly digital world. However, as the OECD Trends Shaping Education 2022 [1] report points out *rapid technological*

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change is not always helping the most pressing social needs and, despite the increase in network connectivity, some feel alone and voiceless. Education is often the way to address the social challenges that arise, preparing people to be able to respond to them.

For this reason, in recent decades the use of digital technologies has been introduced to improve teaching-learning processes to improve education and find a way to deal with a challenging, complex, and constantly changing world. Additionally, COVID-19 pandemic broke out in 2020 causing our educational centres, teachers, students, and families to urgently adapt to distance learning methodologies using ICT. This crisis has shown the great need we have for advance in technological competence, especially in the field of education [2, 3].

Some examples of the interest in finding ways to improve educational processes are the multiple publications on ICT and eLearning. In the case of Higher Education there are several analyses regarding the digital transformation of teaching in the face of a methodological and skills crisis due to the COVID-19 pandemic [4–10].

To shed light on how to improve teaching, Grande-De-Prado et al. [11] has developed a guide of recommendations to provide tools to teachers and universities in the evaluation process motivated by the needs produced in the pandemic. In this way, it seeks to help many teachers who share this problem at this exceptional time throughout the planet. Mixed or distance classes have also been promoted in those places where it has not yet been possible to increase face-to-face classes.

The use of social networks for educational purposes, both before and after the lockdown, is a field that has also aroused great interest to analyse differences according to gender and the type of teaching at the university (face-to-face or online) [12].

In the field of Ibero-American educational institutions, analyses have also been carried out on the main difficulties encountered [13]. This analysis has led to the compilation of strategies used in the teaching and learning processes. An evaluation model was also designed together with the emergency situations in which they should be implemented, as well as possible special contingency plans.

Educational solutions have also been explored in collaborative environments, such as the case of the research on solving mathematical problems through cooperation with computer tools during the COVID-19 pandemic, which showed great motivation and learning results [14].

Learning through mobile learning in Higher Education has increased considerably and this has generated the need to evaluate good practices. For this reason, a system of quality indicators has been designed; it is composed with 25 indicators, grouped into 5 variables, aimed at university contexts that use the mobile learning methodology [15].

International and national institutions are aware of the need in achieving improvements in learning using ICT, including eLearning. In this area, an aspect detected in the International Computer and Information Literacy Study (ICILS) stands out, which indicates that although ICT are used by many teachers, the use for which they are intended is for solving simple tasks, not taking advantage of their potential for more complex tasks [16, 17].

To achieve improvements in educational institutions the European Union finances and promotes the development of European educational projects (https://bit.ly/3ABlri0). Through the Erasmus+ Program (https://bit.ly/3KNPLdV), as well as previous programs, numerous educational projects have been carried out in which new methodologies are analysed and explored to achieve the desired improvement in education.

All these facts are the motivation for the research presented in this article. Its purpose is to collect relevant information on the projects that are being developed in this field and extract indicators that make some of them to be considered good practice and success story. The objective is to extract useful lessons for future projects that can inspire educational centres that are starting or need ideas on how to develop projects with real impact and whose results can be sustainable and useful over time.

Next, different aspects of the research are presented, first, the state of the art related to the objectives pursued, followed by the methodology used to carry out the analysis of the projects, as well as the main results obtained so far. The article ends with the most outstanding conclusions.

2 Literature Review

It is necessary to set the scope of the research to adequately carry out the analysis of projects, for this reason it was decided to focus the study on the use of ICT in eLearning, since it is one of the areas in which the efficient use of these technologies for success is key in improving learning. Moreover, it is increasingly necessary to take advantage of the full potential of eLearning since its use has increased due to the pandemic.

Inclusive Virtual Education raises great interest to leave no one behind, recognizing the diversity of participants found in online courses and emphasizing the need to design and provide accessible educational platforms and resources [18].

The need to improve teacher training to adequately address distance education when face-to-face teaching is not possible, this has been highlighted in the recent situation due to COVID-19 [19, 20].

This type of teaching also helps all those who cannot continue their training in person, it allows lifelong learning in a flexible and optimal way, which is why it is a methodology in growing demand. In fact, some studies have been carried out on different methodologies that could enable flexible learning, such as:

- Mobile learning in Spain [21] evidenced the merely instrumental use, still scarce –although apparently growing.
- Mixed learning in Peru [22] shows the need to optimize the use of this methodology to achieve a more autonomous training, for a progressive insertion in the professional world.
- Joint programs and degrees [23] increase the mobility of students and teachers who often spend periods of study in the different participating institutions and provide opportunities for cooperation and peer learning between institutions.
- Smartphone use and its impact on attention [24], despite many unresolved questions about the effects of smartphone use on different domains of attention, smartphone use could have beneficial effects in certain processes.

- Interactive learning environments [25] can provide a more flexible learning approach that strengthens students' self-regulation of their learning process by providing services, tools, etc.

As regards to eLearning, the GRIAL group has numerous publications that analyse the current state and advances of eLearning, as well as the future trends of this teaching-learning methodology [26–28].

UNESCO has also analysed the effectiveness of eLearning [29] concluding that teaching through eLearning can make a great difference in learning. However, it pointed out that achieving an improvement in the learning results depends on the type of eLearning and the use made of it.

ICILS showed that schools and classrooms vary in the way teachers use ICT for instruction. Although eLearning is widely perceived as a means of achieving transformative effects in classrooms, its implementation has been relatively limited. Likewise, the effectiveness of ICT to promote learning seems to depend on educational practices and the ability to integrate digital technologies into teaching processes effectively [16, 17].

CEDEFOP [30] found the need of lifelong learning for the labour market with a combination of electronic resources and face-to-face interaction between students and teachers. The purpose is to make it possible to adapt the training to the context of the users and the time they have available.

UNESCO also promotes lifelong learning, including eLearning as one of the means to achieve it [31].

In addition, OECD, due to the recent COVID-19 pandemic, has published different reports with information related to the equipment in the centres and digital training of teachers and students, as well as school resources with data collected in the studies: Program for the Evaluation International Student Study (PISA) (https://bit.ly/3r0UOzv) and the Teaching and Learning International Survey (TALIS) (https://bit.ly/3KOU9tc), among others.

One of the main results of this work has been country notes explaining the main findings for OECD countries [32]. These country notes reflect how prepared were the educational systems based on the data collected through the studies in the field of ICT in education and allow reviewing the aspects that require the implementation of improvements in this field.

The European Union (EU) encourages the implementation of ICT-based projects in the European Educational Project Programs. In the case of Erasmus+, ICTs are one of the priorities and topics considered for project funding.

In the Erasmus Project Results Platform (E+ PRP) (https://bit.ly/3H6qJUT), which contains all the projects funded by the Erasmus+ Program and its predecessor programs in education, youth, and sport since 2007, we find more than 20,000 projects related to eLearning or ICT. These projects are classified; hence it allows the selection of those that are labelled as good practices or success stories.

In summary, all these analyses, and publications support the need to continue improving educational projects that involve ICT, including the eLearning projects that are the object of this research [33–40].

3 Methodology

The research presented in this article is based on a mixed methodology that combines quantitative and qualitative analysis [41], taking advantage of the combination of the strengths of each one to answer the research questions [42]. The guide for systematic reviews of research projects [43, 44] has been used as a reference to achieve that goal.

This methodology provides a way to analyse the projects, obtaining an overview of current trends and locating gaps and opportunities that help to define new advances in the field of research. In addition, this method allows comparing finalized projects and having an idea of the evolution of technological ecosystems [45] in the area of study.

The research process consists of four stages: study definition, selection definition, project selection and analysis. Presently, the research is on the analysis phase, in which we will try to quantitatively evaluate the first results obtained in relation to the common factors that have influenced the success of different Erasmus+ educational projects with eLearning or ICT, as well as the way in which the implementation, the results and the sustainability of these projects can help define guidelines to achieve good quality in future projects.

The analysis stage has been structured in three phases: firstly, the projects have been reviewed on the E+ PRP gathering the main data regarding their field of work, the results achieved, involved institutions, etc.; secondly, a questionnaire has been implemented and sent to the projects coordinators in order to collect important information related to their possible success and ICT used, and finally an interview phase is being carried out at the moment of writing this article, only with those projects with results sustainable along the time and with teachers or students involved.

The next two sections explore the questionnaire and the interview phases.

3.1 Questionnaire

The design of the survey has been based on diverse questionnaire design theories from different papers with the definition of different types of open or closed questions, the methodology, the way of writing the questions in clear language, grouped, and ordered, the recommended number of questions [46].

The survey is divided into six sections: Identification, Global aspects of the project, Students and ICT, Teachers and ICT, other aspects related to other areas in terms of the use and sustainability of the results obtained from the projects, among other things, and finally the main conclusions. It contained 21 questions, 19 with dichotomous options and 2 open-ended, and the average time to fill in it was 20 min.

It has been reviewed several questionnaires as a source of inspiration, such as the case the questionnaires of the ICILS Study [16, 17], the PISA Global Crisis Questionnaire Module of the OECD [47] and TALIS (https://bit.ly/3KOU9tc), in addition to the Erasmus+ Program Guide which specifies key aspects of impact indicators and the dissemination of Erasmus+ projects (https://bit.ly/3KNPLdV). All of them already tested and validated.

3.2 Interview

In all qualitative investigation, the interview as a technique is always linked to a research problem and this requires a specific strategy when thinking about its use. Therefore, it implies planning and designing it considering fundamental aspects of the investigation and the type of enquiry selected to collect the information. Depending on the objectives projected in the study, we will be guided towards the choice of the most appropriate type of interview for the collection of the necessary information in such a way as to guarantee the viability of the technique and the research work [41, 48].

The semi-structured interview modality is one in which the interviewees can be exposed to the same script, although with freedom in the axes that guide their answers, without forcing the order of the questions [41, 48].

For the research presented here, this modality has been chosen to collect information of interest from the interviewees in a friendly and open way, giving them the possibility of expressing themselves about the aspects that were of interest in relation to the success of the project. The three areas of interest were: first, to know to what extent and in what way teachers and students were involved; second, the usefulness of the results achieved in the project and its materials beyond its completion and, third, how these were useful in the pandemic.

With that goals the interview script was design (Table 1). The preparation of the interview script has been based on knowing specific aspects related to the areas already covered with the questionnaire but focused on the three areas indicated. And the implemented methodology is as follows:

1. First, questions related to the proposed topics have been considered, in addition to assessing the validity of the previous questionnaire.
2. Second, it has been analysed its link with the sections of the questionnaire (Table 2).
3. Third, the validity has been verified with the two initial interviewees.
4. Fourth, the interviews have been organized:

    a. An email was sent to all the coordinators of the selected projects that met the three proposed requirements.
    b. Those interested in collaborating have confirmed and it is established with them the day and date for the interview through Google Meet.
    c. Prior to the day of the interview, all the project information available on the E+ PRP and in the questionnaire is reviewed and included in the script file as background information.
    d. The interview is conducted in a friendly manner on the proposed day, transcribing the information related to the issues of interest.
    e. At the end of the interview, all the annotations are cleansed and sent to the interviewees so that they can review and correct what they consider necessary.

Once all the interviews are finished, a detailed analysis of all of them will be carried out using categorization to obtain quantitative data of the most significant qualitative aspects.

Table 1. Interview script.

Planned questions
1. One of the factors that can contribute to the success of educational projects is that they meet the real needs of the group of students or teachers for whom it is proposed, in the case of your project, what specific needs did you intend to solve in relation to the students and/or teachers? 2. Did you manage to solve your proposed needs? What improvements did you achieve in learning or teaching methods? 3. How were the students and teachers involved in the activities? Are they still participating today? How do they do it? 4. Was it focused on specific subjects or subjects or was it cross-cutting? 5. Are the results used in current teaching practice? Are they integrated into the educational project of the centre or institution? 6. Have the products developed in the project been transferred to other centres or institutions? Are they used by more groups than those who participated in the project during the funding period? 7. How have you managed to reach more groups? What dissemination activities have you done and continue to do? 8. Do you keep updating the materials you developed with the project? 9. What use was and is being made of ICT for the project? What have been the most outstanding ICT tools and methodologies and those that have had the most impact on improving learning? 10. Are the resources useful for online teaching or for eLearning? To what extent and how are they used? 11. In the previous questionnaire, you indicated that the resources had been useful to solve the problems that arose during the pandemic. How did you use the resources generated in the project during the confinement? 12. Have you carried out other subsequent projects based on what you achieved with this project? 13. What improvements would you propose in what has been developed so far with the project during and after the financing period?
Finally, it is very relevant to us to know your assessment in relation to the questionnaire you completed: • Did you find it adequate in terms of the type of questions for the objectives that were posed? • Did you find the questions pertinent to gather information on the purposes of the project, its main activities, use of ICT, dissemination, impact, and sustainability? • Were the length and number of questions adequate? Was it easy for you to answer them? • Was the time for completion as expected or did it take longer than expected? • Was the interface used intuitive or did it cause you any problems? • What aspects of the questionnaire would you improve?

Table 2. Mapping between the sections of the questionnaire and the interview questions.

Questionnaire section [38]	Interview questions
2. Global aspects of the project	1, 2, 3, 5, 10
3. Students and ICT	4, 9
4. Teachers and ICT	4, 9
5. Use and sustainability of the results obtained from the projects, among other things	6, 7, 8, 11, 12
6. Conclusions (open-ended questions)	5, 13

4 Results

The steps followed so far include the mapping of the projects based on specific criteria already defined [40, 41] and described below:

- They must be linked to the term eLearning/e-Learning (almost 10,000 projects).
- Only projects labelled as good practices or success stories (nearly 1,200 projects) are chosen.
- The key actions KA1 and KA2 are those in which schools are most involved.
- The interest is focused on those projects in which educational centres participate because they are an important element to analyse the improvement in the learning process. Therefore, those projects that did not involve educational centres were excluded.

The number of projects that met the first three requirements was 1,144 projects, of which 256 did not have any educational centre involved.

Once the projects meeting those criteria were filtered, contact information was collected using the data available on the E+ PRP (https://bit.ly/3H6qJUT) or on the websites of the coordinators and/or partners. There were 39 projects for which it was not possible to find a contact email nor a phone number. Therefore, the total number of institutions contacted was 849. The questionnaire was sent to all these contacts, from which responses were obtained for 187 projects, giving a response rate of 22%. Several analyses have been carried out with those results presented on different papers [34–39].

Once the questionnaire phase was finished an interview phase has started with those projects that indicated in the survey that the results of them proved useful during the pandemic and had the participation of both students and teachers in its exploitation and implementation, in addition to use and generate valuable digital resources for the community and they are still useful today. Only 58 projects meet those three requirements. The coordinators of these projects have been contacted to arrange an interview and presently 22 coordinators have confirmed to participate in the interview, of which, at the time of writing this article, 10 interviews have been carried out.

4.1 Main Results from the Questionnaire

The most outstanding results obtained through the questionnaire have been:

- Regarding the administration of the survey, the contact data of the project coordinators collected from the platform and its websites were used. At the same time, summaries of projects, as well as their results, were collected to obtain as much information as possible. The response rate of the survey has been 22%, which is adequate to obtain data of interest on projects.
- The most indicated success factors in relation to the projects are: attending to the real and concrete needs of the students and teachers of the educational sector of the project, coordination and collaboration of all the partners of the project before, during and after the project, sustainability of the project over time, since it continues to be used and updated, participation and involvement of teachers and students from the educational sector of the project.
- In the case of students and the use of ICT in projects, it should be noted that the most represented sector is School Education. ICT tools used by students focus on basic skills related to office management and presentations, as well as collaboration platforms. Regarding ICT devices, both laptops and desktops are the most used.
- In relation to teachers and their use of ICT, the results are very similar to those of students, School Education is also the most prominent sector, followed by Vocational Education and Training, Higher Education and Adult Education. ICT tools used by teachers are also related to office automation, presentations, and collaboration platforms. In addition, video and photo editing, the use of network resources and the digital learning environment. As regards as ICT devices, both laptops and desktops are the most used, and depending on the educational field, tablets and smartphones are also very common.
- In general, for more than 50% of the projects surveyed, it can be said that the results have been positive with sufficient funds to be able to carry them out and with the capacity to continue using them after the end of the funding period. In addition, they have also been useful on COVID-19. Small variations are observed between educational fields, although not very pronounced. The sector that differs most is Adult Education, a fact that is normal because it is a different target audience and includes continuous training processes.

4.2 Main Results from the Interview

In relation to the interview phase, it is still in progress, however, with the current progress, some aspects can be glimpsed that deserve to be considered. To begin with, it is worth pointing out the characteristics of the 4 projects that have been interviewed:

– Type of projects:

  - 1 KA1 project from Vocational Education and Training (VET) field (KA102).
  - 3 KA2 projects (strategic partnerships): 1 from School Education field (KA209), 1 from the Youth field (KA205), 1 from the Vocational Education and Training field (KA202).

- 2 of them of 2017, 1 of 2016, and 1 of 2014.

– Main facts identified in the projects:

- 2014 - KA202:

  - The objective was to build a solid knowledge base and source of information on the state-of-the-art intrapreneurial training and competences for successful implementation. It was implemented the Intrapreneurial Training Programme during the project.
  - The project was very innovative and therefore still valid, it has had projection until now. A great advance has been seen working on intrapreneurship within companies, employees can contribute a lot to improve their processes and opportunities.
  - The approach is aimed at promoting the continuous training of the personnel of technology companies with material for online or face-to-face training available.
  - Each institution adapts it to its needs and integrates it into its training platforms. During the lockdown for COVID-19, support continued with audio-conferences and videoconferences with the complete Microsoft Office package, Google Drive to collaborate and share project documents and Skype.

- 2016 - KA205:

  - It was designed to meet the need of a small town with little offer for young people in holidays seasons outside the school period. It was intended for a very closed area and far from big cities, where the diversity of cultural offer was scarce, and a solution was needed. The teachers assisted in the planning and design of the activities.
  - It guarantees its sustainability through the creation of a network with local institutions, NGOs, companies, communities, schools, sports clubs, City Halls with the resources of the project.
  - They have also created 4 free clubs for art and culture, another for science and technology, sports and outdoor activities, citizenship and entrepreneurship that are still working.
  - They used technology and robotics for students of some countries and a Moodle platform was made for the training of the monitors and during the period to carry out an assessment of the children's competencies after the technology-based activities to see the results obtained.

- 2017 – KA102:

  - Nursing assistant student mobilities were proposed with the clear objective of improving the labour insertion of students and 100% has been achieved. Teachers carried out mobilities to make contacts with health institutions and for job shadowing in the VET School partners.

- The teachers managed to learn how other VET Schools managed the training in work centres in three different countries, which is very useful for them, they tried to broaden horizons for the students in their apprenticeship period.
- They have a stable relationship with the partners, hence the activities and mobilities between schools go on project after project.
- They got a great improvement at the level of languages and ICT learning. They used specific software of nursing assistant profession and also collaborative working tools. For distance learning and online coordination at specific times they use Google Meet, Blackbloard, WhatsApp, and the website and social networks for dissemination.

- 2017 - KA219:

  - It was intended for improving the cultural and foreign language competencies of the students within the centres involved, as well as the use of ICT in the classroom.
  - All teaching staff and students participated actively, bilingualism have been established because of the project and the project materials were applied with the subjects indicated above and are still used today.
  - Due to the success of the relationships between the partners, they have managed to improve the relations between schools and continue to carry out joint activities.
  - For distance learning they mainly used eTwinning for exchanging ideas/resources/videos and dissemination, as well as Microsoft Teams, Zoom and Skype.

In short, some common aspects of the projects analysed are that they met the needs of their students and/or teachers and are associated with innovative topics that have a real incidence and use in the institutions involved, furthermore, they can be extended or transferred to stakeholders or peers. The learning outcomes and materials developed are used until now, adapted and integrated into the teaching processes, even sometimes in the curricula or students' jobs afterwards. In addition, they have coordinated very well with the partners keeping their relationship and implementing successive projects and, even in some cases, they have created networks. Regarding the use of ICT, all the projects used them as a complement to facilitate teaching and communication processes not as the main goal.

5 Conclusions

The research work presented in this article has as its main goal to provide effective indicators for teachers to design their projects, involving electronic learning, in a more effective way.

To provide a valuable guide for teachers, the educational projects collected on the Erasmus+ Projects Results Platform are being analysed. This allows an analysis of the type of projects, results, and topics and sees those classified as good practice or success stories. This database is the primary tool for collecting information together with the collaboration of the main participants of those projects that have been successful.

The analysis methodology used is that provided by the guidelines for a systematic review of research projects.

Currently, the research is in the phase of analysis and collection of additional information. The first stage was to analyse and gather information provided on the E+ PRP with Erasmus+ educational projects classified as good practice and related to ICT and/or eLearning of the key actions 1 and 2 of Erasmus+ with educational centres involved. The second stage has been the design of an online survey that was sent to all eligible project coordinators. It was finally completed by 187 and with them a preliminary analysis of the data provided through the survey has been carried out.

Afterwards, the next stage consists in conducting interviews with those institutions selected for having projects in which teachers and/or students have been involved, the results continue to be useful and have also been so due to the pandemic. The interview phase will be from December 2021 to May 2022. A script was prepared, the institutions have been contacted, and the interviews are being carried out presently. When this phase is over and after the analysis of the results, a focus group will be held to jointly analyse all the results collected and how they can help and serve as an example. educational centres in improving teaching-learning processes.

As main results so far, it is interesting to highlight the importance of analysing the needs of students and/or teachers in innovative topics that have a real incidence and use in the institutions involved. Adapt and integrate the project, its results and/or outcomes into the teaching-learning processes (the curricula, the educational project, etc.). Additionally, it is desirable to have a good and stable relationship with most of the partners.

In summary, the analysis of all the data collected in the different phases will allow teachers and teacher trainers to be guided to know the key factors for a good design of educational projects, as well as an optimal use of ICT resources and a real impact on the teaching-learning process.

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