



Article

# Educational Innovation in Higher Education: Use of Role Playing and Educational Video in Future Teachers' Training

Antonio-José Moreno-Guerrero , Carmen Rodríguez-Jiménez , Gerardo Gómez-García   
and Magdalena Ramos Navas-Parejo \* 

Department of Didactics and School Organization, University of Granada, 18071 Granada, Spain;  
ajmoreno@ugr.es (A.-J.M.-G.); carmenrj@ugr.es (C.R.-J.); gomezgarcia@ugr.es (G.G.-G.)

\* Correspondence: magdalena@ugr.es

Received: 6 February 2020; Accepted: 21 March 2020; Published: 24 March 2020



**Abstract:** Information and communication technologies (ICTs) have led to the emergence of a variety of active and innovative teaching methods. This is the case in role-playing, which consists of simulating a real-life situation, in this case the school context, in which the student takes on a certain role and interacts with other students in a fictitious situation. Framed in this way, the present study aims to show if the application of the role-playing method promotes the improvement of attitude variables and practical skills. To this end, we advocated the use of a quasi-experimental methodology, with a control and experimental group and the application of a post-test. The sample is composed of 138 students from the Master of Teachers of Compulsory Secondary Education in Ceuta (Spain). The results showed that the students positively valued the application of the method, obtaining better scores in the set of variables studied, especially in motivation, creativity and collaboration. Therefore, it continues to be observed that the application of innovative methodologies through technology promotes the increase of multiple skills in the student body. This study aimed to prove that the use of active methods provides an increase in students' skills, and that, therefore, we must bet on the use of sustainable pedagogies in order to promote a real innovation in the classrooms.

**Keywords:** role playing; educational video; teacher training; educational innovation; active methodologies

## 1. Introduction

Information and Communication Technologies (ICT) are becoming increasingly integrated into our society and their influence on people's lives is becoming more and more apparent. Their impact has reached the education system, where, through their inclusion, a transition has been made to a new way of understanding teaching and in the ways in which it is taught [1,2]. In this sense, the European Common Space (EHEA) views ICTs not as a personal preference, but as a need that must be addressed by the teaching community [3].

Nowadays, we find ourselves in an educational panorama, made up of students who have been immersed in a technological context and who have interacted with devices of this nature since their birth. For this reason, their motivation to work in the classroom has changed over the years, and they find it very attractive to be in contact with multiple technological devices [4–6].

Today, the use of ICT in education is a handicap for teachers themselves, who do not fully ensure the success of educational practices with technological resources [7]. The issue is not limited to basic infrastructure equipment, but also to aspects related to its adoption in the classroom, the ability to clarify the educational opportunities it offers and to know the pedagogical paths that lead to its

implementation [8]. For this reason, teachers must assume new methodological paradigms in which ICTs are included, promoting positive attitudes in students [9–12].

Along these lines, various experts have focused their studies on promoting learning theories centered on the student, and not on the teacher. Thus, the so-called active learning emerged, a concept understood as the one in which the student assumes a leading role in which he or she constructs their own learning, replacing the figure of the teacher as a guide and mediator of this process [13,14]. It is a way of understanding the teaching-learning process that fits the characteristics of the current educational system, through the creation of ecosystems of autonomous and guided discovery, and therefore, of motivation [15–17].

Under this perspective, it is fundamental that from educational centers, the idea of promoting a methodological change through the proposal of methods and active dynamics, which promote the leading role of the student in the classroom, is encouraged. This idea is especially important in the training of future teachers, in which the promotion of active methods, an innovative practice, and the continuous presence of educational technology should be the axis on which their training should turn. In this way, the future generation of teachers will be able to carry out their work effectively and transmit up-to-date knowledge to their future students [18–20].

Among the many benefits of monitoring this type of learning is the development of skills, problem solving and the promotion of positive attitudes such as responsibility, self-regulation or self-efficacy. Similarly, this view of teaching is compatible with the process of including ICT in the education system, and there are currently many methodologies that regularly integrate technological resources, such as b-learning, f-learning or m-learning, among others [21]. Likewise, if we go deeper into this methodological panorama, multiple teaching models are elucidated, that are presented as real alternatives to working within the educational stages.

Among them, there is role-playing. The concept and development of the term role-play, although it has been gaining ground in recent times due to its contributions to different fields of study [22–24], was defined several decades ago by Crookall and Saunders [25], who defined it as a social and human activity in which users assume or adopt a role or function, in most cases within a previously established contextual and social framework.

Role play, therefore, is an educational method in which participants assume a certain role and act out and improvise that role. The guidelines of this game are usually established with realistic criteria, that bring the participants as close as possible to reality. Research on the benefits and consequences of implementing this practice dates back to the 1970s; however, in recent years, with the rise of active methodologies and the active role of students in their learning, role-play has been promoted as a very effective tool to implement in any discipline, with special emphasis on its application in education by various authors [26].

This dynamic allows the learner to experience different learning styles in a familiar, supportive environment, where he or she feels safe [27]. The main reason why this method has been chosen in various settings, especially in education, is that it allows teachers and researchers to deal with two aspects at the same time: on the one hand, to generate interactive behavior that approaches unprovoked interaction and, at the same time, to have control over this interaction [28].

One of the limitations of this methodology is the bias that exists when it is implemented, because the participants, in this case the students; know each other beforehand, which causes the interaction to be conditioned [29]. In contrast, one of the advantages of implementing this methodology is the flexibility to adapt it to any level of education, facilitating the rapid understanding of the materials used in the teaching-learning process, and increasing the sense of responsibility and independence of those who participate in the dynamic [30].

This type of methodology offers the possibility of combining different resources. Thus, one tool that can be combined with roleplaying for educational purposes is video. Video is a virtual tool and a great example of multimedia learning, since it involves the incorporation of different elements that in traditional learning would be separate [31]. Videos combine images, sounds and words that can be

presented in different ways and at different lengths to facilitate learning [32]. Many studies in recent years have shown the benefits of using video in the classroom [33,34], as the multimedia factor turns any new element in the learning process into long-term memory learning [35].

This educational element and tool for learning has clear benefits when used in the teaching-learning processes. It is a portable and wireless resource that can be used in many places, not strictly within the classroom, which gives the user an unlimited number of views. Similarly, it is a reusable resource that does not require maintenance, in contrast to other tools and materials [36].

In order for videos to ensure that learning through them is real, they must have a number of features. Thus, teachers must monitor the quality of the videos in terms of format and background [37,38], and the content must be up to date. The use of video has been shown to increase student satisfaction with learning [37,39], as well as memory and attention levels. Watching videos in the classroom implies a certain degree of active and experimental learning [40,41], as students analyze, evaluate and interpret the content, what they want to convey and, from there, respond or perform different activities [42].

The present study tries to be a pedagogical example for the different researchers or teachers who want to develop an active teaching method, based on the use of role playing associated with educational video in higher education.

## 2. Justification and Investigation Objectives

Information and communication technologies are now having an increasingly strong impact on teaching and learning processes, promoting techno-pedagogical practices and thus new training perspectives [43].

This fact is represented in the present research, where the development of the role-playing teaching method has been applied, associated to the use of video as a proper educational resource, trying to contrast the effects with respect to the traditional method, in the teaching and learning process of the contents of the organization and management of educational centers, which are closely related to purely legislative knowledge.

Thus, this study proposes ensuring the continuity of other studies which are already developed, and where the use of role-playing and educational video is applied [44–48]. In addition, in order to verify its effectiveness, it has been contrasted with the traditional expository teaching method, in which the teacher is a mere reproducer of theoretical contents, and in which students develop the activities or actions proposed during the educational act [49]. In other words, the teaching and learning process is developed, session after session, with the mere theoretical explanation of the contents, and the correction of the exercises on the blackboard, or the correction of students' notebooks. Throughout the process, the students must remain silent, intervening only when the teacher asks them to do so. In this type of learning, the emphasis is on rote learning.

The study was carried out in the Master's Degree in Compulsory Secondary Education, Baccalaureate, Vocational Training and Language Teaching, specifically in the subject of "organization and management of educational centers", for two reasons: the first is that the subject presents purely legislative contents, and therefore highly theoretical, which are extremely difficult for those who are not familiar with the educational environment; and the second reason is that teachers, in addition to mastering the regulations themselves, must have pedagogical tools that enable them to deal with the various situations they will encounter in the classroom, because this teaching method will enable them to add new pedagogical tools to their range of educational knowledge.

Therefore, the main objective of the research is to know the effectiveness of the role playing didactic method, associated to the use of the educational video, in relation to the expository-traditional formative process in the teaching of the own elements of the organization and management of educational centers in postgraduate students. From this main objective, the following specific objectives are obtained: a) to determine the attitudinal level (interest, motivation, interaction, autonomy, collaboration, attention, self-regulation and creativity) of the students; b) to establish the aptitude level (problem solving,

deepening of contents, class time, qualifications, team work, educational innovation and diversity) of the students.

The objectives of the research are mainly aimed at identifying attitudinal and aptitudinal aspects. With the attitudinal aspects, it is advisable to know the interest of students towards the subject, both in the traditional method and in the teaching method, through the use of role playing and educational video. With the aptitudinal aspects, it is advisable to know the level of learning acquired by the students with both teaching methods.

### 3. Methodology

#### 3.1. Research Design

The present research is framed within the quantitative paradigm, through which a quasi-experimental design is applied with an experimental group (Ge), already used in previous investigations [43,50], which confers a descriptive and correlational character to the study [51]. The students are separated into two different groups. On the one hand, the experimental group, which has developed a methodology considered innovative at a pedagogical level, because it combines two elements, role playing and video as an educational resource; on the other hand, the control group (Gc) develops a traditional teaching method. Sampling for convenience has been the technique used for the selection of the members of both groups, since it was not feasible that these groups, previously formed from the beginning of the academic year, were modified. After the intervention, the data was collected.

#### 3.2. Participants

The sample size was 138 students, who were chosen through convenience sampling because they had easy access to individuals. The scientific literature, in this regard, states that sample size is not a determining factor in the correct development of educational research or studies [52,53].

The members of the sample are students of the Master's Degree in Compulsory Secondary Education, Baccalaureate, Vocational Training and Language Teaching at a public university in southern Spain. The research was carried out during the second quarter of the 2018/2019 academic year, more specifically in February and March. More specifically, the sample is composed of 56 boys and 82 girls. The ages of the participants range from 22 to 57 years old ( $M = 34$ ;  $SD = 6147$ ), with 47.1% belonging to the humanities and 52.9% to the sciences. In addition, 27.54% of students profess the Muslim religion, 57.25% the Christian religion and the rest profess another religion, or do not profess at all. In addition, 24.64% had received active pedagogical actions, while the rest had received an expository teaching method (Table 1).

**Table 1.** Research design.

Group	<i>n</i>	Composition	Pretest	Treatment	Posttest
1-Control	71	Natural	-	-	O <sub>1</sub>
2-Experimental	67	Natural	-	X	O <sub>2</sub>

Note: Treatment was randomly assigned.

#### 3.3. Instruments

Data collection was carried out through a questionnaire, based on the ad hoc questionnaire that has been based on previous studies [54–57], consisting of 34 items, which are grouped into three dimensions; attitudes, skills and socio-educational. The scale of the questionnaire is a 4-point Likert scale, being 1: None, 2: Few, 3: Enough and 4: Completely.

The validation and reliability of the instrument has been a process formed by several stages. First, the Delphi method was applied, which measures qualitative validity, by 6 experts who gave

positive ratings ( $M = 4.73$ ;  $SD = 0.24$ ;  $\min = 1$ ;  $\max = 6$ ). Two statisticians were then applied, Kappa statistician by Fleiss and W by Kendall, both of which provided acceptable indicators ( $K = 0.81$ ;  $W = 0.83$ ). Another validation of the quantitative aspect was made through an exploratory factorial analysis with varimax rotation; its results were satisfactory (Bartlett = 2598.37;  $p < 0.001$ ; Kaiser-Meyer-Olkin = 0.86). To complete this process, Cronbach's alpha (0.89), McDonald's index (0.88), with compound reliability (0.82) and mean variance extracted (0.83), were used as appropriate according to the metrics offered. After this presentation, the reliability and validity of the instrument can be corroborated.

### 3.4. Variables

The study is composed of two types of variables: dependent and independent [51], which will be encoded to facilitate their understanding in the subsequent analysis of results. The independent variable is manipulated to determine its effect on the dependent variable, in this case the role-playing teaching method associated with the use of educational video (ROVI).

On the other hand, the independent variables are distinguished in two dimensions: Dimension I. Attitudes, composed with the variables interest (INT), motivation (MOT), interaction (INR), autonomy (AUT), collaboration (COL), attention (ATE), self-regulation (SER) and creativity (CRE), which have the purpose of investigating the students' attitudes about the teaching and learning process; Dimension II. Skills, composed of the variables problem solving (SOL), content deepening (COD), class time (CLT), grades (RAT), team work (TEW), educational innovation (EIN) and diversity (DIV), which are in charge of determining the knowledge of the subjects about the contents received in the course (Table 2).

**Table 2.** Study variables.

Variables	Name	Measurement
INT	Interest	Four-point Likert scale
MOT	motivation	Four-point Likert scale
INR	interaction	Four-point Likert scale
AUT	autonomy	Four-point Likert scale
COL	collaboration	Four-point Likert scale
ATE	attention	Four-point Likert scale
SER	self-regulation	Four-point Likert scale
CRE	creativity	Four-point Likert scale
SOL	problem solving	Four-point Likert scale
COD	content deepening	Four-point Likert scale
CLT	class time	Four-point Likert scale
RAT	grades	Four-point Likert scale
TEW	team work	Four-point Likert scale
EIN	educational innovation	Four-point Likert scale
DIV	diversity	Four-point Likert scale

### 3.5. Methodological Procedure

The methodological development in this research has been composed of several steps (Figure 1). First, the sample selection was made. The development of this selection began with a presentation to an educational center of the didactic proposal and the purposes of the research. This center accepted to participate, as long as they were shown information of the results obtained and an exhaustive description of the pedagogical action.



**Figure 1.** Research stages.

The next step consisted in the elaboration of two pedagogical proposals, through which the proposed didactic unit could be carried out. One of these proposals was the expository method, that is, a traditional teaching method where the teacher acts as an information facilitator, and the students do not actively participate in this presentation of contents, but rather carry out a series of activities after the exposition of the subject, in most cases in the notebook or word processor. The other pedagogical proposal was the role playing linked to the video as an educational element. In view of these facts, two groups were formed; on the one hand, the control group that experienced the traditional methodology, and, on the other hand, the experimental group that carried out the method through cooperative work groups.

At the end of the unit, data collection was started by means of a previously validated questionnaire. These data were the object of a statistical analysis for the subsequent extraction of results and the enunciation of conclusions that responded to the objectives set.

### 3.6. Pedagogical Procedure

The experience was developed during the months of February and March 2019 in the subject "Organization and management of educational centers" taught in the Master of Obligatory Secondary Education, Vocational Training and Language Teaching of a Public University in Southern Spain.

All students participated voluntarily in the study. From the very beginning, they were informed of the purpose of the study and the purpose of the subject. All students were asked for permission to participate in the study. Permissions were also requested from the directors of the centers.

The teaching method was developed in 24 sessions. Each session lasted one hour. The subject had the sessions grouped in pairs. It was developed in 12 days.

The contents that make up the subject of "organization and management of educational centers" are purely theoretical. That is to say, the aspects to be dealt with in this subject are directly related to the regulations. For example, aspects directly related to the pedagogical actions that allow organizing and managing educational centers are studied.

Before starting the teaching period, the teacher created a course on a virtual teaching platform. In this platform, the work to be developed by the student was presented, divided into sessions. The sessions were structured into theoretical part and practical part. In the theoretical part, all the theory that the students had to know to face the subject was presented. In the practical part, they were distributed into activities, of a practical nature, to enhance the theoretical content worked on.

In the first session, the students were told how the material was going to be developed. In this case, we explained that they had, on the one hand, the virtual platform Moodle, with all the sessions available. These sessions could be accessed whenever they wanted. On the other hand, they were told that in the face-to-face period, they should prepare an educational video. This educational video consisted of the development of a role play. In other words, they had to simulate the development of an educational center, from the beginning of the course to the end of the course. This simulation should focus on the organizational aspect of the educational center. At first, the students did not agree very much. The main reason given was because they had never developed such a subject. In this case, they were in a situation totally unknown to them.

In the following days, the sessions were divided into two parts. A first part, which lasted between 30 and 60 minutes, was intended to make practical explanations of the theory and to resolve any doubts they might have. The rest of the time was spent in order to develop the educational video. For this,

the different role playing situations that were going to be developed to create the educational video were established.

To develop the role playing teaching method through the educational video, the opinion of the students was taken into account. This was what marked the actions to develop. The teacher, in this case, supervised the entire procedure, checking that the provisions of the theory were applied.

To carry out the pedagogical action, the students had to prepare the script at first. A brainstorm was developed for this. Among the actions that had to be discussed were; presentation of the teacher on the first day of class, organization of pedagogical resources, identification of the documents of the educational center, preparation of schedules, meetings of the collegiate bodies and of the coordinating bodies teacher, the management of the coexistence of the educational center, the development of the leadership of the management teams, the actions to attend to the diverse, among other aspects.

Next, the different actors that were necessary to develop the educational video and the actions indicated above were indicated. In this case, the actors were mainly; parents, students, members of the management team, counselors, and coordinators of educational plans, among others.

Once the actions to be developed and the actors were established, the recording of the educational video was carried out. In all the recordings, all the students had to be present, since during the development of the recordings, the teacher of the subject made corrections and modifications of the actions carried out. The intention was to correct and generate learning in that very moment. In addition, in these recordings, the students themselves carried out proposals, which improved what was developed at first. This made the student play an active role in the teaching and learning process.

After the recordings were completed, the students began to generate the final video of the subject. The average duration time was about 59 minutes. The generated video was presented to five teachers from compulsory secondary education centers, so that they could assess, through a rubric, the generated resource. In addition, on the last day of class, their visualization took place in class. This session served to assess the actions carried out, in addition to serving to reinforce all the content worked on.

### 3.7. Data Analysis

For the data analysis, SPSS statistical software version 25.0 was used. Firstly, descriptive statistics were carried out, through the calculation of measures such as the arithmetic mean ( $M$ ), standard deviation ( $SD$ ), as well as statistics of asymmetry ( $A_{me}$ ) and kurtosis ( $K_{me}$ ). Subsequently, the comparison of means was developed by means of the Student's  $t$  inferential test, establishing differences between the means of the experimental group and the control group. In both cases, values below  $p < 0.05$  were considered significant differences. Likewise, the  $t$  statistics ( $t_{n1+n2-2}$ ), Cohen's  $d$  and biserial correlation ( $r_{xy}$ ) were applied to determine the effect size between the experimental and control groups, as well as the degree of linkage between the variables.

## 4. Results

The first results shown in this section are the data from the descriptive analysis. As shown in Table 3, the control group mean is below 2 for most of the variables analyzed, except for collaboration, problem solving and the students' own grades, which are below 2.5, and these results can be considered as medium-low. On the other hand, the experimental group is above 3 in all the variables analyzed, except in SER and DIV, determining in this case the values of the experimental group as medium-high. More specifically, the variables best valued by the students in the experimental group were EIN, COL and CRE. This shows that the teaching method applied with this group encourages educational innovation, collaboration and creativity. On the other hand, for the students in the control group, the variable with the highest assessment was score. Bearing in mind the values of asymmetry and kurtosis, these are located in a range between  $-1.96$  and  $+1.96$ , so the distribution of the sample can be considered normal [58]. The standard deviation determines that the answers given by the students are similar, except in problem solving and content deepening, both of them from the experimental group, where they are more dispersed. Kurtosis is both platykurtic and leptokurtic in the set of variables,

with an even number between them. In addition, a mesokurtic kurtosis is observed, to a lesser extent, in motivation and class time, both of the experimental group, and in content deepening and diversity, of the control group.

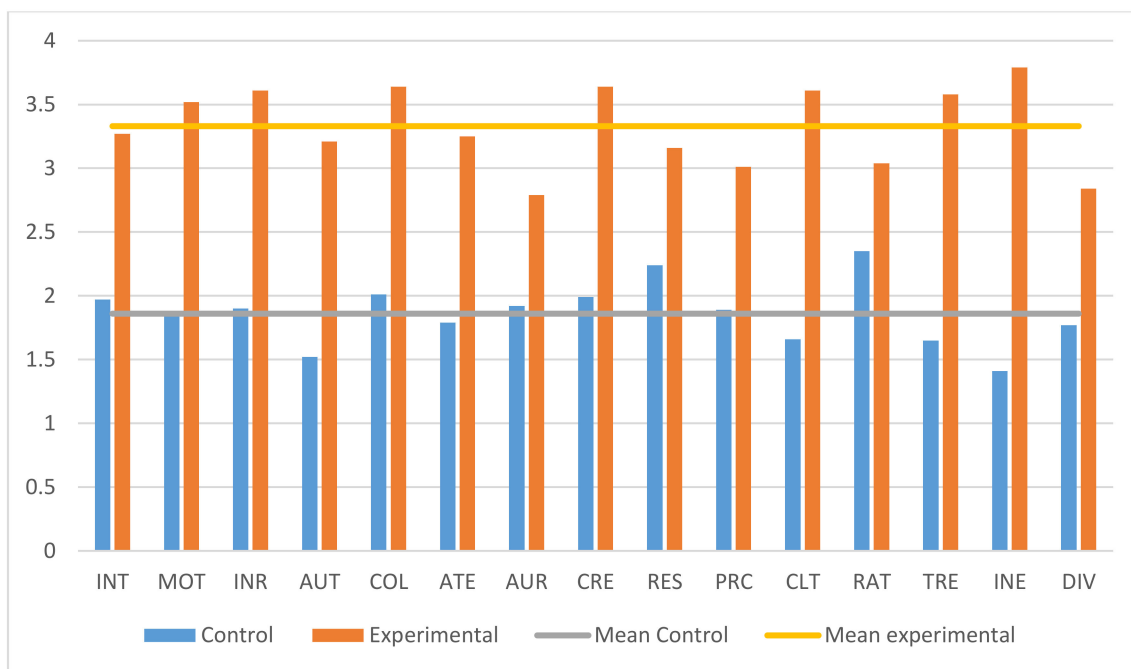
**Table 3.** Results obtained for the study variables in the control and experimental groups.

Variables	G	Likert Scale n(%)				Parameters			
		None	Few	Enough	Completely	M	SD	S <sub>kw</sub>	K <sub>me</sub>
INT	C	25(35.2)	28(39.4)	13(18.3)	5(7)	1.97	0.910	0.642	-0.375
	E	3(4.5)	7(10.4)	26(38.8)	31(46.3)	3.27	0.827	-1.04	0.636
MOT	C	21(29.6)	41(57.7)	8(11.3)	1(1.4)	1.85	0.669	0.482	0.490
	E	0(0)	0(0)	20(29.9)	41(61.2)	3.52	0.660	-1.06	0.001
INR	C	30(42.3)	21(29.6)	17(23.9)	3(4.2)	1.90	0.913	0.547	-0.827
	E	0(0)	3(4.5)	20(29.9)	44(65.7)	3.61	0.576	-1.19	0.481
AUT	C	37(52.1)	31(43.7)	3(4.2)	0(0)	1.52	0.582	0.587	-0.597
	E	1(1.5)	11(16.4)	28(41.8)	27(40.3)	3.21	0.769	-0.586	-0.399
COL	C	22(31)	29(40.8)	18(25.4)	2(2.8)	2.01	0.828	0.311	-0.750
	E	0(0)	0(0)	24(35.8)	43(64.2)	3.64	0.483	-0.605	-1.685
ATE	C	27(38)	33(46.5)	10(14.1)	1(1.4)	1.79	0.735	0.579	-0.151
	E	2(3)	5(7.5)	34(50.7)	26(38.8)	3.25	0.725	-0.922	1.194
SER	C	20(28.2)	40(56.3)	8(11.3)	3(4.2)	1.92	0.751	0.765	0.865
	E	8(11.9)	11(16.4)	35(52.2)	13(19.4)	2.79	0.897	-0.609	-0.204
CRE	C	21(29.6)	33(46.5)	13(18.3)	4(5.6)	1.99	0.845	0.584	-0.143
	E	0(0)	6(9)	12(17.9)	49(73.1)	3.64	0.644	-1.604	1.329
SOL	C	16(22.5)	30(42.3)	17(23.9)	8(11.3)	2.24	0.933	0.367	-0.659
	E	7(10.4)	10(14.9)	15(22.4)	35(52.2)	3.16	1.03	-0.925	-0.446
COD	C	27(38)	29(40.8)	11(15.5)	4(5.6)	1.89	0.871	0.758	-0.069
	E	10(14.9)	8(11.9)	20(29.9)	29(43.3)	3.01	1.08	-0.774	-0.694
CLT	C	37(52.1)	21(29.6)	13(18.3)	0(0)	1.66	0.774	0.674	-1.01
	E	0(0)	2(3)	22(32.8)	43(64.2)	3.61	0.549	-1.02	0.061
<sup>1</sup> RAT	C	11(15.5)	33(46.5)	18(25.4)	9(12.7)	2.35	0.896	0.338	-0.554
	E	4(6)	13(19.4)	26(38.8)	24(35.8)	3.04	0.895	-0.612	-0.415
TEW	C	32(45.1)	33(46.5)	5(7)	1(1.4)	1.65	0.678	0.853	0.801
	E	0(0)	4(6)	20(29.9)	43(64.2)	3.58	0.607	-1.164	0.368
EIN	C	42(59.2)	29(40.8)	0(0)	0(0)	1.41	0.495	0.381	-1.910
	E	0(0)	0(0)	14(20.9)	53(79.1)	3.79	0.410	-1.465	0.149
DIV	C	30(42.3)	29(40.8)	10(14.1)	2(2.8)	1.77	0.796	0.781	0.058
	E	9(13.4)	12(17.9)	27(40.3)	19(28.4)	2.84	0.994	-0.518	-0.709

Note: INT: interest; MOT: motivation; INR: interaction; AUT: autonomy; COL: collaboration; ATE: attention; SER: self-regulation; CRE: creativity; SO: problem solving; COD: content deepening; CLT: class time; TEW: teamwork; EIN: educational innovation; DIV: diversity; C: control; E: experimental; <sup>1</sup>RAT: Established grade group (None: 1–4.9; Few: 5–5.9; Enough: 6–8.9; Completely: 9–10).

The data obtained by the means of the control group and the experimental group are substantially different, being a greater value in the group where the pedagogical experience was developed by means of role playing and the use of the educational video in all the variables analyzed, with respect to the group where an expository pedagogical experience was presented (Figure 2). The greatest distance between variables is found in educational innovation, while the least is found in the students' grades. Furthermore, the variables MOT, INR, COL, CRE, CLT, TRE and INE in the experimental group are above the totalized mean. On the other hand, the variables INT, AUT, ATE, AUR, RES, PRC, RAT and DIV are below. On the other hand, for the control group the variables COL, RES and RAT are located above the totalized mean.





**Figure 2.** Comparison between control groups and experimental groups.

With the intention of knowing the value of independence of the values shown by the traditional teaching method, with respect to the training method developed by means of role-playing and educational video, the statistical test of Student’s t was applied for independent samples, where it was determined that there are very significant differences in all the variables of studies. This shows a medium strength of relationship, except in class time, and teamwork and educational innovation, where the association is high. The values given by Cohen’s d show us that the size of the effect is small. Among the results obtained, it is worth highlighting the relationship strength of the variables EIN, CLT and TEW, whose relationship is very strong. This shows us that educational innovation, the feeling of time spent in class, and teamwork are enhanced when the role-playing teaching method associated with educational video is applied. Furthermore, it is clearly contrasted with respect to the exhibition method. (Table 4).

**Table 4.** Study of the value of independence between the control groups and the experimental groups in the post-test.

Variables	$\mu(X1-X2)$	$t_{n1+n2-2}$	df	d	$r_{xy}$
INT	-1.297(1.97–3.27)	-8.744	136	0.006	0.601 **
MOT	-1.677(1.85–3.52)	-14.825	136	-0.063	0.786 **
INR	-1.711(1.90–3.61)	-13.242	136	0.053	0.746 **
AUT	-1.688(1.52–3.21)	-14.584	136	0.082	0.781 **
COL	-1.642(2.01–3.64)	-14.322	136	-0.030	0.771 **
ATE	-1.465(1.79–3.25)	-11.779	136	-0.013	0.711 **
SER	-0.876(1.92–2.79)	-6.231	136	-0.083	0.471 **
CRE	-1.642(1.99–3.64)	-12.777	136	-0.025	0.739 **
SOL	-0.925(2.24–3.16)	-5.508	136	-0.049	0.427 **
COD	-1.128(1.89–3.01)	-6.769	136	-0.020	0.502 **
CLT	-1.950(1.66–3.61)	-17.148	136	0.082	0.824 **
<sup>1</sup> RAT	-0.693(2.35–3.04)	-4.541	136	-0.056	0.363 **
TEW	-1.934(1.65–3.58)	-17.619	136	0.015	0.834 **
EIN	-2.383(1.41–3.79)	-30.872	136	0.062	0.935 **
DIV	-1.061(1.77–2.84)	-6.941	136	0.021	0.511 **

Note: INT: interest; MOT: motivation; INR: interaction; AUT: autonomy; COL: collaboration; ATE: attention; SER: self-regulation; CRE: creativity; SO: problem solving; COD: content deepening; CLT: class time; TEW: teamwork; EIN: educational innovation; DIV: diversity. <sup>1</sup> \*\*. The correlation is significant at the 0.01 level. <sup>1</sup>RAT. Established grade group (None: 1–4.9; Few: 5–5.9; Enough: 6–8.9; Completely: 9–10).

## 5. Discussion

The present research has shown that there is a substantial difference between the traditional teaching method with respect to the teaching method where the role-playing was applied and the use of the educational video, being the values shown to be superior in the experimental group in relation to the control group. In this case, it can be stated that the application of the role-playing method, with the use of the educational video, with students of the Master's Degree in Compulsory Secondary Education, Baccalaureate, Vocational Training and Language Teaching for the teaching of the contents of the subject "organization and management of educational centers" is effective [16–21]. The use of role-playing associated with educational video generates a positive attitude towards learning, given the high level of interest, motivation, interaction with content, autonomy, collaboration between students, attention, self-regulation of learning itself and creativity in the training process generated [22–27]. However, in addition, it provokes an adequate aptitude for the contents presented, given that it promotes the resolution of problems, the deepening of contents, the reduction of the sensation of class time, the grades in the subject, teamwork, educational innovation and attention to diversity [28–31,37–42]. Although the experimental group scored higher than the control, this did not have a major impact on the students' final grades [43].

In addition, it also led to a more appropriate attitude toward attention to diversity, as the use of video provides different training opportunities with respect to place, time and adaptation of content to learners [36].

Given this situation, it is considered necessary to apply active and innovative teaching methods in the field of Higher Education, seeking to promote a change in the roles of the agents participating in the training process, making the student the center of his or her own learning and the teacher the guide of the entire process [44–48].

## 6. Conclusion

It is concluded that the role-playing method, associated to the use of the educational video, in students of the Master's Degree of Teachers of Compulsory Secondary Education, Baccalaureate, Vocational Training and Language Teaching in the subject of "organization and management of centers" causes a better attitude and aptitude in the students towards the process of teaching and learning, having a positive repercussion in their academic development.

The fact of having carried out this experience through the application of current methodological approaches has meant a series of benefits to the student body. Thus, they have been provided with skills and abilities in accordance with the demands that today's society or knowledge society requires, not only as members of the same in general, but as teachers in particular.

The limitations of the study are found in the applied sampling techniques, given that the one used has been for convenience, not having the possibility at any time of making changes in the groups. One must bear in mind the limitations that the results offered have been obtained from a population with very specific characteristics and specificities, so one must be cautious when extrapolating these results to a given population.

The prospective we seek in this research is twofold. On the one hand, to show university teachers, who are developing their training processes, a new and innovative teaching method in order to be able to apply it to their classes. On the other hand, to offer future teachers a range of methodological possibilities that they can develop and apply tomorrow in the teaching and learning processes that they carry out with their own students, always bearing in mind the importance of promoting an active practice, in this case, in higher education, in such a way that enriching experiences are promoted. In addition, this teaching method can promote sustainable educational practices, due to the low use of consumable material resources. In this way, as a future line of research, we propose continuing the development of examples of good practice in other educational groups through role playing and educational video, in order to bring together attitudes and perceptions of different samples of students and to be able to contrast the effectiveness of the application of this method.

**Author Contributions:** Conceptualization, C.R.-J., A.-J.M.-G. and G.G.-G.; methodology, C.R.-J.; software, A.-J.M.-G. and M.R.N.-P.; validation, A.-J.M.-G.; formal analysis, C.R.-J. and A.-J.M.-G.; investigation, C.R.-J., A.-J.M.-G., G.G.-G. and M.R.N.-P.; data curation, G.G.-G., C.R.-J. and A.J.M.G.; writing—original draft preparation, C.R.-J., A.-J.M.-G., G.G.-G. and M.R.N.-P.; writing—review and editing, C.R.-J., A.-J.M.-G., G.G.-G. and M.R.N.-P.; visualization, G.G.-G. and C.R.-J.; supervision, G.G.-G., C.R.-J. and A.-J.M.-G. All authors have read and agreed to the published version of the manuscript.

**Funding:** This study is financed by the Teaching Training and Information Plan of the University of Granada. FIDOUgr Plan 2018-2020, in the program of Innovation and Good Teaching Practices. Code: 19-43.

**Acknowledgments:** We acknowledge the researchers of the research group AREA (HUM-672), which belongs to the Ministry of Education and Science of the Junta de Andalucía and is registered in the Department of Didactics and School Organization of the Faculty of Education Sciences of the University of Granada.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Resendiz-Balderas, E. Discourse analysis, development of number sense in preschool education and ICT use. *Cienciasuat* **2020**, *14*, 72–86. [[CrossRef](#)]
2. Alonso-García, S.; Aznar-Díaz, I.; Cáceres-Reche, M.P.; Trujillo-Torres, J.M.; Romero-Rodríguez, J.M. Systematic Review of Good Teaching Practices with ICT in Spanish Higher Education. Trends and Challenges for Sustainability. *Sustainability* **2019**, *11*, 1–15. [[CrossRef](#)]
3. Usli, N.A.; Usluel, Y.K. Predicting technology integration based on a conceptual framework for ICT use in education. *Technol. Pedagog. Educ.* **2019**, *28*, 517–531. [[CrossRef](#)]
4. Tinmaz, H.; Ozturk, Y.E. ICT Integration into Education: A Comparison of South Korea and Turkey. *Perspect. Glob. Dev. Technol.* **2019**, *18*, 422–456. [[CrossRef](#)]
5. Hazama, H.; Ebara, Y.; Ogasarawa, T. Study on interface for screen operation to reduce tiredness at practical training using ICT in elementary and secondary education. *Artif. Life Robot.* **2019**, *24*, 262–269. [[CrossRef](#)]
6. Trujillo, J.M.; Aznar, I.; Cáceres, M.P. Análisis del uso e integración de redes sociales colaborativas en comunidades de aprendizaje de la Universidad de Granada (España) y John Moores de Liverpool (Reino Unido). *Rev. Complut. Educ.* **2015**, *26*, 289–312. [[CrossRef](#)]
7. Ifenedo, E.; Rikala, J.; Hamalainen, T. Factors affecting Nigerian teacher educators' technology integration: Considering characteristics, knowledge constructs, ICT practices and beliefs. *Comput. Educ.* **2020**, *146*, 1–17. [[CrossRef](#)]

8. Aguiar, B.O.; Velázquez, R.M.; Aguiar, J.L. Innovación docente y empleo de las TIC en la Educación Superior. *Espacios* **2019**, *40*, 1–12.
9. Hinojo-Lucena, F.J.; Mingorance-Estrada, Á.C.; Trujillo-Torres, J.M.; Aznar-Díaz, I.; Cáceres Reche, M.P. Incidence of the flipped classroom in the physical education students' academic performance in university contexts. *Sustainability* **2018**, *10*, 1334. [[CrossRef](#)]
10. Chen, C.L.; Wu, C.C. Students' behavioral intention to use and achievements in ICT-Integrated mathematics remedial instruction: Case study of a calculus course. *Comput. Educ.* **2020**, *145*, 1–18. [[CrossRef](#)]
11. Zheng, X.L.; Kim, H.S.; Lai, W.H.; Hwang, G.J. Cognitive regulations in ICT-supported flipped classroom interactions: An activity theory perspective. *Br. J. Educ. Technol.* **2020**, *51*, 103–130. [[CrossRef](#)]
12. Moreno-Guerrero, A.J.; Romero-Rodríguez, J.M.; López-Belmonte, J.; Alonso-García, S. Flipped Learning Approach as Educational Innovation in Water Literacy. *Water* **2020**, *12*, 1–13. [[CrossRef](#)]
13. Moreno-Guerrero, A.J.; Rodríguez-Jiménez, C.; Ramos, M.; Sola, J.M. Secondary Education students' interest and motivation towards using Aurasma in Physical Education classes. *Retos* **2020**, *38*, 1–8.
14. Moreno-Guerrero, A.J.; Rondón, M.; Martínez, N.; Rodríguez-García, A.M. Collaborative Learning Based on Harry Potter for Learning Geometric Figures in the Subject of Mathematics. *Mathematics* **2020**, *8*, 1–17. [[CrossRef](#)]
15. Dominguez, A.; Truyol, M.E.; Zavala, G. Professional development program to promote active learning in an engineering classroom. *IJEE* **2019**, *35*, 424–433.
16. Kilgour, P.; Reynaud, D.; Northcote, M.T.; Shields, M. Role-playing as a tool to facilitate learning, self-reflection and social awareness in teacher education. *IJIIR* **2015**, *2*, 8–20.
17. Fernandez-Batanero, J.M.; Cabero, J.; López, E. Knowledge and degree of training of primary education teachers in relation to ICT taught to students with disabilities. *Br. J. Educ. Technol.* **2019**, *50*, 1–18. [[CrossRef](#)]
18. Cabral, M.E.; Duarte, A.M. La percepción docente sobre su formación en las metodologías activas en el uso de las TIC para el desarrollo de la competencia digital docente de la Carrera de Ciencias de la Educación del Instituto Nacional de Educación Superior. *Rev. Cient. Estud. Investig.* **2019**, *8*, 61–62. [[CrossRef](#)]
19. López, J.A.; López, J.; Moreno-Guerrero, A.J.; Pozo, S. Effectiveness of Innovate Educational Practices with Flipped Learning and Remote Sensing in Earth and Environmental Sciences—An Exploratory Case Study. *Remote Sens.* **2020**, *12*, 1–14. [[CrossRef](#)]
20. Freeman, S.; Eddy, S.L.; McDonough, M.; Smith, M.K.; Okoroafor, N.; Jordt, H.; Wenderoth, M.P. Active learning increases student performance in science, engineering, and mathematics. *Proc. Natl. Acad. Sci. USA* **2014**, *111*, 8410–8415. [[CrossRef](#)]
21. López-Quintero, J.L.; Pontes-Pedrajas, A.; Varo-Martínez, M. The role of ICT in Hispanic American scientific and technological education: A review of literature. *Digit. Educ. Rev.* **2019**, *1*, 229–243.
22. Ballon, B.C.; Silver, I.; Fidler, D. Headspace theater: An innovative method for experiential learning of psychiatric symptomatology using modified role-playing and improvisational theater techniques. *Acad. Psychiatry* **2007**, *31*, 380–387. [[CrossRef](#)] [[PubMed](#)]
23. Coanda, I.; Aupers, S. Mechanisms of Disclosure: A Socio-technical Perspective on Sociality in Massively Multiplayer Online Role-playing Games. *Telev. New Media* **2020**, *21*, 315–333. [[CrossRef](#)]
24. Rumore, D.; Schenk, T.; Susskind, L. Role-play simulations for climate change adaptation education and engagement. *Nat. Clim. Chang.* **2016**, *6*, 745–750. [[CrossRef](#)]
25. Simoes, D.; Faustino, P. The role of ICT in enhancing the autonomy of higher education students: Teachers' insights. *Educ. Policy Anal. Arch.* **2019**, *27*, 1–26. [[CrossRef](#)]
26. Romero-Hall, E.; Adams, L.; Osgood, M. Examining the Effectiveness, Efficiency, and Usability of a Web-Based Experiential Role-Playing Aging Simulation Using Formative Assessment. *J. Form. Des. Learn.* **2019**, *3*, 123–132. [[CrossRef](#)]
27. Kasper, G.; Youn, S.J. Transforming instruction to activity: Roleplay in language assessment. *Appl. Ling. Rev.* **2018**, *9*, 589–616. [[CrossRef](#)]
28. Scharfenberg, F.J.; Bogner, F.X. A Role-Play-Based Tutor Training in Preservice Teacher Education for Developing Procedural Pedagogical Content Knowledge by Optimizing Tutor–Student Interactions in the Context of an Outreach Lab. *JSTE* **2019**, *30*, 461–482. [[CrossRef](#)]
29. Shindel, A.W.; Baazeem, A.; Eardley, I.; Coleman, E. Sexual health in undergraduate medical education: Existing and future needs and platforms. *J. Sex. Med.* **2016**, *13*, 1013–1026. [[CrossRef](#)]

30. Hidayati, L.; Pardjono, P. The implementation of role-play in education of pre-service vocational teacher. In *IOP Conference Series: Materials Science and Engineering*; IOP Publishing: Bristol, UK, 2018; Volume 296, p. 012016. [[CrossRef](#)]
31. Chien, S.Y.; Hwang, G.J.; Siu-Yung, M. Effects of peer assessment within the context of spherical video-based virtual reality on EFL students' English-Speaking performance and learning perceptions. *Comput. Educ.* **2020**, *146*, 1–20. [[CrossRef](#)]
32. Cooley, S.J.; Eves, F.F.; Cumming, J.; Burns, V.E. "Hitting the ground running": Preparing groups for outdoor learning using a theoretically-based video. *J. Adventure Educ. Outdoor Learn.* **2020**, *20*, 30–48. [[CrossRef](#)]
33. Brame, C.J. Effective educational videos: Principles and guidelines for maximizing student learning from video content. *CBE Life Sci. Educ.* **2016**, *15*, es6. [[CrossRef](#)] [[PubMed](#)]
34. Schmid, R.F.; Bernard, R.M.; Borokhovski, E.; Tamim, R.M.; Abrami, P.C.; Surkes, M.A.; Wade, C.A.; Woods, J. The effects of technology use in postsecondary education: A meta-analysis of classroom applications. *Comput. Educ.* **2014**, *72*, 271–291. [[CrossRef](#)]
35. Zhang, C.; Pang, H.; Liu, J.; Tang, S.Z.; Zhang, R.X.; Wang, D.; Sun, L.F. Toward Edge-Assisted Video Content Intelligent Caching with Long Short-Term Memory Learning. *IEEE Access* **2019**, *7*, 152832–152846. [[CrossRef](#)]
36. Orús, C.; Barlés, M.J.; Belanche, D.; Casaló, L.; Fraj, E.; Gurrea, R. The effects of learner-generated videos for YouTube on learning outcomes and satisfaction. *Comput. Educ.* **2016**, *95*, 254–269. [[CrossRef](#)]
37. Torres-Ramírez, M.; García-Domingo, B.; Aguilera, J.; De La Casa, J. Video-sharing educational tool applied to the teaching in renewable energy subjects. *Comput. Educ.* **2014**, *73*, 160–177. [[CrossRef](#)]
38. Brahim, T.; Sarirete, A. Learning outside the classroom through MOOCs. *Comput. Hum. Behav.* **2015**, *51*, 604–609. [[CrossRef](#)]
39. Nagy, J.T. Evaluation of online video usage and learning satisfaction: An extension of the technology acceptance model. *IRRODL* **2018**, *19*. [[CrossRef](#)]
40. Arroyo-Barrigüete, J.L.; López-Sánchez, J.I.; Minguela-Rata, B.; Rodriguez-Duarte, A. Use patterns of educational videos: A quantitative study among university students. *WPOM* **2019**, *10*, 1–19. [[CrossRef](#)]
41. Choi, B.K.; Rhee, B.S. The influences of student engagement, institutional mission, and cooperative learning climate on the generic competency development of Korean undergraduate students. *High. Educ.* **2014**, *67*, 1–18. [[CrossRef](#)]
42. Liu, S.; Li, Y.; Hua, G. Human Pose Estimation in Video via Structured Space Learning and Halfway Temporal Evaluation. *IEEE Trans. Circuits Syst. Video Technol.* **2019**, *29*, 2029–2038. [[CrossRef](#)]
43. Pozo, S.; López, J.; Moreno-Guerrero, A.J.; López, J.A. Impact of Educational Stage in the Application of Flipped Learning: A Contrasting Analysis with Traditional Teaching. *Sustainability* **2019**, *11*, 1–15. [[CrossRef](#)]
44. Hachambachari, Y.; Fahkarzadeh, L.; Shariati, A.A. The comparison of the effect of two different teaching methods of role-playing and video feedback on learning Cardiopulmonary Resuscitation (CPR). *World Fam. Med.* **2017**, *15*, 223–229. [[CrossRef](#)]
45. Wright, J.C.; Weissglass, D.E.; Casey, V. Imaginative Role-Playing as a Medium for Moral Development: Dungeons & Dragons Provides Moral Training. *JHP* **2020**, *60*, 99–129. [[CrossRef](#)]
46. Aghababaeian, H.; Sedaghat, S.; Tahery, N.; Moghaddam, A.S.; Maniei, M.; Bahrami, N.; Ahvazi, L.A. A Comparative Study of the Effect of Triage Training by Role-Playing and Educational Video on the Knowledge and Performance of Emergency Medical Service Staffs in Iran. *Prehospital Disaster Med.* **2013**, *28*, 605–609. [[CrossRef](#)]
47. Kamm, B.O. A Short History of Table-Talk and Live-Action Role-Playing in Japan: Replays and the Horror Genre as Drivers of Popularity. *Simul. Gam.* **2019**, *50*, 621–644. [[CrossRef](#)]
48. Olivet, J.; Haselden, M.; Piscitelli, S.; Kenney, R.; Shulman, A.; Medoff, D.; Dixon, L. Results from a pilot study of a computer-based role-playing game for young people with psychosis. *Early Interv. Psychiatry* **2019**, *13*, 767–772. [[CrossRef](#)]
49. Campos, N.; Ramos, M.; Moreno-Guerrero, A.J. Realidad virtual y motivación en el contexto educativo: Estudio bibliométrico de los últimos veinte años de Scopus. *Alteridad* **2020**, *15*, 47–60. [[CrossRef](#)]
50. Hinojo, F.J.; López, J.; Fuentes, A.; Trujillo, J.M.; Pozo, S. Academic Effects of the Use of Flipped Learning in Physical Education. *IJERPH* **2020**, *17*, 1–14. [[CrossRef](#)]
51. Hernández, R.; Fernández, C.; Baptista, M.P. *Metodología de la Investigación*, 6th ed.; McGraw Hill: Madrid, Spain, 2014; pp. 129–168.
52. Chou, P.N.; Feng, S.T. Using a Tablet Computer Application to Advance High School Students' Laboratory Learning Experiences: A Focus on Electrical Engineering Education. *Sustainability* **2019**, *11*, 1–14. [[CrossRef](#)]

53. Yılmaz, A.; Soyer, F. Effect of Physical Education and Play Applications on School Social Behaviors of Mild-Level Intellectually Disabled Children. *Educ. Sci.* **2018**, *8*, 1–8. [[CrossRef](#)]
54. Ntokos, K. Swords and sorcery: A structural gamification framework for higher education using role-playing game elements. *Res. Learn. Technol.* **2019**, *27*, 1–16. [[CrossRef](#)]
55. Poy, R.; García, M. Wizards, elves and orcs going to high school: How role-playing video games can improve academic performance through visual learning techniques. *Educ. Inf.* **2019**, *35*, 305–318. [[CrossRef](#)]
56. Delnavaz, S.; Hassankhani, H.; Roshangar, F.; Dadashzadeh, A.; Sarbakhsh, P.; Ghafourifard, M.; Fathiazar, E. Comparison of scenario based triage education by lecture and role playing on knowledge and practice of nursing students. *Nurse Educ. Today* **2018**, *70*, 54–59. [[CrossRef](#)] [[PubMed](#)]
57. Van Ommen, M. Emergent affect in Final Fantasy VII and Japanese role-playing games. *J. Gam. Virtual World* **2018**, *10*, 21–39. [[CrossRef](#)]
58. Jöreskog, K.G. Analysis of ordinal variables 2: Cross-Sectional Data. In *Text of the Workshop “Structural Equation Modelling with LISREL 8.51”*; Friedrich-Schiller-Universität Jena: Jena, Germany, 2001; pp. 116–119.



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).