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Impact of a Teacher-Training MOOC on the Pedagogy of Death during the Pandemic

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Abstract

The objective of this study was to determine the impact of a MOOC on the attitudes of pre-service and in-service teachers toward education on death. The study adopted a pre-experimental design using a pre- and post-test. 139 participants answered the *Death Education Attitudes Scale-Teachers* (DEAS-T) questionnaire at the beginning and end

of the course. The results confirmed significant differences between the pre- and post-course applications in the three scale factors (1. “Need for training in the Pedagogy of Death; 2. “Inclusion of death in education”; 3. “Educational awareness of death”). The main conclusion was that open-access, free, mass training through a MOOC could have a positive impact on attitudes towards death education among both pre- and in-service teachers.

Keywords

MOOC, pandemic, teacher training, information and communication technology, Pedagogy of Death.

Introduction

There are deep educational needs that society does not call for and that, although they are essential for the education of a human being, are not included in teaching or curricula with any conscious educational purpose (Rodríguez et al., 2022a). These have been defined as “radical topics,” due to their contrast with normal subjects and cross-curricular topics (Herrán et al., 2000). They have common features, such as being linked neither to specific periods of history nor specific contexts, as they are intrinsic to human life. One of these topics is the awareness of death and finiteness, which can be included in curriculum design and planning: objectives, pedagogical principles, techniques and resources.

The ubiquity of death across all cultures and nations has become even more clearly observable during the COVID-19 pandemic, since it has significantly increased the number of loved ones who have died or had their lives threatened by the virus. Human beings have had to come face-to-face with death and confront uncertainty, fear

and loss with the qualities and competences afforded them by their education and upbringing. Educational interest in death has also grown, and the need for training in the topic for education professionals and families has become evident, in order to equip them to deal with the topic of death with children and adolescents in the framework of an education for a more conscious life. The pandemic has defined a context and a situation in which we are more capable of analysing the meaning and scope of education and the educator (Hill et al., 2020), showing that an education that does not encompass death is *a priori* incomplete, and that therefore a school that does not encompass it is a pedagogically contradictory institution.

At the same time the pandemic has required new training strategies in higher education and other training organisations (Reyes-Lillo & Hernández-Garrido, 2020), due to the lockdown and the closing of face-to-face classrooms in many countries. Open-access teaching using digital media has become indispensable during the months of the lockdown in many countries (Huang et al., 2020), not only in children's education but also in pre- and in-service teacher training (Assunção, 2020). One online option for teacher training is the MOOC (Massive Open Online Course), which affords open-access education using ICTs (Chiappe-Laverde et al., 2015). Since the appearance of MOOCs in 2008, with the "Connectivism and Connective Knowledge" course at the University of Manitoba, Canada, and the enthusiasm created by the possibilities of its mass outreach, the development of the associated technology and research on its results have been considerable, encouraging analysis, interrogation and criticism from the pedagogical and didactic perspectives (Aguaded, 2013).

Thus MOOCs, which can offer free and accessible mass training at a basic level in any field, have been the object of criticism for issues such as the large percentage of drop-out among students (Eriksson et al., 2017; Veletsianos & Shepherdson, 2016),

motivation (Dunn & Kennedy, 2019), personalisation and their suitability for the diversity of students taking open-access courses (Deng et al., 2020). Despite this, MOOCs have offered new opportunities for accessible large-scale education, arousing significant scientific interest (Ruiz-Palmero et al., 2021). In teacher training, MOOCs have enabled the development of training programmes for wide groups of pre- and in-service teachers (Edelhard, 2019), although some studies show that this resource has still not been sufficiently taken advantage of in open teacher training (Pérez-Parras & Gómez-Galán, 2015). In fact, empirical research on the impact of MOOCs in teacher training and the acquisition of teaching skills is still scarce, perhaps due to the inherent difficulty of tracking external variables causing change among trainees. The study presented in this paper also encountered this difficulty; its pre-experimental approach, however, allowed us to intuit the benefits of a MOOC, in this case with regard to knowledge and attitudes toward the Pedagogy of Death in the context of the pandemic.

In English-speaking countries education on death has received the name of death education. When referring to the overall discipline, however, and not merely its field of application, it would seem more appropriate to speak of the Pedagogy of Death (Rodríguez et al., 2022a), defined as the discipline that studies both teaching and training in an education for life that encompasses death. The Pedagogy of Death can be defined as a discipline forming part of death studies or thanatology whose distinguishing feature is its focus on education and teaching from the standpoint of the awareness of death. Thanatology research has produced notable studies on mourning, attitudes towards death and suicide (Niemeyer & Vallerga, 2015). While death education has a relatively long and valuable track record, associated with the work of scholars such as H. Wass (Doka, 2015), new theoretical and empirical studies have emerged more recently that centre on the inclusion of death in education as a key

element in educating individuals to be more aware (e.g. Herrán & Rodríguez, 2020; Rodríguez et al., 2022a) and socially engaged (e.g. Corr et al., 2019; Mantegazza, 2004). Research into the Pedagogy of Death goes back to the 1920s (Rodríguez et al., 2019), although at that period it was almost exclusively in the healthcare field. The development of a theory applied to children and adolescents in schools began mainly in the 1970s, developing an education encompassing the topic of death, with preparation for loss and counselling for bereaved students (e.g. Perkes, 1978). Currently, the Pedagogy of Death is seen as a broader discipline, and that with the most clearly educational approach, aimed at fostering a more conscious life (Corr et al., 2019). From this standpoint, it can be understood in terms of two complementary approaches (Herrán et al., 2000): before-bereavement, which seeks the normalisation of death in the curriculum and in everyday teaching-learning practice; and after-bereavement, oriented towards educational guidance by tutors in situations of bereavement.

Research in the Pedagogy of Death has grown in the last 20 years, with studies that have investigated: (a) the conceptual openness of death as a basis for teaching the topic (Herrán & Rodríguez, 2020); (b) the dimensions and approaches of education on death, associating it with Education for Life (Corr et al., 2019), critical pedagogy (Mantegazza, 2004) and awareness-based education (Herrán et al., 2000); (c) the relationships between the Pedagogy of Death and genocide, war and historical events such as the Holocaust (Zembylas, 2011; Zembylas et al., 2020); (d) methodologies and teaching resources on death, such as cinema (Cortina & Herrán, 2011), music (Colomo & Oña, 2014), service learning (Rodríguez et al., 2015) and children's literature; (e) "partial deaths" (Dennis, 2009; Herrán et al., 2000) as privileged moments in which to educate students about death in a natural way; (f) the figure of the tutor in educational counselling for bereavement in schools (Dyregrov et al., 2013); (g) the presence of

death in the curriculum (Herrán et al., 2019; James, 2015; Rodríguez et al., 2022a); and (h) the educational community's perceptions of education on death (Herrán et al., 2020; McGovern & Barry, 2000; Rodríguez et al., 2022b).

Few studies have explored teacher training in the Pedagogy of Death. In the 1980s Molnar-Stickels (1985) investigated the impact of a brief training course on the Pedagogy of Death among trainee primary-school teachers. Using a pre-post design with a control group, he found that the students who had taken the course had reduced anxiety towards death and felt better equipped to deal with the topic in class. More recently, Stylianou and Zembylas (2020) studied the motivations and perceptions of primary-school teachers taking a training course in the Pedagogy of Death, noting the difficulties the trainees had in incorporating death into their classroom teaching, due to its controversial nature. The teachers stated that they had received no training other than their personal experiences of death, and this demonstrated the need for theoretical and practical training. The teachers who had previously taken short training courses in the form of seminars perceived the need to receive more training and showed an enhanced capacity for reflecting on the topic. Apart from these studies, teacher training in the Pedagogy of Death is in general very scarce (Hinton & Kirk, 2015), although the professional need for it is recognised (Rodríguez et al., 2022b), normally limited to topics in which death emerges, such as gender violence (McQuillan & Leininger, 2021) or racial violence (Love, 2014). No previous studies on the use of information and communication technologies (ICTs) in teaching training in the Pedagogy of Death were found.

To address this scarcity of studies on teacher training in the Pedagogy of Death, and the complete absence of research on the use of open mass education technology such as MOOCs in covering the topic, this study adopted the objective of ascertaining

the impact of a teacher-training MOOC on attitudes towards death education among in- and pre-service trainees and other students interested in education. The initial hypothesis was that the MOOC could have a positive impact on changing attitudes towards death education.

MOOC on "The Pedagogy of Death for teachers"

In recent years many MOOCs have been designed and published in the area of thanatology or death studies, particularly in end-of-life care (e.g. "End of Life Care: Challenges and Innovation", University of Glasgow), the philosophy of death (e.g. "The Philosophy of Death", Saylor.org) and mourning (e.g. "Grief and How it Can Kill Us", European Multiple MOOC Aggregator). Our search, however, found no MOOCs whose basic content was either the Pedagogy of Death or death education for teachers and families.

The MOOC on "The Pedagogy of Death for teachers" (https://www.edx.org/course/pedagogia-de-la-muerte-para-docentes) that was the object of this study was the first version of the course. It was delivered in Spanish on the edX platform from 3rd March to 31st August 2020. The estimated time students needed to complete it was 5 hours' study per week for three weeks. It was chosen to design a short MOOC since, amongst other reasons, there is evidence that short MOOCs (of around three weeks) have lower drop-out rates than longer ones (around six weeks; Padilla et al., 2020). The course comprised 3 sections: (1) "Foundations: Why should we educate students about death?" (2) "The Before-Bereavement Approach: How can we encompass death in our teaching?" and (3) "The After-Bereavement Approach: How can tutors counsel bereaved students?" The course content was organised on the basis of existing Pedagogy of Death theory (e. g. Corr et al., 2019; Herrán et al., 2000), which

delineates the two complementary approaches that can be applied in schools. The course objectives were: (1) to understand what the Pedagogy of Death is, in addition to its importance in education and the approaches it adopts; (2) to understand how to include death in the curriculum and with what methods and teaching-learning resources; and (3) to understand how to guide and counsel students and/or young family members in situations of bereavement. The resources used were videos, articles, conceptual maps and interactive images. The MOOC's design was essentially individually-focused rather than interactive, although each section also featured a student discussion forum moderated by one of the course tutors. The course was available for students to join at any time, since it could be followed and completed individually.

The MOOC was designed before the emergence of the pandemic and was launched on 3rd March 2020, eight days before the WHO officially designated the COVID-19 virus a pandemic (11th March). The first six months of the course therefore coincided with the first six months of the pandemic. The circumstances led to it becoming an *ad hoc* response to teachers' training needs in Spanish-speaking countries. All the MOOC's contents were related to the awareness of death and finiteness, including schools' responses to situations of loss and death among students and the educational community. Also, the virtual delivery of the course suited teachers' reduced possibilities for access to training stemming from restrictions on mobility imposed by numerous countries. The course was included in *Class Central's Ranking of the Best Online Courses of the Year*, 2021 *Edition* (https://www.classcentral.com/report/best-free-online-courses-2021/).

3,170 students took part in the course during the period of the study, 191 of whom requested a certificate. The average age was 29, and most held university degrees (54%), with 25.7% having postgraduate qualifications. Among students' 66 countries of

origin, significant proportions were from Spain (24.8%), Mexico (14.6%) and Argentina (9.5%).

One analysable measure of the MOOC's impact was the percentage of students completing it, although it should be noted that an unfinished course may also contribute to students' education; moreover, students had diverse and heterogeneous interests which affected which course content they chose to work on (Henderikx et al., 2017). Drop-out rates are one of the main problems identified in research on MOOCs. Some studies show that only around 12% of students actually finish courses (Jordan, 2015). In our case, the number of certificates applied for was used to measure course completion (Pursel et al., 2016). While not all students completing the course asked for the final qualification, all those requesting certificates had finished the course and passed the relevant tests. In this case, this percentage was 6%. The MOOC included a total of three multiple-choice tests, one for each section. Another measure that takes into account students' different interests can be the percentage of those who watch the videos (Barba et al., 2016; Pursel et al., 2016). It has been shown that students viewing the videos on a course are at less risk of dropping out (Sinha et al., 2014). In this edition of the "Pedagogy of Death for Teachers" MOOC, 16% watched all the videos in section 1, 12% all those in section 2 and 7% all those in section 3. These data are slightly higher than the percentage of students normally completing a MOOC, according to previous studies (Breslow et al., 2013). To address our study aim of assessing changes in students' attitudes towards the Pedagogy of Death, we gathered the results from the MOOC participants who answered the questionnaire before and after the course.

Materials and methods

Methodological design

A quantitative pre-experimental design was adopted, using a pre- and post-test with a single group. This type of design is a valid means of addressing the problem of tracking extraneous variables (Ary et al., 2006), and was chosen due to the difficulty of finding a control group among the study population who were not also taking the MOOC at the time the data was gathered. While pre-experimental designs are less controlled, the size of the sample raises the internal validity of the results (Kline, 2004), whose nature is in any case investigatory and can be confirmed in the future through a quasi-experimental design with a control group.

Sample

The participants were students taking part in the MOOC titled "The Pedagogy of Death for Teachers" in its first edition, from 3rd March to 31st August 2020. The sample comprised 139 participants who voluntarily answered an attitudes scale provided at the beginning and end of the course. Only responses of participants answering both the pre- and post-course questionnaires were taken as valid. Thus, we did not take into account either responses where only the pre-course scale was answered (a total of 584) or those where, after completing the post-course scale, students expressed the desire not to take part in the study (a total of 88). These data also allowed us to conclude that students responding to the pre- but not the post-course questionnaire did not complete the course. Table 1 shows the main characteristics of the sample.

Table 1

Techniques and instruments

The main data-gathering instrument used was the *Death Education Attitudes Scale-Teachers*, validated in a previous study (DEAS-T, Rodríguez et al., 2022b). The scale comprised 3 factors and a total of 9 Likert-style items (Table 2) with 5 response options: 1 – completely disagree; 2 – slightly disagree; 3 – neither agree nor disagree; 4 – slightly agree; 5 – completely agree. High scores, therefore, referred to favourable or positive attitudes towards each factor. Factor 1 was labelled "Need for training in the Pedagogy of Death" (items 1, 2 and 3), factor 2 "Inclusion of death in education" (items 4, 5 and 6) and factor 3 "Educational awareness of death" (items 7, 8 and 9).

The DEAS-T was validated with 683 teachers for a Spanish-speaking population (Rodríguez et al., 2022b) through an exploratory and confirmatory factor analysis yielding suitable measures (Hair et al., 2010): CMIN/DF = 2.06 (≤ 5.0); GFI = .97 (≥ 0.9); CFI = .97 (≥ 0.9); error RMSEA = .04 (≤ .05). It also has excellent internal consistency (Taber, 2018), with a Cronbach's alpha of .89 for the whole scale (Rodríguez et al., 2022b).

Procedure and data analysis strategy

The edition of the MOOC that was the object of this study spanned a period of almost six months. The DEAS-T was included at the beginning and the end of the course and participants were informed that, if they wished, they could take part in a study whose objective was to determine the impact of the training course on their attitudes towards education on death. At the same time they were informed of the confidentiality of the data and asked to give informed consent for research use. On finalisation of the MOOC's first edition, the data were gathered using Google Forms (both applications of the questionnaire were built into the course, at its beginning and

end, in the website edX of the MOOC) and then analysed using SPSS Statistics 25 software. Each application of the questionnaire included information on the study, informed consent, socio-demographic questions (Table 1) and the scale items.

The data was analysed by means of descriptive analysis and comparison between pre- and post-course applications, as well as contrasting analyses to identify statistically significant differences between the two applications in terms of the scale and factor totals and the influence of the sociodemographic variables.

The study was approved by the ethical committee of the coordinating institution.

Results

Table 2 shows the descriptive results obtained from the pre- and post-tests.

Table 2

As Table 2 shows, in all the items and factors and in the whole scale, measures were higher post-test than pre-test. In other words, in all cases, attitudes towards the Pedagogy of Death improved after taking the MOOC. Analysing each factor in turn, we find that Factor 1, “Need for training in the Pedagogy of Death”, showed the smallest differences between the two applications (0.07), while in Factor 2, “Inclusion of death in education”, the difference was 1.19, and in Factor 3, “Educational awareness of death”, it was 0.87. Over the whole scale the difference reached 2.15 points.

It was to be expected that participants would have relatively favourable attitudes towards the Pedagogy of Death prior to taking the MOOC, since, clearly, it appealed to them. In the event we observed that the score in all items was over 3, which could be taken as the cut-off value. The pre-test average of all items was 4.35. Comparing this with the average of 3.90 obtained in the scale validation (Rodríguez et al., 2022b), we

found that the students did indeed have a positive predisposition, in contrast to a more impartial sample.

To assess the differences between the pre and post applications of the questionnaire, firstly a Kolmogorov-Smirnov test was performed to the analyse the sample normality of both. In both cases $p = .00$ ($\leq .05$); it was therefore assumed that the distribution was not normal. The negative asymmetry (pre = -.90; post = -2.58) and positive kurtosis (pre = .30; post = 10.57) in the two applications confirmed the non-normal distribution of the samples. Also, the analysis of the histograms yielded non-normal results curves. For this reason non-parametric tests were applied, specifically a Wilcoxon test, in order to analyse significant differences between the pre- and post-tests for the whole scale and each of the three factors (Table 3).

Table 3

As Table 3 shows, in both the whole DEAS-T scale and in the three factors, there were significant differences between the pre and post applications. In all cases the differences consisted in lower scores in the questionnaire administered before taking the MOOC than after (Table 2). In the case of the test for the whole DEAS-T scale, the effect size was moderate ($d = .43$) according to Cohen's (1988) criteria. In Factor 1 the effect size was low ($d = .06$), in Factor 2 moderate ($d = .47$) and in Factor three low ($d = .33$). With regard to the statistical power, all the analyses yielded scores higher than .90; they were thus considered suitable, except for Factor 1, where the statistical power was .17.

With regard to the influence of demographic variables on the pre and post applications, a number of relevant results were obtained from the total DEAS-T scores. To test the hypothesis, a Mann-Whitney non-parametric test was performed, yielding no significant differences in terms of gender in any of the applications of the DEAS-T,

although higher values were obtained among women than men. In the pre-test p = .53 (> .05), with the mean rank at 70.64 for the women, while for the men this was 65.58. In the post-test (p = .26, > .05) the mean rank for women was at 71.52, and among the men 62.53. Testing for differences in terms of religious beliefs also yielded no significant results. A Kruskal-Wallis test yielded scores of p = .69 (> .05) for the pre-test and p = .20 (> .05) for the post-. The same outcome was found for the variable "Experience of significant losses of loved ones". According to the results of the Mann-Whitney *U* test, there were no significant differences either in the pre- (p = .55, > .05) or in the post-test (p = .16, > .05), perhaps, amongst other reasons, due to the considerable differences between the sizes of the groups. Nor did participants' occupation show any significant differences. Performing a Kruskal-Wallis test for independent samples, in the pre-test p = .23 (> .05) and in the post- p = .74 (> .05). Large differences were noted in the averages of the two main groups of students, namely (a) in-service teachers (with students aged 0-18) and (b) education students: in the pre-course questionnaire the average for in-service teachers was 80.84, while that for education students was 64.49; and in the post-course questionnaire the average for in-service teachers was 77.29, with 65.48 for education students. A comparison of the two groups was thus carried out. Performing a Mann-Whitney *U* test, significant differences were found for the pre-test (p = .05, ≤ .05) but not for the post-test (p = .17, > .05). Thus in the pre-test the in-service teachers showed more favourable attitudes towards education on death than the education students, while in the post-test, after taking the course, scores were closer and the significant differences disappeared. The effect size in the pre-test was low (*d* =.32), while the statistical power was over .90. For this socio-demographic variable, it was notable that for in-service teachers, the result in the post-test was slightly lower than

that in the pre-test. This may be due to the small size of the sample (n = 38), with the overall result being more strongly affected by each individual response.

Discussion and conclusions

The main conclusion emerging from our analysis of the results was that the training course seemed to have positively influenced participants' attitudes towards the Pedagogy of Death. Thus, the free, introductory, massive, open-access training course delivered using the MOOC titled "The Pedagogy of Death" appeared to favour more open-minded attitudes towards education on death. This conclusion confirms our initial hypothesis, although this should be interpreted according to the context, restricted to the application of the course in the months mentioned, and thus cannot be generalized.

Teacher training is one of the main drivers of change in education and the quality of teaching. Our findings concur with previous studies that have also observed a desirable effect of training on students' knowledge of and attitudes towards education on death (Molnar-Stickels, 1985). The open format of the introductory MOOC on a topic of educational interest, in this case death (Rodríguez et al., 2022b), seemed to arouse greater interest in and openness towards the Pedagogy of Death, although this should be complemented subsequently by more in-depth training (Stylianou & Zembylas, 2020).

Scrutinising the data in more detail, we find that the differences between the pre- and post-applications were significant in the three scale factors. Changes (for example in statistical power) were smaller in Factor 1, "Need for training in the Pedagogy of Death," and this is understandable, as we would expect to find a positive predisposition among students taking the MOOC. The differences were greater in Factors 2 and 3, however; that is, in attitudes towards the inclusion of death in education and the

educational value attributed to death. We may conclude, then, that in general the course seems to promote greater educational awareness of death and more favourable attitudes towards its inclusion in the curriculum.

Turning our attention to demographic variables, while significant differences were not found in terms of gender, there was a slight tendency for women to have more favourable attitudes than men, thus confirming the findings of previous studies (Dyregrov et al., 2013; McGovern & Barry, 2000; Rodríguez et al., 2022b). With regard to participants' occupations, before taking the course in-service teachers had more favourable attitudes towards the Pedagogy of Death than education students. Afterwards, however, there were no significant differences. One hypothesis that can be derived from this finding is that teaching experience may favour more open attitudes towards education on death, and that among students with no experience such attitudes can be fostered through training. Other possible explanations may be related to the differences in ages between the two groups or their previous experiences of death and loss. This finding argues in favour of including training in the Pedagogy and Didactics of Death in the curricula of education degrees at all stages of education, in order to give teachers solid theoretical foundations enabling them to deal with the topic on the basis of knowledge and not through improvisation or personal experiences of loss (Herrán et al., 2000; Stylianou & Zembylas, 2020).

The pandemic has shown that death is a social topic present in many different ways: through the increase in deaths of loved ones; through the "partial deaths" (Herrán et al., 2000) experienced throughout our lives (for example, children and adolescents have lost routines, ways of relating to family members, classmates, friends, etc.); and even through the awareness of the possibility of "total death" (Herrán & Rodríguez, 2020), or the disappearance of humanity as a whole. The scope of the Pedagogy of

Death, however, is much wider than the pandemic, as we see if we acknowledge that living with the awareness of death and finiteness is desirable for a fuller education.

The possibilities of open-access online training on the Pedagogy of Death during the pandemic (Assunção, 2020) have aroused great interest, especially due to the numbers of students enrolled on the first edition of the MOOC. Other data back up this interest. For example, figures for the numbers of students watching the course videos were slightly higher than normal for this type of course (Breslow et al., 2013). With respect to scientific advances in open education for teaching training, still in its infancy (Pérez-Parras & Gómez-Galán, 2015), we did not find prior studies on teacher training in the Pedagogy of Death using either ICTs or standardised, validated assessment instruments.

The changes found in attitudes towards the Pedagogy of Death suggest the potential of MOOCs as introductory courses encouraging interest, openness and curiosity towards the content of training. They can serve as "prologues" to broader and more in-depth training, either face-to-face or online, where the same content is explored further. These courses can be used in both pre- and in-service teacher education, through contents and competencies that can be delivered and studied in modules, whole subjects or specific courses, or in a cross-curricular way through their inclusion in other subjects, such as those of general education, tutorial action, inclusive education and attention to diversity.

This study presents certain limitations that are inherent in its methodological design. The pre-experimental design meant that it was impossible to develop arguments of causality. Thus, it should be noted that the results are not generalisable to all training in the Pedagogy of Death though MOOCs, since they were based on the analysis of a particular context. Also, between the pre-test and the post-test there were variables for

each participant that were not taken into account, such as the maturity acquired in the second application (Marsden & Torgerson, 2012), although the size of the sample allowed us to establish a rigorous hypothesis that can be tested in future studies through quasi-experimental designs with various groups or a control group, for example. Further, the sample was self-selecting, which may have meant that the students most satisfied with the course were those who took part. Also, in-service teachers' application in class of the new knowledge from the MOOC was not taken into consideration, so this is an area for future research. In short, in this emerging area of education it seems that more open attitudes towards education on this radical topic, inherent to human life, can be encouraged by open training.

References

Aguaded, I. (2013). La revolución MOOCs, ¿una nueva educación desde el paradigma tecnológico? [The MOOC revolution: A new form of education based on the technological paradigm?]. *Comunicar, 41*, 07-08. https://doi.org/10.3916/C41-2013-a1

Ary, D., Jacobs, L. C., Razavieh, A., & Sorensen, C. (2006). *Introduction to Research in Education.* Wadsworth.

Assunção, M. (2020). Teacher education in times of COVID-19 pandemic in Portugal: National, institutional and pedagogical responses. *Journal of Education for Teaching, 46*(4), 507-516. https://doi.org/10.1080/02607476.2020.1799709

Barba, P. G. de, Kennedy, G. E., & Ainley, M. D. (2016). The role of students' motivation and participation in predicting performance in a MOOC. *Journal of Computer Assisted Learning, 32*(3), 218–231. https://doi.org/10.1111/jcal.12130

Breslow, L., Pritchard, D. E., DeBoer, J., Stump, G. S., Ho, A. D., & Seaton, D. T. (2013). Studying learning in the worldwide classroom: Research into edX's first MOOC. *Research & Practice in Assessment, 8*, 15–25. https://bit.ly/3bRvpRP

Chiappe-Laverde, A., Hine, N., & Martínez-Silva, J. A. (2015). Literatura y práctica: una revisión crítica acerca de los MOOC. [Literature and practice: A critical review of MOOCs]. *Comunicar, 44*, 9-18. https://doi.org/10.3916/C44-2015-01

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences.* Academic Press.

Colomo, E., & Oña, J. M. de (2014). Pedagogía de la muerte. Las canciones como recurso didáctico [Pedagogy of Death. Songs as a teaching resource]. *Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación, 13*(3), 109-121. http://bit.ly/3nV7V0E

Colomo, E. (2016). Pedagogía de la muerte y proceso de duelo. Cuentos como recurso didáctico [Pedagogy of Death and the grieving process. Stories as a teaching resource]. *Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación, 14*(2), 63-77. https://doi.org/10.15366/reice2016.14.2.004

Corr, C., Corr, D., & Doka. K. (2019). *Death and Dying, Life and Living*. Brooks/Cole Publishing Company.

Cortina, M., & Herrán, A. de la (2011). *Pedagogía de la muerte a través del cine [Pedagogy of Death through Cinema]*. Universitas.

Edelhard, C. (2019). MOOCs in teacher education: institutional and pedagogical change? *European Journal of Teacher Education, 42*(1), 65-81. https://doi.org/10.1080/02619768.2018.1529752

Deng, R., Benckendorff, P., & Gannaway, D. (2020). Linking learner factors, teaching context, and engagement patterns with MOOC learning outcomes. *Journal of Computer Assisted Learning, 36*(5), 688-708. https://doi.org/10.1186/s41239-020-0179-5

Dennis, D. (2009). *Living, Dying, Grieving.* Jones and Barlett Publishers.

Doka, K. J. (2015). Hannelore Wass: Death education—An enduring legacy. *Death Studies, 39*(9), 545-548. https://doi.org/10.1080/07481187.2015.1079452

Dunn, T. J., & Kennedy, M. (2019). Technology enhanced learning in higher education; motivations, engagement and academic achievement. *Computers & Education, 137*, 104-113. https://doi.org/10.1016/j.compedu.2019.04.004

Dyregrov, A., Dyregrov, K., & Idsoe, T. (2013). Teachers' perceptions of their role facing children in grief. *Emotional and Behavioural Difficulties, 18*(2), 125-134. https://doi.org/10.1080/13632752.2012.754165

Eriksson, T., Adawi, T., & Stöhr, C. (2017). ''Time is the bottleneck'': a qualitative study exploring why learners drop out of MOOCs. *Journal of Computing in Higher Education, 29*, 133-146. https://doi.org/10.1007/s12528-016-9127-8

Hair, J., Black, C., Babin, B., & Anderson, R. (2010). *Multivariate Data Analysis: A Global Perspective.* Pearson Prentice Hall.

Henderikx, M. A., Kreijns, K., & Kalz, M. (2017). Refining success and dropout in massive open online courses based on the intention–behavior gap. *Distance Education, 38*(3), 353-368. https://doi.org/10.1080/01587919.2017.1369006

Herrán, A. de la, González, I., Navarro, M. J., Bravo, S., & Freire, M. V. (2000). *¿Todos los caracoles se mueren siempre? Cómo tratar la muerte en educación infantile [Do all snails always die? How to treat death in early childhood education]*. De la Torre.

Herrán, A. de la, & Rodríguez, P. (2020). Algunas bases de la Pedagogía de la muerte [Some bases of the Pedagogy of Death]. *Práctica Docente. Revista de Investigación Educativa, 2*(4), 35-141. https://bit.ly/3piEIyb

Herrán, A. de la, Rodríguez, P., & Miguel, V. de (2019). ¿Está la muerte en el currículo español? [Is death in the Spanish curriculum?]. *Revista de Educación, 385*, 201-226. https://doi.org/10.4438/1988-592X-RE-2019-385-422

Herrán, A. de la, Rodríguez, P., & Serrano, B. (2020). Do parents want death to be included in their children's education? *Journal of Family Studies.* https://doi.org/10.1080/13229400.2020.1819379

Hill, C., Rosehart, P., Helene, J., & Sadhra, S. (2020). What kind of educator does the world need today? Reimagining teacher education in post-pandemic Canada. *Journal of Education for Teaching*, *46*(4), 565-575. https://doi.org/10.1080/02607476.2020.1797439

Hinton, D., & Kirk, S. (2015). Teachers' perspectives of supporting pupils with long-term health conditions in mainstream schools: a narrative review of the literature. *Health and Social Care in the Community*, *33*(2), 107-120. https://doi.org/10.1111/hsc.12104

Huang, R., Liu, D., Tlili, A., Knyazeva, S., Chang, T. W., Zhang, X., Burgos, D., Jemni, M., Zhang, M., Zhuang, R., & Holotescu, C. (2020). *Guidance on Open Educational Practices during School Closures: Utilizing OER under COVID-19 pandemic in line with UNESCO OER Recommendations.* Smart Learning Institute of Beijing Normal University.

James, S. (2015). *The Nature of Informed Bereavement Support and Death Education in Selected English Primary Schools* [Doctoral dissertation, University of Hull]. http://bit.ly/3sDJrww

Jordan, K. (2015). Massive open online course completion rates revisited: Assessment, length and attrition. *The International Review of Research in Open and Distributed Learning, 16*(3). https://doi.org/10.19173/irrodl.v16i3.2112

Kline, R. B. (2004). *Beyond Significance Testing: Reforming Data Analysis Methods in Behavioural Research.* American Psychological Association.

Love, B. L. (2014). ‘‘I see Trayvon Martin’’: What teachers can learn from the tragic death of a young black male. *Urban Review, 46*, 292-306. https://doi.org/10.1007/s11256-013-0260-7

Mantegazza, R. (2004). *Pedagogia della morte [Pedagogy of Death]*. Città Aperta.

Marsden, E., & Torgerson, C. J. (2012). Single group, pre- and post-test research designs: Some methodological concerns. *Oxford Review of Education, 38*(5), 583-616. https://doi.org/10.1080/03054985.2012.731208

McGovern, M., & Barry, M. (2000). Death education: knowledge, attitudes, and perspectives of Irish parents and teachers. *Death Studies, 24*, 325-333. https://doi.org/10.1080/074811800200487

McQuillan, M. T., & Leininger, J. (2021). Supporting gender-inclusive schools: educators’ beliefs about gender diversity training and implementation plans. *Professional Development in Education, 47*(1), 156-176. https://doi.org/10.1080/19415257.2020.1744685

Molnar-Stickels, L. A. (1985). Effect of a brief instructional unit in death education on the death attitudes of prospective elementary school teachers. *Journal of School Health, 55*(6), 234-236. https://doi.org/10.1111/j.1746-1561.1985.tb04128.x

Niemeyer, R. A., & Vallerga, M. (2015). Publication patterns in *Death Studies*: 40 years on. *Death Studies, 39* (9), 563-569. https://doi.org/10.1080/07481187.2015.1064292

Padilla, B. C., Armellini, A., & Rodríguez, M. C. (2020). Learner engagement, retention and success: why size matters in massive open online courses (MOOCs). *Open Learning: The Journal of Open, Distance and e-Learning, 35*(1), 46-62. https://doi.org/10.1080/02680513.2019.1665503

Pérez-Paras, J., & Gómez-Galán, J. (2015). Knowledge and influence of MOOC courses on initial teacher training. *International Journal of Educational Excellence, 1*(2), 81-99. https://doi.org/10.18562/ijee.2015.0008

Perkes, A. C. (1978). Teachers' attitudes toward death-related issues. *School Science and Mathematics, 78*(2), 135-141. https://doi.org/10.1111/j.1949-8594.1978.tb09328.x

Pursel, B. K., Zhang, L., Jablokow, K. W., Choi, G. W., & Velegol, D. (2016). Understanding MOOC students: motivations and behaviours indicative of MOOC completion. *Journal of Computer Assisted Learning, 32*(3), 202-217. https://doi.org/10.1111/jcal.12131

Reyes-Lillo, D., & Hernández-Garrido, C. (2020). Creating a MOOC to develop information skills during the coronavirus pandemic. *Education for Information, 36*(3), 339-343. https://doi.org/10.3233/EFI-200007

Rodríguez, P., Herrán, A. de la, & Cortina, M. (2015). Pedagogía de la muerte mediante aprendizaje servicio [Pedagogy of Death in service learning]. *Educación XX1, 18*(1), 189-212. https://doi.org/10.5944/educXX1.18.1.12317

Rodríguez, P., Herrán, A. de la, & Cortina, M. (2019). Antecedentes internacionales de la pedagogía de la muerte [International background of Pedagogy of Death]. *Foro de Educación, 17*(26), 259-276. https://doi.org/10.14516/fde.628

Rodríguez, P., Herrán, A. de la, & Miguel, V. de (2022). The inclusion of death in the curriculum of the Spanish Regions. *Compare: A Journal of Comparative and*

International Education, 52(1), 37-55. https://doi.org/10.1080/03057925.2020.1732192

Rodríguez, P., de la Herrán, A., Pérez-Bonet, G., & Sánchez-Huete, J. C. (2022). What do teachers think of death education? *Death Studies, 46*(6), 1518-1528. https://doi.org/10.1080/07481187.2020.1817176

Ruiz-Palmero, J., López-Álvarez, D., & Sánchez-Rivas, E. (2021). Revisión de la producción científica sobre MOOC entre 2016 y 2019 a través de SCOPUS [Review of academic production on MOOC between 2016 and 2019 through SCOPUS]. *Píxel-Bit. Revista De Medios y Educación*, *60*, 95-107. https://doi.org/10.12795/pixelbit.77716

Sinha, T., Li, N., Jermann, P., & Dillenbourg, P. (2014). Capturing "attrition intensifying" structural traits from didactic interaction sequences of MOOC learners. *Proceedings of the 2014 Empirical Methods in Natural Language Processing Workshop on Modeling Large Scale Social Interaction in Massively Open Online Courses.* Qatar. https://doi.org/10.1145/3041021.3054162

Stylianou, P., & Zembylas, M. (2020). Engaging with issues of death, loss, and grief in elementary school: Teachers' perceptions and affective experiences of an in-service training program on death education in Cyprus. *Theory & Research in Social Education.* https://doi.org/10.1080/00933104.2020.1841700

Taber, K. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*, 1273-1296. https://doi.org/10.1007/s11165-016-9602-2

Veletsianos, G., & Shepherdson, P. (2016). A systematic analysis and synthesis of the empirical MOOC literature published in 2013-2015. *International Review of*

Research in Open and Distributed Learning, 17(2), 198-221. https://doi.org/10.19173/irrodl.v17i2.2448

Zembylas, M. (2011). Personal narratives of loss and the exhumation of missing persons in the aftermath of war: In search of public and school pedagogies of mourning. *International Journal of Qualitative Studies in Education, 24*(7), 767-784. https://doi.org/10.1080/09518398.2010.529839

Zembylas, M., Loukaides, L., & Antoniou, P. (2020). Teachers' understandings of empathy in teaching about the Holocaust in Cyprus: The emotional risks of identification and the disruptive potential of 'empathic unsettlement'. *Teaching and Teacher Education*. https://doi.org/10.1016/j.tate.2019.103007

Table 1

Characteristics of the sample (n = 139).

Variable	Response options	Percentage
Gender	Feminine	77.5%
	Masculine	22.5%
Age	18-25	47.1%
	26-30	14.5%
	31-35	10.1%
	36-40	7.2%
	41-45	5.8%
	46-50	5.1%
	51 or over	10.2%
Country	Spain	54.3%
	Mexico.	13.8%
	Argentina	5.8%
	Chile	4.3%
	Colombia	3.6%
	Other*	18.2%
Current occupation	Education students	47.8%
	In-service teachers (students of 0-18)	27.5%
	Students of subjects other than education	8.7%

	Education degree graduates (not in service)	6.5%
	Others*	9.5%
Religious beliefs	Agnostic	39.9%
	Atheist	23.9%
	Catholic	28.2%
	Others*	8%
Experience of loss of loved ones	Yes	89.9%
	No	10.1%

Note. * Minority responses with results below 3% were included in the category “Others”.

Table 2

Descriptive analysis of the pre- and post-tests

	Mean (pre)	Mean (post)	Standard deviation (pre)	Standard deviation (post)
DEAS-T scale	39.22	41.37	4.95	5.05
Factor 1. "Need for training in the Pedagogy of Death"	14.43	14.50	1.20	1.43
1. Teachers should have training for dealing with the topic of death with students.	4.88	4.91	.41	.43
2. I believe that training in the Pedagogy of Death will equip me to intervene as a tutor in situations of bereavement.	4.76	4.79	.52	.62
3. I believe that training in the Pedagogy of Death will equip me with useful teaching resources for working on death in the classroom.	4.79	4.80	.49	.59
Factor 2. "Inclusion of death in education"	12.31	13.50	2.65	2.39
4. It is appropriate to deal with the topic of death with primary-school students (ages 6-12)	4.62	4.78	.70	.61

5. It is appropriate to deal with the topic of death in early childhood education (ages 0-3).	3.68	4.25	1.71	1.09
6. It is appropriate to deal with the topic of death in early childhood education (ages 3-6).	4.01	4.46	1.13	.98
Factor 3. "Educational awareness of death"	12.49	13.36	2.78	2.45
7. Knowing that I'm going to die one day influences the value I give to my everyday life.	4.20	4.46	1.01	.96
8. Knowing that I'm going to die one day can help me guide my life project better.	4.27	4.52	1.03	.84
9. Knowing that I'm going to die one day can help me become a better educator.	4.01	4.38	1.16	.99

Table 3

Analysis of pre-post differences (Wilcoxon test)

	Z	Sig. (p)	Interpretation*
Whole DEAS-T scale	-6.862	.000	The contrast is significant
Factor 1. "Need for training in the Pedagogy of Death"	-2.144	.032	The contrast is significant
Factor 2. "Inclusion of death in education"	-6.289	.000	The contrast is significant
Factor 3. "Educational awareness of death"	-4.884	.000	The contrast is significant

*Note: The null hypothesis is ruled out when $p \leq .05$.