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Teacher Education beyond the Pandemic in Spain

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Abstract: In the wake of the pandemic, there has been a clear need to understand the "new normal" contexts of teaching and learning and how they affect teacher education. In order to rethink and reimagine teacher education, a priority should be to have a firm grasp on the traits that young people bring with them when they enroll in Education degree programs. In other words, we must understand their distinctive generational traits and how the various crises of recent years have affected them. This paper has three main aims, each of which is addressed in a corresponding section of the article. The first objective is to gain a better understanding of the educational needs and learning styles of this new generation of students and to examine how they are influenced by present-day realities. A second section strives to identify the most prominent challenges that are reshaping teacher education programs on a global scale. The third and final part explores the bidirectional interaction between these two previous variables by examining the educational approaches and methodologies that have been implemented recently in Spain and discussing the extent to which they have been able to meet students' evolving needs. Given that these changes, transformations and pedagogical concerns are observable worldwide, these analyses and reflections are potentially relevant beyond the Spanish context.

Keywords: teacher education programs; generation z characteristics; transformation of education; teaching and learning; higher education

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1. Introduction

It is hardly a revelation to say that education was strongly affected by the COVID-19 pandemic worldwide, and Spain was certainly no exception. The country was hit hard by the pandemic, especially in the urban areas of Madrid and Barcelona, which unfortunately suffered a disproportionate number of deaths. These facts, and the drastic measures taken to combat the pandemic over the course of several months, caused a great deal of fear and uncertainty, and education was especially affected by the situation. Young people, who were accustomed to social and outdoor activities, had to drastically restrict their face-to-face relationships and outdoor lives. The young students currently enrolled in teacher education programs were no exception. They experienced the consequences of the pandemic in high school or in their first years of university studies. Social networks helped them maintain their relationships online, and virtual campuses made it possible to continue their education. Nevertheless, with the perspective gained in the years since the first lockdowns, we know that in general there were academic losses [1] and a strong impact on young people's well-being and, in some cases, their mental health [2].

This article explores the changing trends in teacher education programs, examines the characteristics of today's students, and investigates how these two phenomena are related and how they affect each other. This exploration is of importance, as it directly impacts the everyday concerns of teacher education programs. While the focus here is on Spain, these traits and trends are likely to be present in other contexts, meaning that these observations may be of value elsewhere.

2. Today's Post-COVID Students and Their Generational Characteristics

The new generation of students enrolled in teacher education programs are marked by distinctive generational traits, and they have been exposed to clearly identifiable environmental disruptions. These traits and influences make this generation unique and different from their predecessors. Teacher education programs must take these singular characteristics into account. Of course, not all students in a generational cohort have the same personalities or degrees of motivation. There have always been hard-working students and lazy ones, more and less motivated learners, academically brilliant and average students . . . Nevertheless, in our times, it seems that generational differences may have opened up a gap between our current students and previous generations, particularly the generation of their teachers and professors, a schism that, for better or for worse, may affect teacher education.

These generational traits and environmental influences are summarized in the following points. While the first five are extracted from the literature on generations [3–10], the last five describe the series of recent crises and how they particularly affect young students.

2.1. Generation Z

Youth is not a monolithic phenomenon but a manifold one, diverse in its manifestations and forms of expression, which can change depending on the spaces that young people occupy and the historical contexts in which they live [3]. Despite this diversity, certain generational traits can be clearly identified in the workplace [4], and thus in the university.

Although the generation gap between faculty and students may have been wide at other times, such as in the era of the "baby-boom" generation, it is clear that the gap with today's generation of students is huge. The students enrolled in teacher education programs today were born mostly in 2000–2005. They belong to so-called Generation Z, also known as Gen Z or Zoomers. This generation is usually said to consist of people born from the early or mid-90s through 2005 or 2010 [4]. Along with the previous Generation Y, they are one of the emergent generations today.

The general traits attributed to this Generation Z in Spain are [4–8]: (1) They are probably the most diverse generation, comprising people from different cultural origins; in Spain there are also many international adoptees. (2) They are truly digital natives, as they spent their childhoods in the presence of video games, consoles, and mobiles. (3) They regularly use social networks/media to socialize and form and maintain relationships through WhatsApp, YouTube, Instagram, TikTok, Twitch, etc. (4) They are entrepreneurial and interested in starting their own business. (5) They are activists, advocating for social causes, economic change, and environmentalism.

Gardner has called them the App Generation, explaining that today's young people not only grew up surrounded by apps, but have come to understand the world as a collection of apps, to see their lives as a series of ordered apps, or perhaps, in many cases, as a single app that stretches across time and that accompanies them from the cradle to the grave [7]. Serres [8] referred to the same phenomenon in the book "Petite poucette" alluding to the thumbs used to write on mobile devices. Members of the generation include the Swedish environmental activist Greta Thunberg (born in 2003) and the Spanish professional soccer player Ansu Fati (born in 2002). A recent example of a Generation Z phenomenon is the Kings League led by Gerard Piqué and influencers like Ibai Llanos, who are also organizing the Queens League, a worldwide phenomenon.

2.2. Communication Styles

Generation Z members are big fans of TV series. Many in this generation grew up with easy access to streaming platforms like Netflix or Amazon Prime, and they have therefore been exposed to a wide variety of TV shows from an early age. Some TV series have gained a massive following among members of this generation and have influenced fashion, music, and other aspects of youth culture. Critics, however, say that Gen Z members have many sources of information but often lack the kinds of reliable references that were more

common in previous generations. Generation Z members decide within 8 s of exposure to a video or to other materials whether or not to pay attention. Approximately 11% of Generation Z have been diagnosed with ADHD [5], and many prefer communicating in new ways, with new syntaxes and multi-modal approaches, through images, icons and symbols.

This gives them a special ability for speed and multitasking. They usually talk fast, eat quickly, send WhatsApps at the speed of light, and watch series where hyperactive and hysterical characters capture their attention [10]. In short, they like speed, they are demotivated by calmness and slowness, and they need constant doses of new information and distraction. Many of them are stressed and aware of their accelerated pace of life, but they feel they are "victims" of the system rather than agents with enough will to change their habits and conditions.

2.3. Social Networks

Generation Z is the first generation that has been raised fully immersed in digital technology and social networks (they have never known life without the Internet). They have been exposed to the perspectives of YouTubers, bloggers, Twitter, influencers, Instagrammers, reggaeton singers and streamers on Twitch. Some may prefer living in the metaverse, giving and expecting likes, to "surviving" in real life. Nevertheless, they like expressing their feelings and communicating, and they have great audiovisual skills and a much better mastery of technology than other generations.

Other generations also use social networks, but less frequently [9]. Some Zoomers, however, have problems answering direct phone calls and experience anxiety in direct interactions, which they try to avoid [10]. Regular university campuses become these space-time challenging spaces for these young students, who require more frequent and consistent face-to-face interactions.

2.4. Evolution of Values

Young students enrolled in our colleges and universities share postmodern values, which means a sense of diversity, empathy, openness, flexible gender roles and sexual behaviors, criticism of traditional values, etc. Although this may be understood as an evolution from previous generations, it does not mean that this generation is more self-aware than previous ones. Beck and Cowan characterized diverse worldviews, and the values of this new generation coincide with the humanist communitarian egalitarian worldview, which belongs to the first level of consciousness, still unaware of the other worldviews [11]. These values involve giving importance to human bonds, communitarian standards, and sharing and caring attitudes, with authenticity and sensitivity.

2.5. Family Influences

In Spain, 49% of each generational cohort enrolls in tertiary education [12]. Teacher education students in our context mostly belong to middle-class families, whose parents belong to Generation X. Most of these parents had to follow strict rules when they were young. Because of their experience, members of Generation X often became parents with a more permissive view of how to educate children, a belief that fewer constraints should be placed on children's desires. Some have levelled the charge that this change has turned Generation Z into a spoiled generation, with no limits and showered with gifts [10]. This has led some of them to have low self-esteem and to need constant recognition. Groupwork and networking help them but, in the long run, some may become depressed and overloaded with information, and feel overwhelmed by circumstances [10]. The crisis in the transmission of traditional values through family adds to the possible insecurity and low self-perception of some of them.

2.6. Economic Crises

The economic crisis of 2008 had a significant impact on Spain, leading to two different types of consequences. Firstly, there were direct consequences that emerged during the time when our current teacher education students were adolescents; they lived through times that were not as optimistic as those of previous generations. This may have caused these adolescents to develop more anxiety and pessimism about the future. Another consequence, which may be more indirect, is that many families of potential university students may not have the economic resources to enroll their children in university, affecting equity and educational rights. The recent 2022 Ukraine war, and the related ongoing economic crisis characterized by inflation, may be aggravating these economic problems even more.

2.7. Political Crises

This generation has witnessed the rise of political populism and fake news, and although many have a commitment to certain values, few of them trust traditional political structures. Generation Z has grown up in a time of recession, terrorism, violence, volatility, and complexity [5]. These times are characterized by uncertainty and changes in personal and social roles, and by cultural and linguistic threats, institutional weakness in social leadership, the reconversion of professions and services, new political and military balances, and extreme mobility and legal and economic instability [13].

One turning point in Spain was the irruption of the pro-independence movement in Catalonia, resulting in the 2017 independence referendum, not recognized by the Spanish state, which polarized society and, consequently, young people. Many became activists on one side or the other. Not only was Catalonia polarized, but all of Spanish society has been affected by political tension that continues today, and this has eroded trust and collective values.

2.8. Health Crises

The COVID-19 lockdowns and quarantines imposed worldwide, and the emergency online learning implemented as a result, affected the learning processes of these students at university or in high school. This led to losses in learning, knowledge and equity [1]. Many students were possibly affected by a syndrome that could be called "passive screen dependence". Once online learning was abandoned and face-to-face education returned, some apparently remained in a more passive attitude, the idea that whatever is "happening outside" does not directly concern me, as if it was viewed on a screen.

COVID-19 also had mental health consequences. During the worst spikes of the COVID pandemic, and after them, there has been an increase in cases of mental pathology (anxiety, depression, self-harm) among children and young people. In Spain, there have been 20% more cases and up to 40% more hospital admissions of children and youth due to mental health problems [14]. These effects occurred in an accelerated way in adolescents after measures such as lockdowns to contain COVID and affected the "brain age" of some in ways that had only been seen previously in children who had been (chronic) victims of violence, had been abandoned, came from dysfunctional families, or had experienced similar situations [15]. Compared to adolescents analyzed before the pandemic, those studied a year later not only had more mental health problems but also displayed physical effects in the form of an "older brain age" [15].

Additionally, more than a third of schoolchildren who studied online showed high levels of anxiety [14]. Finally, in a study on *Suicidal behavior and mental health in childhood and adolescence in Spain* (2012–2022), Ballesteros analyzed almost 600,000 requests for help related to suicidal behaviors and found that, in ten years, suicide attempts had multiplied by a factor of 26. Specifically, 62.6% of cases were secondary school students, and 13.9% attended baccalaureate (eleventh and twelfth grades in Spain). In 56% of these cases, academic performance was low and most expressed dissatisfaction with school (66.7%). Bullying and *cyberbullying* were the most prevalent problems [14].

In light of all of this, it is no surprise that problems of anxiety, depression and loneliness are now more frequently identified on campuses. The end of the pandemic, however, made the return to "the new normal" full of excitement and the resumption of past activities for the majority.

2.9. Educational Crises

Some Spanish university students attended schools that embraced new trends in constructivist education, at least in early childhood and primary education, and sometimes also in secondary. However, this type of education is not so common in the two years of *bachillerato* (the final two years of schooling for university-bound students). The importance of the university admissions exam, which determines the universities and degree programs in which students can enroll, conditions education during these two years, and most schools follow traditional, memory-oriented teaching and learning models. Students arrive at university with a more traditional approach to knowledge, even though they may have previously been exposed to innovative education. The fact that some have had experiences with more innovative methods, along with the ease of access to information, means that students are not surprised to be assigned more autonomous work or more competence-based/orientated work [6]. And this makes a difference.

2.10. Informational/Digital Crises

And, to top it all off . . . ChatGPT-3.5 appeared on the scene. Indeed, the eruption of Artificial Intelligence (AI) in the process of teaching and learning is another shift that is affecting today's generation of learners and teachers. These new tools raise new challenges and questions that underline the need for an evolution in educational methods. It should be noted, however, that AI is based on certain priorities, purposes and objectives that are defined and established by others, who may have values that differ from those of teachers and students [13]. These limitations of the current AI tools should be taken into account in their educational applications.

In short, this generation seems to have been exposed to every possible disruption, in addition to having their own different generational traits. These traits and influences must be seriously considered by teacher education programs. What challenges, then, do teacher education programs face if they are to cater to the educational needs of this new generation of students? How do these challenges interact with the current trends that are transforming higher education more broadly and teacher education in particular?

3. Changes in Teacher Education Programs

While there are many differences from one national education system to another that affect the specificities of teacher education, there are also some common global challenges [16]. These challenges have been identified elsewhere, with a focus on those related to changing teacher education pedagogies. Financial and professional development changes are more context-dependent and would require a more particular analysis. However, one common challenge for teacher education is to respond to the educational changes in the post-COVID world. This involves providing training in self-care, stress management and maintaining a healthy work–life balance [17]. Meanwhile, UNESCO has defined nine ideas for public action in post-COVID education, emphasizing that humanity cannot return to the world as it was before [18]. These nine ideas for concrete actions are:

1. Commit to strengthening education as a common good;
2. Expand the definition of the right to education so that it addresses the importance of connectivity and access to knowledge and information;
3. Value the teaching profession and teacher collaboration;
4. Promote student, youth, and children's participation and rights;
5. Protect the social spaces provided by schools as we transform education;
6. Make free and open-source technologies available to teachers and students;
7. Ensure scientific literacy within the curriculum;

8. Protect domestic and international financing of public education;
9. Advance global solidarity to end current levels of inequality.

Another trend that is common to many teacher education programs worldwide is their increasing need to adapt to changing policies and regulatory environments [19], including changes in certification requirements, curriculum relevance and updates, and access and admission procedures. Other identifiable shared trends include the challenges of contributing to transforming education [20], innovating pedagogies [21] and enhancing collaboration and partnerships with local institutions and schools [22]. Pedagogical innovation often involves digitalization [23], the use of technologies [24] and applying evidence from educational research [25].

There are several emerging areas to be considered:

- The use of the Socratic method as a teaching style that encourages critical thinking and fosters deep understanding through questioning, dialogue, student engagement and active learning in the classroom [26,27];
- The incorporation of arts and design thinking into teacher education in order to promote skills such as creativity, problem-solving, critical thinking and collaboration [28];
- The promotion of soft skills, including communication, collaboration, problem-solving, empathy and emotional intelligence, is becoming increasingly important in the classroom and for teachers [29,30]. These skills complement traditional subject matter expertise and pedagogical knowledge;
- The promotion of more collaborative and cooperative styles of learning [31] and knowledge building [32];
- Inclusive education, achieved through the embrace of the Universal Design for Learning perspective [33] and the creation of a more diverse and inclusive curriculum [34] that addresses the needs of all students. This trend is related to implementing more culturally responsive pedagogy.

As a final point, the term "Bildung" refers to the holistic development of individuals, encompassing intellectual, emotional and moral dimensions. This concept emphasizes the importance of self-reflection, critical thinking and personal growth. By focusing on the development of the whole person, rather than solely on the acquisition of knowledge and skills [35], teacher education programs can better prepare teachers to meet the complex needs of their students [36]. "Bildung" also promotes an ethical and moral dimension to teaching, highlighting social responsibility, civic engagement and the development of moral character [37]. A related and clearly observable consequence is the personalization of teaching and learning [38,39].

4. Post-Pandemic Trends in Spain and the New Generation of Students

This section discusses several trends in teacher education in Spain. Some are general issues which are part of the transformation of higher education worldwide and have been identified in the previous section; others are specific local practices; and, finally, there are some trends that can be understood as an attempt to meet the current challenges emerging from the aforementioned generational features. Some of the more specific trends may also help paint a bigger picture of the ongoing and prospective processes of transformation in teacher education.

Post-pandemic trends and changes in teacher education in Spain are summarized in the following points:

4.1. Education in the Post-COVID World

In our context, the latest educational changes have been codified in a new educational law. Spain has a tradition of frequently changing state regulations, in accordance with the political group in government, without a trans-political educational consensus. The last regulation was the "Ley Orgánica de Modificación de la Ley Orgánica de Educación" (LOMLOE), literally the Organic Law amending the Organic Law of Education. This new organic law defines the competences to be taught, of which up to 50–60% are defined by the national

government, while the rest are defined by autonomous communities [40]. In the case of Catalonia, for instance, once the central government had defined the curricular competences, Catalonia introduced six vectors to program learning situations [41]: competence-related learning, gender perspective, universal design for learning (UDL), quality in linguistic education, emotional wellbeing, and democratic citizenship and global awareness.

All of these particular conditions of education shape the current transformation of teacher education.

4.2. Recent Political Debates and Constraints on Teacher Education

In addition to the above-mentioned contextual educational changes, there are some ongoing political debates with regard to teacher education, including the somewhat contentious issue of selection and enrollment processes. Specifically, there has been persistent and continuous political and academic debate as to the need for a specific admissions exam for teacher education, a system that has already been in place in Catalonia, for instance, for a number of years. Indeed, in Catalonia, after an intense political and academic discussion that included all the stakeholders, the Catalan government approved this additional admissions test to ensure that only the academically brightest students could apply to teacher education programs. This was an attempt to replicate the Finnish model, which has been widely studied and admired. The results of these processes, however, have been uneven. On the one hand, as intended, there has been a reduction in the number of applicants, but, on the other hand, the change did not attract academically better-performing students to teacher education.

Another issue, which is still unresolved, is the teacher training model established under Spanish law. Although frequently questioned, this model has not been changed. In Spain, there is no unified teacher education training system except for early childhood and primary education degrees, where future teachers are trained comprehensively in teacher education programs. Secondary education, baccalaureate and vocational training teaching staff are first trained in a specific discipline, and then required to take a university master's degree which has pedagogical and practical content. In the case of university professors, there is no need for specific additional training as teachers. It has been widely argued that this model is in need of review [42] to determine whether it would be better to develop a comprehensive four-year undergraduate teacher education program for secondary school, baccalaureate, and professional training teachers, who could then exercise the profession without the prior need to complete a four-year degree in a specific area of knowledge that is completely disconnected from teaching and learning.

At the same time, in the wake of the pandemic, mental health has attracted more attention from university administrators, especially at schools of education. This has led to the implementation of specific programs to support students and to guide them in health- and mental-health-related matters [43]. Additionally, in the past few years, the student population diagnosed with disorders such as ADHD, dyslexia and laterality problems has increased considerably. At many colleges of education, reinforced guidance and enhanced support services have been put into place, and a range of programs for students with specific educational needs have been implemented. The UNIDISCAT project developed by the Catalan government is an example of an effort to coordinate all these resources at Catalan universities [43].

All these contextual aspects have been monopolizing social media debates, sometimes presenting a biased view of teacher education to the larger society.

4.3. Innovative Pedagogies

Although some teacher education institutions still mainly use traditional teaching methods, many others have already started to apply new and innovative pedagogies. That is the case in Catalonia, where even as far back as the 1970s, some institutions were already pedagogically innovative. For example, they used personalized methodologies, groupwork, autonomous learning and no exams. Some were also involved in the continuing education

of teachers. For example, there were summer training programs at Rosa Sensat, Blanquerna, and Col·legi de Doctors i Llicenciats en Filosofia i Lletres i Ciències de Catalunya. In fact, several innovative schools had been connected starting in the early 20th century with European educational vanguards, but these innovative practices were suddenly interrupted by the dictatorship.

Although some faculties are pedagogically more traditional, active and interactional perspectives have gained importance. There is growing acceptance of the concept of pedagogical isomorphism, which is the idea that students in teacher training programs should learn with methods that they will later need to apply in their classrooms [44].

As the new Spanish education law [40] insists on competency-based perspectives and the design and development of learning situations, all these perspectives have gained relevance in teacher education. Internships are very important in teacher education programs. In our context, school placements are sometimes required in each of the four years of undergraduate programs. There is a tendency to increase the presence of internships throughout degree programs and in different disciplines, but there is also more concern about programming situations of authentic learning, case-based and problem-based learning, co-teaching and other new pedagogies. In some universities, there is an incipient presence of micro-credentials, offered as short cumulative courses, with a concrete set of competences, which are programmed or taken through an external organization. As in other higher education disciplines, in teacher education there is a growing need to promote learning perspectives based on challenges emerging from societal problems or from problems that are relevant to the professional field. This can be accomplished through proposals and case studies focusing on a diversity of situations and perspectives.

Pedagogical renewal is welcomed by the new generation of students, who have already learned with more active and experiential methods in their schools.

4.4. Technological Challenges

The post-pandemic period has helped clarify pedagogical models concerning the use of technology. Synchronous and asynchronous learning and face-to-face and online learning have all become everyday practices, taking the various forms of blended learning, hybrid learning and online learning. Each of these modalities has its own characteristics and rules. It is clear that teachers must be trained to apply these models. One of the positive things that the pandemic brought was increased access to and use of technologies in teaching and learning. After the pandemic, there has been a clearer classification of the pedagogical rules and technological needs associated with each modality (hybrid [45], blended [46], and [47] online).

Educational spaces have evolved since the beginning of the digital transformation (2008), as technological tools have facilitated greater connections (2014) and eased participation interconnected networks of learning (2021) [48]. This evolution has led to more immersive pedagogies. There are gamification experiences, hybrid environments, metaverse activities, robotics, digital replicas-digital twins and portable wearable activities, among other possibilities, all of which may be influential in teacher education.

The new generation has become familiar with today's technologies. They have special skills to interact with images, and they have iconic intelligence. This potential must be better exploited by teacher training methods.

Therefore, because of the abovementioned possibilities, there is a growing need for university teachers to be trained in digital competencies. And it is not just about being a user of technology and having a rudimentary knowledge of online resources. Additionally, there is a need to incorporate recent, challenging resources into pedagogies. For instance, the easy access and use of ChatGPT by students and the continuous development of Artificial Intelligence are forcing teachers to have criteria, knowledge, and perspectives on how to integrate or limit technology in the classroom. Specific training is more necessary than ever.

4.5. Socratic Method

Another challenge that must be faced is the need for a less directive and more Socratic teaching style. That means that students do not just receive information and organize it, but that they can also elaborate information themselves, find their own voice, and create experiential narratives, where what is narrated is related in some way to something of personal value. In some faculties, Socratic seminars have been carried out since the early 1990s [49]. In these cases, the role of faculty is closer to that of a professional guide or tutor than an instructional teacher. In this case, the guide-tutor accompanies students and offers suggestions, but he or she lets the students decide what work to do and organize themselves. Later, he/she facilitates communication, socio-emotional and cognitive learning, and values in order to help students assess their own work and that of their classmates.

Dialogic and Socratic styles of learning are very appropriate for today's generation because they naturally lead to an increased understanding of different perspectives and values. Additionally, students need to learn to find their own voice, one that otherwise could remain silent.

4.6. Centrality of Arts and Design-Mode Thinking

Alongside the conventional process of knowledge acquisition, the logic of arts and design has gained centrality, as well as the design-thinking-oriented mode [50]. This is because methodologies widely applied in the most innovative schools, which are based on challenges and problems, involve learners' assuming responsibility throughout the learning process. This means not only taking responsibility for the way one learns, but also for the selection of the most interesting problems to solve. Several approaches and phases are considered: teamwork, prototype creation and criticism, proposals of elements for improvement and awareness of the techniques being used and their effects. All these metacognitive processes are part of the logic of arts and design. And Generation Z students are likely to welcome this logic because of their entrepreneurial interest and orientation toward real-world situations.

4.7. Soft Skills Acquisition

More Socratic and dialogical learning environments tend to facilitate the acquisition of the so-called generic competences or soft skills [51]. Indeed, such skills can best be developed within these dialogical contexts. Unlike information acquisition, which can be accomplished using tools like ChatGPT, the experiential part of learning that involves the acquisition of personal skills cannot be replaced by technology. So, creativity, responsibility, teamwork, communication skills and critical thinking, among others, are the sorts of personal and experiential skills that have gained additional educational relevance. Several universities have adopted approaches to learning soft skills based on more Socratic teaching/learning models. Research has also been conducted in the evaluation of soft skills in education [52]. Students of today's generation like soft skills approaches and are less motivated by learning theoretical content, which can now be performed through AI applications.

4.8. Educational Research

Evidence-based pedagogies are an opportunity for educational research. There is a need to link the educational research conducted by university departments to pedagogical practices with proven results. This goes beyond the concern with the extent to which practices may be more or less innovative. More broadly, it is a matter of promoting evidence-based pedagogies. It is an opportunity for research departments and teachers to cooperate. Design-based research can facilitate this kind of cooperation [53]. The Catalan government, for instance, started a program to facilitate the inclusion of the faculties of education in the evidence-based-pedagogies movement [54] and to encourage educational research that studies effective pedagogical practices and their impact. There is a need to develop instruments in order to assess the effectiveness of these pedagogies, not only

to measure how they contribute to conventional learning, but also to investigate issues such as how they can improve soft skills, participative processes, transformative capacities, solidarity and ethics, as well as enhance sustainable practices and help achieve the UN Sustainable Development Goals. Such research could help show how to promote talent in ways that harness plural and diverse learning styles. Some departments have started to employ this applied research perspective [52].

4.9. Knowledge Building

Technology makes it easier to build knowledge cooperatively. It can be used in conventional and uncreative ways. If, instead of a book, the student is provided with a PDF or PowerPoint that must be read and is afterwards evaluated by a multiple-choice exam, the use of technology has not added any new value beyond the traditional way of learning. However, there are possible uses of technology that are truly genuine, creative and innovative. This is the case of computer-supported cooperative learning approaches, of which the Knowledge Building International Project is an example [55]. In this project, technology is used for the cooperative creation of knowledge. In addition to working from authentic situations of learning, the Knowledge Forum (a specially designed software program) allows uses to propose hypotheses, incorporate ideas and information, build knowledge networks, and jointly write texts, all following the same steps and the same metacognitive strategies that the academic experts use. This use of technology has started to be applied in some school networks with the support of three teacher education institutions [56].

This use of technology is really empowering because it facilitates cooperation, which is a shared value within the current generation of students. It also raises awareness of how new, valid and truthful information can be created. Considering the lack of transparency in AI development, this competence is more necessary than ever. Additionally, knowledge creation is a critical skill for 4.0 economy-related jobs. Education must thus enhance these competences.

4.10. Service-Learning Approach

Service-Learning is another widespread practice. Service-Learning is not about only providing or performing a service to the community, but it is also a methodology that involves reflecting on learning and becoming aware of what it means to adopt an attitude of service attitude, of its limits, and of its educational value. Many teacher education institutions participate in joint Service-Learning programs [57].

Due to this generation's special interest in social issues and their commitment to social causes, service-learning, especially if it is accompanied by a process of awareness and reflection, is very suitable and motivating for these students.

4.11. The Importance of "Formation", "Bildung"

John Dewey, a well-known American philosopher and educator, observed that we do not learn from experience itself, but from reflection on experience. So, high-level learning must necessarily be reflective. In this sense, there is the Germanic tradition of "Bildung", which can be translated as the French word "formation" (Included in the English education), and which holds that reflective learning must take place alongside more technical or scientific learning, in order for students to grow and mature as human beings. This occurs side-by-side with critical thinking, which is also necessary in science and technology. In this case, the possibility of "formation" is better provided by the arts and humanities. Therefore, in teacher education curricula, the presence of the humanities and reflective and maturational learning is essential. That is the purpose of liberal arts curricula.

"Formation" approaches are very attractive to young learners because of their orientation towards the "inner" world. There is a need for self-discovery, and students like activities oriented toward personal maturation.

Additionally, within a teacher education institution, like many in our context, that has a mission founded in a specific set of philosophical values (or Cristian-inspired values),

"formation" processes can be a good fit. However, this mission must be woven into the various activities in a reflective way [58] in order to define and establish the identity of each of the institutions in the eyes of stakeholders and society in general.

4.12. Universal Design for Learning (UDL)

A challenge for teacher education is to prepare learning situations that not only allow students to acquire competences but to allow those with different learning styles to participate, taking into account diverse backgrounds and abilities. This perspective is called Universal Design for Learning [59]. It holds that any learning experience has motivational elements, the "why"; elements of content, the "what" to be learned; and procedural elements, the "how". Each of these processes can be carried out at various levels of complexity, which should be taken into account at the moment of designing inclusive learning situations.

The interest of today's generation in diversity of people, cultures and styles, and their distinctive appreciation for difference, makes UDL a necessary approach to deal with current learning situations.

4.13. Collaborative Culture

Beyond the elements mentioned above, one could add a cooperative perspective, "with whom", to take into account the interpersonal dimension. Examples of cooperative values are those that create a collaborative culture: trust, clarity and transparency, empathy and ties, co-responsibility and community, values belonging to a transformative, sustainable and ethical culture [60]. These values are welcomed and prized by young people, including the students in our teacher education programs. In other words, today's social-networked-orientated generation places importance on inclusion and cooperation.

4.14. Integral Education

Educational approaches that include the why, what, how, and with whom, and thus cover subjective, objective, inter-objective, and intersubjective dimensions of the Integral theory [61], can be considered Integral Education [62]. Education today must cover this plurality of dimensions. In order to achieve this, comprehensive education models are needed. Integral Education is an approach that strives to consider all these dimensions of learning processes in a complete and balanced way. "Integral" education tends to use certain methods and forms of interaction. A decisive aspect is teachers' awareness of the integration of these processes. However, for these models to be applied, some choices must be made at the institutional level. Integral Education cannot be a task of one teacher alone but must be implemented systemically [63]. If an institution's practices are not coherent with its educational mission and purposes, it cannot be said to offer integral education.

Integrative approaches need to be developed for this generation of students that seem to live in a fragmented world. Building bridges between perspectives, disciplines, arts, societal needs and personal experiences is a real challenge, and integral thinking is probably the next step of the postmodern worldview, as argued by many authors (e.g., [64]).

4.15. The Relevance of the Personal-Vocational Dimension

Personal and interpersonal aspects have gained relevance in Education. Today, it is not only important to learn content; it is also necessary to know why this content is relevant to the learner. Therefore, cultural and scientific heritage is of great interest, as it is important to learn how and why certain knowledge was generated. When we open the door to these personal aspects, there is a greater need for personalization and the vocational dimension. In the case of teacher education students, this vocational dimension is very definite: it is a vocation to educate. Values, virtues and ethics also take on an important role, as well as self-knowledge and contact with the inner world. It is then relevant to consider inward orientation, which requires psychological knowledge and perhaps spiritual knowledge [65]. Meditation practices, such as mindfulness or relaxation, and metacognitive study techniques are good examples. They are complementary programs in many of the

faculties of education. The members of the young generation love to be exposed to all these experiences which connect with their generational styles and needs.

5. Conclusions

This article has presented the generational traits of today's students enrolled in teacher education programs and provided an overview of some of the main changing global trends in teacher education. It has further explored the post-pandemic landscape of teacher education in Catalonia and Spain, discussing the implications of these developments for the new generation of teacher education students. After all the reflections and observations shared, it can be concluded that, in general terms, the perspectives offered here may be helpful, suitable and pertinent to those charged with educating the new generation of students. These perspectives also connect with the ongoing transformative education movements.

The transformation of teacher education to educate today's young students is a challenging task. The difficulty lies in accepting that generalizing many of the necessary changes would require diverse approaches, not only at the "micro" level but also at the "meso" or institutional level and at the "macro" or university system level. This complexity will require political, legal and financial decisions at the corresponding levels, depending on each educational or university system. Only with determined actions will transformations have a chance to make a real difference in how we teach the new generation of teachers and prepare them for the uncertain times ahead.

Other significant actions to be highlighted are strengthening the relationship between theory and practice, promoting evidence-based pedagogies grounded in research findings and embracing comprehensive methods of teaching and learning that satisfy the needs of the new generations of teachers. More studies must be encouraged on some of the topics that have been identified throughout the article.

The article has explored the most relevant post-pandemic trends in Catalonia and Spain, but what has been described, discovered and discussed could be interesting to attempt to generalize to other higher education contexts.

With these actions and purposes, education and teacher education will thus further align itself with and contribute to integral human development, catering for the needs of today's generations and the evolution of societies and humanity as a whole.

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