



RIED-Revista Iberoamericana de Educación a Distancia
ISSN: 1138-2783
ISSN: 1390-3306
ried@edu.uned.es
Asociación Iberoamericana de Educación Superior a Distancia
España

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RIED-Revista Iberoamericana de Educación a Distancia, vol. 27, núm. 1, 2024
Asociación Iberoamericana de Educación Superior a Distancia

Disponible en: <https://www.redalyc.org/articulo.oa?id=331475280018>

DOI: <https://doi.org/10.5944/ried.27.1.37987>



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Education in 2030. Prospects of the future by teachers' trainees

La educación en 2030. Prospectiva del futuro por profesorado en formación

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DOI: <https://doi.org/10.5944/ried.27.1.37987>

Recepción: 01 Junio 2023

Aprobación: 17 Agosto 2023

Publicación: 01 Enero 2024



Acceso abierto diamante

Abstract

This study analyses 389 science-fiction stories about the future of education, written by students of the Teacher Training and Research in Education Master's Degrees at the University of Alicante between the academic years 2009-2010 and 2019-2020. These stories were written as part of an assignment called "Education in 2030", and they are available on our open-access course blogs. Our project employs a mixed-research approach and the analyses include both quantitative and qualitative aspects through descriptive statistics in a longitudinal study. According to the results, the stories are classified into two main categories: Positive Predictions and Negative Predictions, the latter being more prominent (52.94% of total), closely connected to dystopian science-fiction models. Within these two macro-categories, three main codes are established about Negative Predictions on one hand, namely Teacher-Learner, Learning process and System, and about Positive Predictions on the other hand: Teaching, Contents and Model. These codes structure the analysis branching into more sub-codes which also mark frequencies of occurrence of ideas and notions. We would like to highlight those codes that characterize the teacher figure as a "mediator" or "clandestine" as two recurrent educational models for the future. Excerpts from the analysed stories are included to illustrate the codes employed. The creation of educational stories within the science-fiction genre offers a rich, critical and comprehensive vision of the future. The stories analysed in this project portend significant changes in teaching practices and a new use of technology, but also show concern about potential dehumanisation in education and a growing distance between ideals and reality concerning work improvement, inclusion and sustainability.

Keywords: education trends, future (of society), science fiction, creative writing, master's degree, educational technology.

Resumen

Este estudio analiza 389 relatos de ciencia ficción sobre la educación del futuro escritos por alumnado de los másteres de formación del profesorado y de investigación educativa de la Universidad de Alicante entre los cursos 2009-2010 y 2019-2020. Durante la práctica "La Educación en 2030" se escribieron estos relatos, disponibles en abierto en los blogs de las distintas asignaturas. Se realiza una investigación mixta con un análisis cualitativo de los relatos y la expresión cuantitativa mediante estadísticos descriptivos en el estudio longitudinal. En los resultados se clasifican los relatos en dos grandes categorías: Predicciones Positivas y Predicciones Negativas, teniendo mayor relevancia estas últimas (52.94 % total), relacionadas con los modelos distópicos de la ciencia ficción. Sobre estas dos macrocategorías se establecen tres códigos principales, que son Predicciones Negativas: Docente-discente, Aprendizaje y Sistema; y Predicciones Positivas: Docencia, Contenidos y Modelo; que articulan el análisis con más subcódigos y frecuencias de aparición de las distintas ideas. Destacamos los códigos sobre la figura del docente como "mediador" o "clandestino", como dos modelos educativos que se repiten como profesorado del futuro.

Se incluyen fragmentos de los relatos analizados para ejemplificar los códigos utilizados. La creación de relatos educativos desde la ciencia ficción ofrece una visión rica, crítica y diversa del futuro. Los relatos estudiados revelan cambios significativos en la praxis docente y en la incorporación de tecnologías, pero también preocupaciones sobre aspectos deshumanizados y la distancia entre ideales y la realidad en temas como las mejoras laborales, la inclusión y la sostenibilidad.

Palabras clave: tendencias en educación, futuros (de la sociedad), ciencia ficción, escritura creativa, máster/maestrías, tecnología educativa.

INTRODUCTION

The origin of the term *science fiction* is commonly attributed to William Wilson, who first used the expression in his work *A Little Earnest Book upon a Great Old Subject*, published in the mid-19th century (Stableford, 2006). The way the author used the term suggested the possibility of revealing the truths of science by means of a narrative that could be, at the same time, poetic and truthful. The expression was not intended then to encompass the consequences that new scientific and technological developments could have on our future, but rather to draw attention to a genre that could combine fictional –or poetic– elements with scientific discoveries. There are no signs, however, of questioning nor advocating new scientific advancements that may challenge our society or imply the creation of a new social order. These futuristic considerations directly influence the way we conceive the education of the future (Burbules et al., 2020).

These particular ideas have been present in science fiction for some time now, especially since the mid-20th century, as the genre has been offering us different versions of the consequences of technological development. Science fiction is closely related to utopian or dystopian literature due to its capacity to include the potential materialization of the current technological conditions and also offer a critical view of what our society could be like in the future (Rovira-Collado et al., 2022).

There are two positions regarding future societies: the optimistic and the pessimistic points of view, and it goes without saying that the latter has been unquestionably predominant in fiction. The decline of utopian thinking is a clear sign of how current societies envision the future world, and we could very well be facing an unmistakable sign of despair, where the predominance of dystopic representations may reveal the political and social consequences of the relentless development of technology.

There are two main perspectives regarding these depictions of the future, as certain authors have singled out, and they correspond to two states of mind that are predominant in contemporary societies. Martínez Mesa (2016) perceives on one hand a pragmatic spirit that resignedly accepts the progressive technology deployment, and on the other hand, a disposition that alternates between enthusiasm and suspicion but always in a general mood of despondency, accepting defeat in the face of the inexorable rise and ubiquity of technology.

If we assume that these states of mind are preponderant, it is not surprising that the scenario we picture for the future is filled with ominous predictions. The outline of that scenario and its circumstances derives from the need to use those stories and narratives to alleviate our anxiety in the face of a certainly negative prospect, in the same manner that mythological stories were, in another time, intended to help people alleviate their concerns and worries. It is not our intention to overlook the existence of optimistic expectations, or the fact that many sombre predictions of the past did never come true (Pogue, 2014), but what characterizes our society today is the critical stance regarding technology. Those hopeful visions about the excellence and magnificence of a post-human future (Kurzweil, 2015) are criticised for their pettiness and lack of consideration regarding the consequences that such a rupture would entail.

Our project focuses on the educational analysis of the perceptions of trainee teachers about the future of their profession (Barnes, 2008). The concepts of utopia and dystopia are presented within this theoretical frame not as whimsical musings or naïve fantasies, but as appropriate tools to examine the conditions under which we currently live, characteristics that are inevitably associated to a specific historical situation. This understanding also unfolds on a comparative level which enables the integration of different disciplines and knowledge. It is not our aim to dismiss those procedures involved in the imaginative creation of both utopias and dystopias, but to emphasise the aesthetic and ethical consequences of their narrative development.

There is a long research tradition about the potential dilemmas that the future holds for us, especially about certain circumstances that are assumed as a challenge to the current order, and related to different fields of knowledge. Some of those circumstances concern learning processes, human values and knowledge transfer. The study of those fictional expectations and those imagined futures, unquestionably related to

linguistic aspects and creative writing, is still object of research, as evidenced by recent publications (Kozel et al., 2019).

Looking into what potential positive or negative consequences may derive from changes in our societies, especially in our field of study –Education–, is a sign of our present worries and insecurities and also proof of the already existing issues that have yet to be solved. The answers are necessarily found in experience, whether it be present or past, and that is why when we tend to these questions and concerns we are not only contemplating what is to come but also, and perhaps more importantly, we are testing the firmness of the ground we are stepping on, or maybe the bumps along the way.

All the elements that result from the analysis of future conditions will therefore be compelling tools for those researchers who intend to interpret the social, cultural and political disposition of our societies, and we could interpret them as questions regarding our research: what hypotheses are formulated about technological advancements, what is their function in the educational debate, what is their role in the exploration of our identity and, lastly, how are the rights and responsibilities of future educators addressed? All these questions fall within a theoretical framework which will enable us to reflect on the development of our trainee teachers' digital competence (García-Ruiz et al., 2023; Marimon-Martí et al., 2022).

There is a considerable amount of research about depictions of the future in science fiction (Pogue, 2014; Gidley, 2017), and whether or not the predictions eventually come true, that are useful to define our approach. Westfahl and Yuen (2014) offer a comprehensive selection of essays on predictions about the future. Bowler (2017) traces the work of the so-called “prophets of progress”, such as Wells or Asimov. By the end of the last century, Thomson (1996) was already considering whether Asimov was a visionary or if he was simply describing reality. More recent studies (Briggs, 2013) focus on other science fiction sub-genres such as “cyberpunk”, for instance William Gibson's *Neuromante* (1984), or on significant audiovisual products such as the *Star Trek* series (Gene Roddenberry, 1966), which is still offering different visions of the future as of 2021 (Pogue, 2017). Prosser (2019) highlights the interest that large companies or national defence institutions have in futuristic stories as inspiration for their strategy building.

Some of the ongoing educational debates, for instance, revolve around questions and issues that were considered unalterable until recently, namely face-to-face teaching (Suárez Ramírez et al., 2016). Undoubtedly, the need for and the increase in virtual learning environments has brought about significant changes in the teaching-learning process.

METHOD

Participants

This research project is based on the study of a narrative corpus of 389 science-fiction stories written by university students within the “Education in 2030” project assignment. Mixed research has been conducted using qualitative and quantitative analysis and the results have been shown through descriptive statistics in a longitudinal study. Our analysis demonstrates the process through an emerging design (Flick, 2015) in which we first identify the categories that structure the data, and then we analyse the codes used to label and identify the ideas underlying in the narratives. The research team established two distinctions by consensus regarding the interpretation of the students' stories, namely *positive* and *negative* visions of the future. Two of the stories were not taken into account because they did not meet the necessary requirements for the analysis, hence the total number of stories in the corpus came down to 387. In order to harmonize the data, since the size of the non-probabilistic sample varied each year, they are displayed in terms of absolute frequencies (AF) and their percentage contribution to the general meta-code (%AF).

Instrument

The elements analysed are science-fiction stories written by trainee teachers. Building upon Connelly and Clandinin's (1990) classic narrative for schools model, these visions of the future are regarded as

biographical narratives or accounts of schoolwork practices (Branda & Porta, 2019), where personal experiences are combined with the hopes and aspirations for what future education should be like. To enhance the futuristic atmosphere of the assignment, all the stories were delivered in digital format (Londoño, 2012) and they are available on our open-access course blogs as individual digital stories (Molas-Castells et al., 2022). These digital spaces can be considered as collaborative settings that foster communicative interaction (Mesa Rave et al., 2023).

We must emphasize that the main purpose of this assignment was to create science fiction. The basis for our research lies in the stories created for the *Education in 2030* assignment, a project that has been gradually evolving over eleven academic years and whose main objective is to have students create stories about what they consider their teaching practice will be like in twenty years' time. The students (trainee teachers) are encouraged to reflect upon potential changes in teaching and learning practices and the evolution of the profession in a feasible and verisimilar future, following the directions received in the creative writing workshop they attended as part of the course. Therefore, the purpose of this literary assignment is twofold: on one hand, students are given tools that promote and foster their literary creativity and on the other hand, they are encouraged to reflect upon possible solutions for the educational challenges of our society regarding the relentless rise of technology. This research has paved the way for other studies about how science fiction can be representative of education and the development of reading habits in the future (Rovira-Collado, 2020a).

The qualitative data analysis has been conducted using *ATLAS.ti* (v.7). The final rubric consists of a total of 25 codes grouped under 6 categories, which are in turn divided into two macro-categories depending on the nature of what we call the students' *predictions*: negative and positive educational predictions. These networks of codes (including their codes and sub-codes) are linked to the research objectives according to three different levels of specification, as determined by school curricula, aiming to provide a systemic view of actual classroom work in relation to content, also considering socio-cultural determinants. In this way, a Hermeneutic Unit (HU) containing the students' writings has been developed for each course and subject. Every one of these units has been assigned the same network of codes developed through an inductive coding process, in order to synthesise the expressions and concepts employed by the students. *Excel* has been used for frequency quantification and distribution, in order to hyperlink the stories with the identified codes for subsequent statistical analysis.

Procedure for data collection and analysis

Firstly, we collected narratives from the course "Research, Innovation, and the Use of ICTs in Language and Literature Teaching", offered by the Teacher Training Master's Degree at the University of Alicante since the academic year 2009-2010. The provided dataset is composed of 311 narratives written along a total of 11 courses, and labelled *INVTIC10* to *INVTIC20*. Secondly, we collected 78 stories from the Master's Degree in Educational Research, particularly from the courses named "Research on the Development of Reading and Literary Competence, Children's Literature" (4 courses labelled *INVLIJ16* to *INVLIJ19*), and "Research in Language and Literature Teaching" (1 course labelled *INVDLL19*), both from the University of Alicante. In the following table, we provide links to the course blogs and the total number of stories collected.

Table 1
Distribution and location of the narratives

Label	Course blog	N
INVTIC10	http://didacticalenguayliteraturaua.blogspot.com/	20
INVTIC11	http://didacticalenguayliteraturaua2011.blogspot.com/	17
INVTIC12	http://didacticalenguayliteraturaua2012.blogspot.com/	25
INVTIC13	http://didacticalenguayliteraturaua2013.blogspot.com/	15
INVTIC14	http://didacticalenguayliteraturaua2014.blogspot.com/	26
INVTIC15	http://didacticalenguayliteraturaua2015.blogspot.com/	51
INVTIC16	http://didacticalenguayliteraturaua2016.blogspot.com/	42
INVTIC17	http://didacticalenguayliteraturaua2017.blogspot.com/	23
INVTIC18	http://didacticalenguayliteraturaua2018.blogspot.com/	34
INVTIC19	https://didacticalenguayliteraturaua2019.blogspot.com/	30
INVTIC20	https://didacticalenguayliteraturaua2020.blogspot.com/	27
INVLIJ16	http://theintertextawakens.blogspot.com/	13
INVLIJ17	http://thelastreader2017.blogspot.com/	14
INVLIJ18	http://lijmilenaria.blogspot.com/	15
INVLIJ19	http://siemprevuelvealprimeralectura.blogspot.com/	18
INVDLL19	https://mientrasdurelaliteratura.blogspot.com/	18

Source: own work.

Textual analysis in qualitative research allows for the reflection of the students' views on the evolution of socio-cultural contexts through time, and a better understanding of how these historical-cultural determinants are interpreted by the participants in their narratives (Fernández et al., 2022) in a cross-sectional study. These stories written by our students demonstrate the possible ways in which a feasible future can be depicted; for their implementation, they followed the directions offered in our literary workshop aimed to help them develop their creativity and imagination. The project is thus conceived as a didactic tool to promote the creation of literary narrative while, at the same time, creating tools that enable us to better address the current educational challenges.

RESULTS AND DISCUSSION

Overview of Students' Educational Prospects

In this initial approach to the cross-sectional study of the students' predictions (P) we can observe a progression in the contributions for each course in the meta-codes used: *negative educational predictions* are labelled with the meta-code 1 (M1) and *positive predictions* are labelled M2, all expressed as percentages. When expressed as percentages, differences and variations are more clearly seen: there is a higher percentage of negative predictions (in 6 out of 10 courses) in the Master's Degree in Secondary Education, as opposed to a greater contribution of positive predictions in the Master's in Educational Research (except for the 2019/2020 academic year with %M2=31.94%). As we can see, this assignment was offered in different courses, and the percentages are inversely proportional between the two degrees every academic year since 2015/2016, when we began this project with the students of the Master's in Educational Research, except for the 2017/2018 course. This evolution can be seen in Figures 1 and 2.

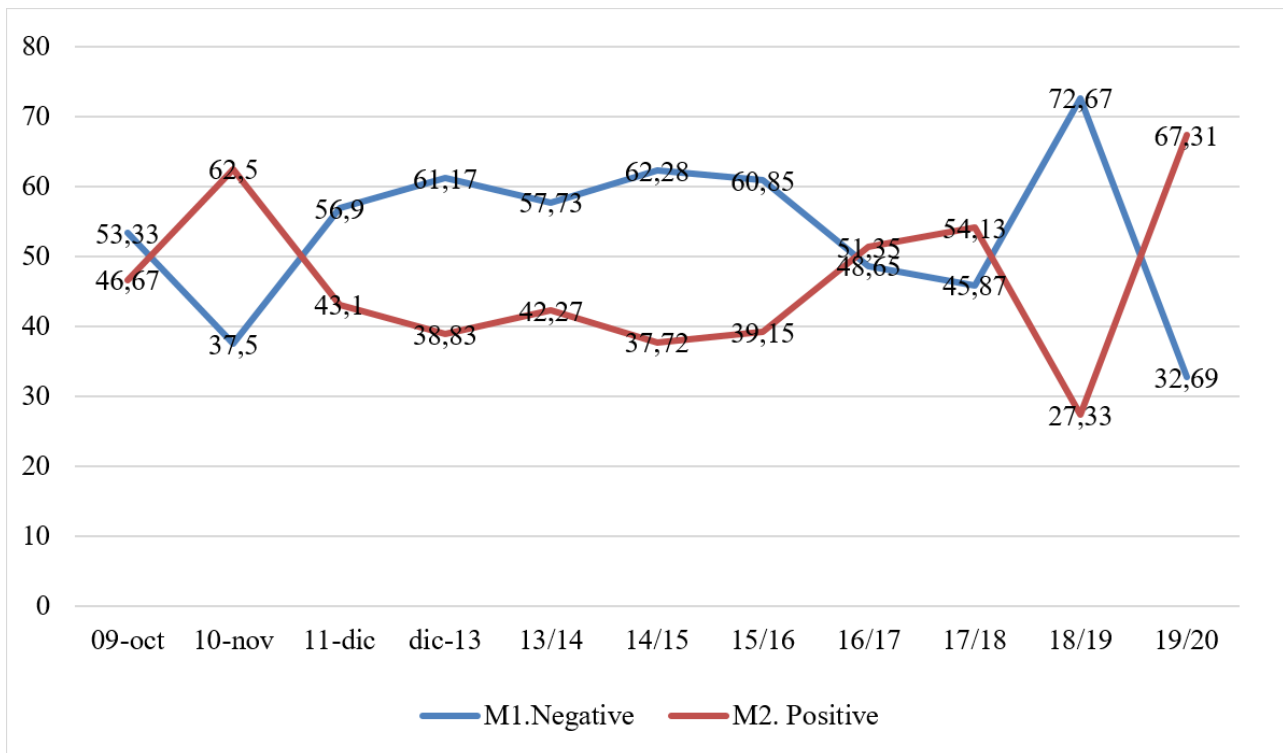


Figure 1
Evolution of predictions in Master's in Secondary Education
Source: own work.

This chart illustrates the progression of the assignment over more than ten academic years. We could resort to historical data to interpret these results, although it is worth noting that the bleakest year was 2018/2019, just before Lockdown, whereas the Lockdown year actually yielded a positive result.

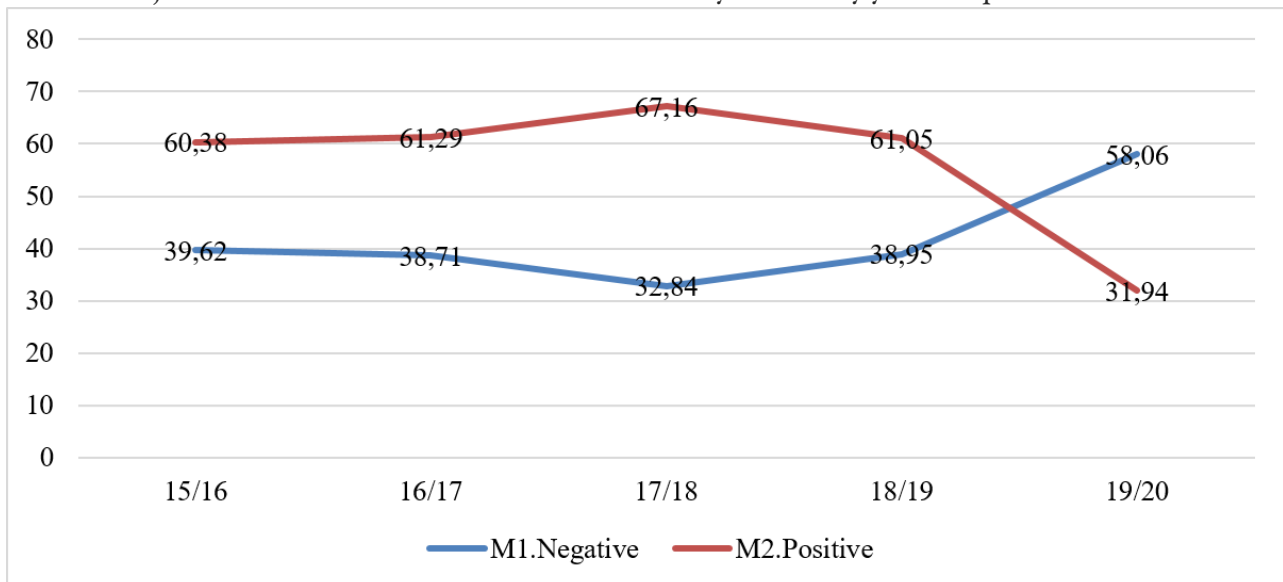


Figure 2
Evolution of predictions Master's in Research
Source: own work.

In the second figure we can observe a contrasting trend, which may be due to the students' different and personal traits depending on the Master's Degree they belong to.

Qualitative analysis results

In this section the different descriptive results that arose from the analysis of the corpus of stories are presented, along with the codes employed. To identify distinct fragments of the stories the labels for the corresponding course are used (see Table 1) followed by a number which indicates the position the story occupies in that course (examples: "INVTICXX-RYY" or "INVLIJXX-RXX").

Negative educational predictions by students

This main meta-code is structured into three basic codes. In Table 2 the results are broken down into four columns, after the analysis of the whole set of stories belonging to both Degrees, and subsequent sub-codes are shown.

Table 2
Total of negative educational predictions

Code	Sub-codes	M.S.E.		M.E.R.	
		AF	AF (%)	AF	AF (%)
1.1. Teaching role	1.1.1. Substitute	61	7.39	11	6.67
	1.1.2. Testimonial	45	5.45	2	1.21
	1.1.3. Traditional	36	4.36	7	4.24
	1.1.4. Clandestine	64	7.75	18	10.91
1.2. Learning	1.2.1. Virtuality	75	9.08	15	9.09
	1.2.2. Technology	99	11.99	19	11.52
	1.2.3. Digitalization	78	9.44	20	12.12
	1.2.4. Utilitarianism	67	8.11	12	7.27
1.3. System	1.3.1. Non-inclusive	62	7.50	7	4.24
	1.3.2. Dehumanised	138	16.71	32	19.40
	1.3.3. Catastrophism	41	4.96	15	9.09
	1.3.4. Legislative instability	60	7.26	7	4.24

Source: own work.

Note: MSE: Master's in Secondary Education / MER: Master's in Educational Research; N1(MSE): Total 826; N2(MER.): Total 165; AF: Absolute Frequency.

We observed that negative predictions are the most common for both Degrees (991, representing 52.74%), with a higher percentage in the MSE (55.18%) compared to the lower incidence of these negative predictions in the narratives from the MER (165, representing 43.20%). Code *1.1. Teaching role* focuses on the relationship between teacher and student and the role it plays in these narratives. To make this clearer, we established four sub-codes to illustrate the different teaching roles that appear in the stories. The most occurrent elements in the whole dataset are *1.1.4. Clandestine* and *1.1.1. Substitute*, and they reflect different throwbacks or issues perceived by the students. Code *1.1.4. Clandestine* refers to a teaching figure that opposes to the general conditions surrounding the teaching process, and wants to change them through individual action or as part of a collective with a divergent mindset:

“Confronted with this situation, some of us regrouped under the name ‘Alexandrians’ in honour of the mythical Library of Alexandria, and we travelled the world rescuing our own and preparing to unleash our revenge.” (INVTIC16-R36)

Code *1.1.1. Substitute* appears in those stories that portray the disappearance of the teacher figure in the classroom, due mainly to technological advances such as robots, mental devices, or artificial intelligence systems. Here are some examples:

“Teachers, in addition to having to contend with all that is to come, will have very strong enemies on top of all that: the robots that the Ministry of Education will place in every school.” (INVTIC10-R19)

“Once upon a time there will be, in a not-too-distant future, a child named Cyberlearner who will not attend school. He will use contact lenses instead, that will connect him to his everyday lessons and there will be no need for teachers.” (INVTIC14-R13)

The least occurring sub-codes are those assigned to models in which there actually is -a teaching input but it is seen as ineffective. Code *1.1.2. Testimonial* (which is less common in the Master's in Educational Research with 1.27% of the total occurrence and 5.26% of the code) refers to a physical figure in the classroom that is often inconsequential and whose role is merely to be an adult among the students. Lastly, *1.1.3. Traditional* shows a negative side of the teaching input, which is incapable of progress and unable to motivate the students or innovate in methodology.

For the second category of codes, *1.2. Learning* encompasses a set of elements that interfere negatively in the teaching process. Students from both Master's Degrees agree in their negative views of these elements, mainly regarding the way the contents are taught, the methodology used and the technological devices available at school. The code with the maximum number of occurrences is *1.2.2. Technology*, which refers to situations in the classroom in which the use of technology is inefficient, whether it might be due to obsolescence, system failures or excessive dependence on devices and/or applications. For example:

“All the students were looking at the screens they had in their hands, and they didn't even talk to each other. I can't yet understand how they could dodge one another when walking like that.” (INVTICUA14-R11)

The next most frequent code is *1.2.3. Digitalization*, and it concerns the stories that show non-conformity and nostalgia for long-lost physical books, or for old reading and writing activities. For instance:

“The boy shrugs, unfazed. Piles of books lie amongst the rubble. A true treasure. Heating material that will last for days.” (INVTIC13-R09)

“Now everything is digital. Boys and girls have interactive desks at school, where everything is displayed: the activities, the videos... What a pity! I can still remember that smell of a freshly-opened book.” (INVDLL19-R07)

With a lower occurrence but still well represented, sub-code *1.2.1. Virtuality* refers to the difficulties that arise when using online teaching platforms, tools or applications that concentrate the teaching performance in spaces that are regarded as impersonal. Here is an example:

“In 2030 everything will be computerized, and students' attendance to class will be irrelevant because we will have ICTs, with video-classes.” (INVTICUA10-R19)

Furthermore, code *1.2.4. Utilitarianism* refers to narratives that contemplate the disappearance and rejection of all matters related to humanities and social sciences, to the benefit of other subject matters related exclusively to professional development, and also a decrease in creativity or the ability to make personal choices. Code *1.3. System* takes a broader perspective regarding curricular design and specificity and shows the intrusion of socio-cultural factors in education. To a greater extent, the biggest danger identified by the students is concentrated in sub-code *1.3.2. Dehumanised*, and it is one of the most frequent elements. These stories show the students' concern about the rise of extremist positioning that may affect the education system by the settling of an oppressive stance (either political or related to technological dominance), typical of dystopian narratives. For instance:

“Six years ago, the ‘non-opinione’, a worldwide group against citizens that show critical thinking abilities, destroyed all the schools, computers, books, communication, life.” (INVTIC13-R12)

Code *1.3.1. Non-inclusive* is assigned to those stories that portray a society in which good-quality schooling systems are not accessible for all people, and *1.3.4. Legislative Instability* describes issues that arise due to changes in educational legislation, and also problems caused by a wrong use of the law.

“Of course, I don’t want to scare you, but this is what is going on in public education. Private schools receive funding from the largest companies in the country, also at an international level, and they are financially supported regarding projects, studies and exchanges.” (INVTIC18-R03)

“Some things will surely remain unchanged, but perhaps they will not, like the laws. These past 20 years we have witnessed several changes in laws, we’ve had the LOE, the LOCE, the LODE, etc., I wouldn’t be surprised if it all starts happening again.” (INVTIC10-R20)

Code *1.3.3. Catastrophism* is reserved for a less recurrent element: extreme situations that directly affect education, such as climatic conditions or determinants that make coexistence impossible in the futuristic society portrayed. These ideas can be related to sustainability and climate emergency, issues which are currently hot topics in society. Covid-19 is only mentioned by the students in the last course, but other catastrophes are present in stories from previous years.

Positive educational predictions by the students

The second category used to classify the students’ stories focuses on the positive educational predictions for the not-so-distant future. Once again, as we can see on Table 3, the data is structured within three levels of specificity: the educational relationship between teacher and student, elements concerning content learning and, finally, socio-cultural factors that have a positive influence in education.

Table 3
Total of positive educational predictions

Code	Sub-codes	M.S.E.		M.E.R.	
		AF	AF (%)	AF	AF (%)
2.1. Teaching	2.1.1. Virtual teaching	23	3.43	3	1.38
	2.1.2. Hybrid learning	23	3.43	3	1.38
	2.1.3. Mediator	106	15.79	34	15.67
	2.1.4. Self-teaching	5	.75	1	.46
2.2. Content	2.2.1. ICT support	129	19.22	46	21.20
	2.2.2. Tech-classrooms	102	15.20	19	8.76
	2.2.3. Multiculturalism	24	3.58	11	5.07
	2.2.4. Interdisciplinary	24	3.58	8	3.69
	2.2.5. Preservation	62	9.24	22	10.14
2.3. Model	2.3.1. Inclusive	69	10.28	25	11.52
	2.3.2. Legislative stability	23	3.43	5	2.30
	2.3.3. Environmentalism	11	1.64	14	6.45
	2.3.4. Work improvements	70	10.43	26	11.98

Source: own work.

Note: N1(MSE): Total 671; N2(MER): Total 217; AF: Absolute Frequency.

In contrast to the previous section, positive educational predictions represent a lower percentage in the whole dataset of narratives (coded elements amounting to 47.26%), and it is in the Master’s Degree in Educational Research where these types of predictions have the highest frequency (56.80% of total absolute frequencies). Within *2.1. Teaching*, the most recurrent sub-code is *2.1.3. Mediator*, which focuses on the teacher’s role as motivator, as a figure who uses a meaningful learning-based methodology and acts as a guide that fosters the students’ personal development. For example:

“The students work in groups quite frequently, and the teacher’s methodology is focused on discovery learning, with the purpose of stimulating students’ interest, curiosity and creativity.” (INVTIC17-R16)

Sub-codes related to the way in which the teaching process unfolds have a lower occurrence. Sub-code *2.1.1. Virtual teaching* appears in those narratives where all the teaching takes place in virtual

environments, something which is regarded as an improvement, described as a more beneficial system than in-person teaching. Here are two examples, one from 2013 and another from 2020:

“Whether she ever preferred to be face-to-face with the students was of little consequence. She was very happy since she didn't have to physically face the students anymore.” (INVTIC13-R01)

“I could have never imagined I would be teaching in this way, virtually. But after what happened with Covid-19, it was only logical to expect world changes, and education could not be an exception.” (INVTIC20-R06)

Sub-code *2.1.2. Hybrid learning* refers to the combination of both in-person and online instruction (associated to *flipped classroom* or *blended learning* methodologies). Sub-code *2.1.4. Self-teaching* has a very low frequency, but it has been included in order to demonstrate that positive predictions always include the teacher figure as an essential element of the learning process.

Code *2.2. Content* encompasses the greatest number of elements concerning determinant features in the educational process. Sub-code *2.2.1. ICT support* is particularly relevant and is employed to classify all those narratives that highlight the benefits of using technology for teaching purposes. For instance:

“Teenagers nowadays do not use books at school, but virtual reality glasses. Conventional lessons don't exist anymore. We teachers put our own glasses on and guide our students.” (INVTICUA18-R30)

The second more predominant element is found in sub-code *2.2.2. Tech-classrooms*, regarding the use of technological resources and devices that facilitate students' learning and raise their motivation. Here is an example:

“The classroom was large and bright. Another thing that caught his attention was that the desks popped out of the ground and arranged themselves depending on the number of students present at that moment.” (INVTICUA12-R10)

As a counterpart to sub-code *1.2.3.* which expressed nostalgia for physical paper and writing activities, sub-code *2.2.5. Preservation* is assigned to those narratives that highlight either the recovery of such practices or their combination with digital resources. With a lower frequency, *2.2.3. Multiculturality* shows up when there is reference to the benefits of plurilingual education, contact with other cultures, or globalization in education made possible thanks to technological tools. Furthermore, *2.2.4. Interdisciplinary* encompasses the students' accounts of the benefits of interdisciplinary projects that combine different subject matters and promote teachers' teamwork, breaking down boundaries between subject areas.

Code *2.3. Model* covers all those narratives that focus on socio-cultural improvements that benefit the education system. With a similar number of occurrences, sub-codes *2.3.4. Work improvements* and *2.3.1. Inclusive* (together they make 78.49% of the code) are the most significant. Sub-code *2.3.4.* is concerned with improvement in the education system regarding work conditions, namely working hours, student-teacher ratio, or the availability of training courses for teachers:

“Classrooms are less crowded so that we can devote time to all of our students. And we have one less teaching hour so that we can attend training courses.” (INVTIC17-R05)

Sub-code *2.3.1.* is assigned to the stories in which students advocate for a true educational inclusion, a public system able to overcome social differences and respectful of diversity. That is, a system that ensures social justice for all:

“Education has advanced a great deal and students have become the real protagonists of the classroom, where subject matters are adapted to their own personal educational needs.” (INVTIC15-R48)

Code 2.3.2. *Legislative Stability* is less frequent (10.97%) and stands for future societies in which a legislative pact is made so that teachers' views are taken into account before any educational law is changed or implemented, and there is a political commitment to not change educational laws so often:

“Thanks to this reform, the students' mothers and fathers, the teachers, and even the students themselves can now have a say in all the decisions schools make.” (INVTIC20-R19)

2.3.3. *Environmentalism* is not very frequent either, and it reflects a commitment to combat climate change: for instance, the creation of more urban green spaces or a decline in paper consumption. In summary, there is a total of 991 negative predictions (AF% 55.18) in contrast to 888 positive predictions (44.82%) in 311 narratives from 11 different courses belonging to the Master's Degree in Secondary Education, whereas there are 165 negative predictions (43.19%) and 217 positive predictions (56.81) in 78 stories from 5 courses belonging to the Master's in Educational Research.

CONCLUSIONS

In 2007, Nurmilaakso (2009) conducted research involving university students about education in 2030, where the participants were asked three questions about how they envisioned their profession in the future. Although the analysis and results were excellent, at that time –close to the beginning of our research– the conclusion reached was that the students were too traditional. From our point of view, using science fiction to generate stories about education in the future can offer a much richer and more comprehensive vision. As the results reported in our study show, we must be cautious and not perceive the future as a continuation or mere extension of the present time. The dichotomy between continuity and discontinuity prevents us from focusing on the fragments that define our postmodern context (Ingerflom, 2019), making us consider solely a continuous and uniform progress.

Furthermore, the importance of the teaching figure in the sub-codes *Clandestine*, *Substitute* or *Mediator* is an indicator of a new context that does not only concern the ideas of progress or regression, but also constitutes a new vision of the teaching practice in which all the determinant factors are equally important. Disruptive teacher training (Marcelo & Vaillant, 2018), despite its apparent discontinuity, does not culminate in the aforementioned dichotomy, but rather explores all the elements of the teaching-learning process that can establish a bond between the future and the knowledge of humanities. That bond is defined to a great extent by the means of communication that are available, in one way or another, to the participants in the process.

Virtual and blended learning are progressively becoming more prominent and they shed light on both positive and negative characteristics and outcomes for online education (Area-Moreira, 2020), as evidenced by our analysis of the corpus of selected narratives. Over the course of recent years, digital transformations have led to a significant change in the semantics of education and, of all the new terms that have emerged, we prefer *Distance Education* (García Aretio, 2020). Nevertheless, while many of those transformations portrayed in the narratives convey a critical view of our present ways, they are regarded as potential or even desired pathways to follow. Sub-codes *Work improvements*, *Inclusive education* and *Environmentalism* are proof of that. These features are constantly addressed in research, as is the case with inclusive education (Ortiz Jiménez & Carrión Martínez, 2020) or environmentalism, regarding its relationship with literary education (García-Única, 2017). The idealistic nature often associated with these elements may evidence the distance that separates us from a satisfactory situation regarding these concepts.

Another negative element worthy of mention, and perhaps the one that provides a more comprehensive view, refers to the organization of a dehumanised system. One of the most basic attributes of dystopia lies in the establishment of an education system that maintains the prevailing order (Mahida, 2011). The presence of that spectre of oppression in the stories challenges us as a society, and demands immediate action in order to guide our itinerary. We understand this research as an approach to a sizeable text corpus that keeps on growing every academic year. This analysis will enable us to carry out subsequent and more comprehensive studies on specific elements of the matter. Concepts like the internationalization of

education (Wit & Altbach, 2021), the integration of technologies into a sustainable education system (Burbules et al., 2020) from an ethical perspective (Flores-Vivar & García-Peñalvo, 2022), or the challenges posed by the growing presence of artificial intelligence (Parreira et al., 2021) are creating new notions such as *Education 4.0* (Aziz, 2018; Keser & Semerci, 2019) that must become an integral part of teaching training (Rovira-Collado, 2020b). The reality of everyday life is something that has yet to be taken into account in the analysis of our corpus of narratives, as it may be an influencing influence factor. A technological innovation, an educational claim, or a world pandemic can suddenly and dramatically change the entire meaning of the stories. The integration of technology in education must be approached with a critical mindset, to accomplish things that could not be done otherwise (UNESCO, 2023), and we consider that this study is an example of that. After the digital transformation brought about by Covid-19 (Area-Moreira et al., 2020; Mesa Rave et al., 2023) we can revisit some of the stories to check whether some of the predictions did actually come true. Other stories will remain as simple science-fiction tales. Artificial intelligence tops the list of emerging technologies in 2023 (García Peñalvo et al., 2024), and it was already foreseen in science fiction of all times, both in optimistic and pessimistic ways. Finally, some other elements to be studied in these stories about the future are environmental challenges and sustainable development.

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Información adicional

How to cite: Rovira-Collado, J., Martínez-Carratalá, F. C., & Miras, S. (2024). Education in 2030. Prospects of the future by teachers' trainees. [La educación en 2030. Prospectiva del futuro por profesorado en formación]. *RIED-Revista Iberoamericana de Educación a Distancia*, 27(1). <https://doi.org/10.5944/ried.27.1.37987>