Playfulness and the Advent of Computerization in Spain: The National Club of ZX81 Users

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Abstract. The beginning and later widespread use of the early microcomputers and home computers in the 1980s were strongly related to the emergency of the first computer games. However, this important episode has traditionally focused on accomplishments that identify key moments in the past such as identifying important firsts and successful corporate innovators. According to this, we may neglect the valuable contributions of other very different actors, such as politicians, programmers, designers, distributors, software and hardware stores, hobbyists, and fan communities. Thus, this paper is concerned with some of these myriad other subjects, including also their everyday practices. By giving voice to them, we start revealing a diverse set of activities and roles that collectively contributed to the shaping of computing technology, gaming practices and even the gaming industry in their respective local contexts.

1 Introduction

By analyzing the origins of the spread of video games in Spain –and I suspect that something similar occurred in other spaces and local contexts as well–, I early realized that video games have so far been studied only in terms of collection, examination, preservation and classification. For example, most of the time, we can have access to information coming from the early successful commercial video games and entertainment devices to play with, such as Pong, Atari, Pac-Man, Commodore, ZX Spectrum, Space Invaders, Mario Bros, Nintendo and so on. In this context, once we have identified these main primitive electronic games and entertainment devices, we tend to make use of our inherited taxonomic instinct in order to map them on to an imagined evolutionary timeline that identify key moments in the past along with its charismatic figures such as the creators and significant technologies.

Needless to say, most of the research and literature about the so far young history of video games have been conducted following a 'cult of celebrity' [1] while gathering information only for the purposes of describing, classifying and labeling the capacities and technical features of the electronic machines that contributed to the development of video games industry [2]. This paper aims to move beyond such cult of celebrity toward a more inclusive understanding of the ways in which the early

video games intersected with, influenced, and were also influenced by many other different actors worth to study.

In this sense, I analyze the spread of video games in the eighties as well as the arrival of the early home computers as intertwined processes that cannot be fully understood separately. That is, I explore playfulness and the advent of computerization within households and other social spaces as two sides of the same coin. On this basis, I will introduce here one of the early Spanish clubs of computer users in the country: the 'Club Nacional de Usuarios del ZX81' [National Club of ZX81 Users, 'NZXU' hereafter]. This was a sort of guild that, thanks to a fanzine[1] written by Josep Oriol Tomas i Huynh-Quan-Chiêu due to the contributions of some of his associates, put into circulation valuable computing knowledge among users in the early eighties. Concurrently, this club and its fanzine contributed to bringing together different hobbyists, practitioners and other enthusiasts that had begun to use and tinker with their microcomputers in their households. Eventually, by analyzing this case, the article aims to highlight the importance of playfulness for the spread of computing knowledge in a decisive moment wherein personal computers began to reach markets, even though information on how to program them was confusing and difficult to access.

2 The Early Personal Computers and Micros Begin to Enter Household Spaces: the Significance of Playfulness among Users

The NZXU was created in Spain in 1982. At that time, Spain had left behind Franco's dictatorship –a fascist regime that had ruled the country for nearly 40 years, from 1939 to 1975– and this new political context allegedly gave voice to some demands of political openness and economic reforms that the country needed in order to catch up with other European countries. This change, it was said, could only be achieved, among other aspects, by taking over the advantages and developments of electronic and digital computation, the often called 'computing revolution'. Here, then, was a promising of set of meanings: the computer as key to the future [3]. As David Skinner analyses, visions of a future shaped by technology played an important part in the home computer boom. Moreover, he also claims that in the late 1970s and early 1980s much was written about the social consequences of developments in computing and telecommunications that were grouped under the term Information Technology (IT). This, in turn, conveyed a strong strand of "millennialism" running through prophetic discourses and predictions of social change and transformation [4].

At a time of high political and economic expectations in the country, the first home computers and microcomputers, such as the 'ZX81' and the 'ZX Spectrum', created by the British 'Sinclair Research Ltd' headed by the engineer and entrepreneur Clive Sinclair, along with other models developed by companies such as Amstrad and

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[1] A fanzine is a nonprofessional or nonofficial publication produced by fans of a particular cultural phenomenon. Normally, fanzines are non-lucrative and they aim to share with their members, all kind of information, interests and opinions related to the topics that the members are engaged with.

Commodore, among others, arrived. 'ZX Spectrum' –successor of 'ZX80' and 'ZX81' computer models– was relatively cheaper[2] and it became the first mainstream home computer in the UK in 1982 [6] whereas, in Spain, it also became a consistent favorite among Spanish youngsters by the mid-1980s [7]. The low-cost design and marketing of the ZX computers made the computer accessible in a way that appealed to the pocket, concerns, and level of computer awareness [8: p.58].

Sinclair's machines were certainly plausible as gateways to the future, especially the 'ZX81', small enough (175mm on its longest edge) to evoke the rhetoric of micro-miniaturization [3]. Therefore, was now possibly for Spanish audiences to have a computing machine at home, especially owing to the relatively affordable prices that many of those devices had at that time. In any case, these micros, it turns out, helped the arrival of home computers in Spanish households and brought, above all, the possibility for many people to tinker with and theorize over all microprocessor issues, otherwise inaccessible at that time [9]. There are many other aspects that may be studied about each computer and its penetration into the markets. However, since this is a paper largely focused on the NZXU, computer models such as the 'ZX81' and the 'ZX Spectrum' will be the ones referred here, as these were the basic micros used by NZXU's affiliates. Nevertheless, I will not be analyzing, as I said earlier, the technological features and physical components of such electronic devices; instead, I will seek to explain how this club was created, who was behind it, and how it circulated computing knowledge through its fanzine among its associates and readers.

There are various elements that show us the significance and particularities of this case. First of all, the NZXU fanzine was one of the very early publications in Spain focused on computing and programming issues. This allows us to better understand processes of interaction, collaboration and negotiation among anonymous users usually excluded from the "cult of celebrity" analyses mentioned above. Second, I also defend that interaction and tinkering with computers were a shared activity, instead of isolated practices performed in the secrecy and privacy of spaces such as the households [10]. This, in turn, uncovers the issue of networks, a field not fully explored yet: 'there has been a tendency to study networks largely in terms of how they facilitate or limit computer use within the household […]. This downplays the extent to which the sharing of interest in computers could be an end in itself' [4: p.134].[3] Making users in their households more active as well as emphasizing the diversity of relationships that individuals have with computers become essential. As Skinner puts it, 'it shifts discussion away from the impact of computers on people and instead asks what people make of computers' [4: p.129].

Ultimately, the core properties of controlling and finding out the secrets of the new electronic devices were also a breeding ground for clubs such as NZXU and many other practitioner and hobbyist unofficial organizations to appear. According to this, I argue that such collectives had in common a certain degree of 'playfulness', an active and stimulant programming penchant that practitioners and hobbyists at large felt

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[2] 'ZX Spectrum' originally cost £125-175, with prices later dropping to £99-129 [5].

[3] In addition, the Actor-Network-Theory (ANT) argues that agencies need to be constantly built or remodeled through complex correlations with mediators [11]. This means, according to Theodoros Lekkas, that there is no specific and consolidated framework for the relationship between the technical and the social domains [12: p.90].

when tinkering with their computers. Regarding this, Gerard Alberts and Ruth Oldenziel note that 'playfulness was at the heart of how European players appropriated microcomputers in the last quarter of the twentieth century. […] Users playfully assigned their own meanings to the machines in unexpected ways' [13: p.1]. The following cartoon, taken from a 1985 Spanish computing magazine, is a suitable example of how playfulness was experienced whenever some of the users sat in front of their computer screens:

Fig. 1. 'TodoSpectrum' magazine, May 1985 [14: p.13].

The illustration above highlights the fact that software can transform one machine into many, since the same tool used for designing digital figures on a computer screen can also be readily transformed into a distraction. Thus, what it seems to be an educational tool may also be used as a device to play video games.[4] This idea fits perfectly well with Leslie Haddon's notion of 'self-referential' computer use, that is to say, using the computer to understand it [15]. As Lean points out, 'software seems more valuable as a demonstration of what the computer *could do* and as a simple way interacting with it and exploring its capacities. It helped familiarize the computer through association with everyday activities and introduced some potential real-life applications on a small scale' [8: p.59]. With the development of microcomputer, 'the fascination of personal autonomy and control took on new forms. Users were able to closely identify with the technology as a personal device in the intimacy of their homes rather than in the factory or office-like environment of mainframe computers' [13: p.9].

Even though Sinclair machines were very popular among hobbyists, practitioners and early computer users, Lean claims that the 'ZX Spectrum' had much wider appeal, and in the computer literacy culture of the 1980s, programming was an important element of mainstream home computing: 'Sinclair computing was embedded in a context that encouraged and facilitated programming. […] Further program listings and more detailed knowledge were available from a multitude of cheap and easily accessible books' [8: p.60]. Moreover, this computer model was intended for 'the man in the street' who knew little about computers, but wanted to learn (p.54). As Clive

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[4] I would also like to draw attention to the different faces of the users, depending on what they are doing with their computers: see, for example, how the user on the right side is quite excited while he plays at a type of 'Space Invaders' game.

Sinclair pointed out, 'the idea I had was that people could educate themselves and amuse themselves by understanding what programming meant and doing some programming at home' (p.54).

Notwithstanding this and despite the expectations of computer designers and manufacturers –which very often highlighted the educational and working applications of computers–, 'ZX Spectrum' and other microcomputers ended up being used in Spain for other purposes such as entertainment [7]. Sinclair had in fact anticipated that games would be among the uses of their home computers, but seemed quite surprised to the extent to which this finally occurred [8: p.64].[5] Regarding this, Gómez argues that this might have happened because software with educational purposes was not abundant in Spain at that time.[6] In any case, he also notes that 'ZX Spectrum' became one of the most notorious entertainment platforms in the mid-eighties, thus enabling the circulation of related literature, particularly specialized publications that were selected mostly by Spanish teenagers to start learning computer programming [7]. In this space between work and leisure, Alberts and Oldenziel point out that 'tinkering with computers was not all about hacking: fun and fascination were equally inspiring. In appropriating and tinkering with the new technology, the ludological element was part of the effort to make the computers one's own' [13: pp.14-15].

Hence, by taking a look into the 'ZX81' and 'ZX Spectrum' models through the uses that some of the affiliates and collaborators reported in the NZXU's fanzine, we may be able to see the importance of playfulness as a key factor for the production of computing knowledge, just at a time when computing and the early home computers and microcomputers were taking off, along with the advent of an incipient video games sector. Nevertheless, it should also be noted that many of those joining the clubs were not the hacker enthusiasts who have attracted so much attention as personal computer pioneers, but everyday people who just wanted to learn about computers in a supportive environment [8: p.58]. Users, as Alberts and Oldenziel remind us, often do not form official organizations but come together in communities that shape the direction of innovations [13: p.7].

3 The Creation and First Steps of the NZXU and Its Fanzine

The regular publications of the NZXU were among the earliest microcomputing magazines published in Spain. The club was created in 1982 by Josep Oriol Tomas, a 20-year-old who had been studying telecommunications in Barcelona up until that moment. Within the next two years, from 1982 to 1984, the NZXU published fourteen

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[5] Skinner says that Clive Sinclair was often credited with establishing and expanding the hobby market in Britain even though he was actually slow to see its potential [4: p.167].

[6] I would also like to stress other reasons here such as the difficulties that computer users had to finding out computer programs in Spanish language at that time. As Lekkas puts it, computers were not really global machines with universal applications as popular rhetoric would have it. In many non-English speaking countries, individual users had to adapt the computer and its software to their local or national specifications [12: p.81]. Thus, it is also necessary to shed some light on the negotiations and terms of usage within different local contexts.

bulletins, the first eight written by Josep Oriol himself using only a typewriter. For the purposes of this paper, I will consider these first eight bulletins. These fanzines were mostly focused on educational, working and entertainment software, and its content was made up of contributions, not only by Josep Oriol, but also by the NZXU affiliates, which had reached nearly two thousand registered members at its end, in 1984.

These first eight bulletins were published quarterly and independently, whilst the remaining numbers appeared attached as annexes to a couple of magazines: 'Revista Española de Electrónica' and 'Radiorama'. In Josep Oriol's current opinion [16], both magazines had become two of the most relevant publications on electronic and computing issues, given that they were also the first ones to deal with 'ZX81' matters. He also admits that the most inspirational sources that truly fed his enthusiasm and passion for computing and personal computers came first from different magazines that were being published abroad. Besides the couple of Spanish magazines referred before, information based on computing and electronic issues in Spain was very hard to gather and practically nonexistent at the beginning. As a result, users had to resort to foreign publications.

Josep Oriol also highlights the significance that access to rooms with the early computers had for many students in college like him. Moreover, he especially recalls the occasion when he first could manipulate a 'ZX81' microcomputer in college, a notable difference considering that until then there had only been a few huge and expensive electronic computer machines controlled by punched cards. Such a new and small computer suddenly awoke his desires for having it outside the college walls, where computer machines had long been confined. In fact, the prospect to have one's own computer at home was like a dream come true for many youngsters. As Josep Oriol says:

> Whoever bought a 'ZX81' went mad. It was exciting because, until that time, computers were bound to spaces that were not allowed to trespass but only for a few hours at college, so nobody could ever dream of having them at home. And, suddenly, it was possible to find such tiny device there, a very small thing which you immediately would start to appreciate […]. You could do anything you wanted with only 1K-byte memory and a keyboard […] and that was why people easily got excited [Ibid.].

In this sense, Josep Oriol also points out that those who were more distinguished among programmers, were the ones who could break with BASIC programming language –the standard programming language for the 'ZX81' micros– and start using 'Machine code', a language that allowed programmers to set instructions executed directly by the computers and helped to improve their performance. By using this machine language, some practitioners like those who became affiliated to the NZXU could fully exploit the memory (RAM) of computers and thus get a remarkable execution speed from them. At the same time, when programming, code had to be introduced into a short software program responsible for keeping space into the memory and thus, the system could be ready to start introducing hexadecimal codes – a numbering system that has number sixteen as data base– at the respective positions. In truth, programming with machine code at that time required large amounts of

patience by programmers and also the typing of hundreds of hexadecimal codes without making any mistake [17].

Josep Oriol bought his first 'ZX81' by mail order in the early eighties, as such devices were not available in Spanish stores yet.[7] As soon as he had it, he began tinkering with it, became hooked and was excited enough to realize that this device had an enormous potential. It should be noted that what he really liked the most was programming his own and never sold video games, such as a primitive version of the international game 'Pong' or another one based on submarines, always being programmed with the particularity of using only 1K-byte memory.

Meanwhile, his father, who had run Ventamatic, a vending machines company and one of the most relevant pinball machines importing businesses in Spain until that time, gave his son the rights for using the brand of his company. Thereafter, Ventamatic initiated a reorientation of its business towards software for entrepreneurs, corporations and games because, as he says, 'it was fun to do that' [16]. Additionally, he notes that he was the sort of person who enjoyed being the first to getting things done [Ibid.].

At this point, Josep Oriol had left college and began to sell a small amount of 'ZX81' micros. For this purpose, he went personally to the UK and brought them back to Spain, not without having some occasional troubles with Spanish customs authorities, yet taking advantage of the novelty of these devices and the regulatory gaps with commercial rights at that time. Even though, at the beginning, Josep Oriol sold the computers to his friends and acquaintances, he decided to go further and use the Ventamatic's brand to increase hardware and software imports from the UK and reach a wider public. Soon after, Ventamatic became a pioneer in the development and distribution of Spanish video games [18]. Once such electronic business had been settled, Josep Oriol saw the opportunity to create the National Club of 'ZX81' Users.

Joan Sales –a friend of Josep Oriol and regular collaborator of the NZXU– points out that 'the main goal of the club was to create a community of people involved in something very rare and breaking into the country at that time' [19]. However, Joan also highlights the profit-driven character that the community had, since it very soon made use of advanced marketing methods which allowed the creation and spreading of a sense of belonging to a computer community, and fostered the rise of affiliates upon their knowledge of Ventamatic. Hence, it is no wonder that a few early volunteers of the fanzine were ultimately paid programmers working for Ventamatic.

Besides commercial and profit issues, it should be noted that the NZXU was, above all, a true meeting point for amateurs, practitioners, fans, hobbyists, programmers and so on, in a decisive at which, as Joan Sales claims, there was a profound and widespread lack of knowledge and information about personal computing and the early microcomputers that had begun to arrive. As a consequence, this kind of publications, along with other magazines, clubs and books, became crucial for the sharing of personal computing and electronic knowledge [4: p.27].

To start with, Josep Oriol presented himself as the main author and principal creator of the NZXU in the first number of the fanzine. However, he immediately asked for collaboration to the early participants: 'I hope that early affiliates send to the Club all

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[7] Skinner claims that the use of mail order advertising in the mainstream press was a crucial early step in the development of home computer retailing [4: p.175].

information, programs or explanations of the achievements obtained with the ZX81' [20: p.2]. Collaboration was important in order to get this fanzine done, and thus he gave more detailed information about this in the fourth number:

> Software programs with or without comments, test benches, programming courses and notes in any language, hardware assembly, design and applications, specific sections, etc… We will have the rights to publish anything we consider worth to, depending on its value in terms of originality, quality and interest. In this sense we need collaborators to be in charge of the regular sections concerning the 'ZX Spectrum', Jupiter Ace and Forth language […]. We are interested in knowing all the micro-computer stores in Spain, in order to get in touch with them and try to help them when promoting other clubs of users [20: p.12].

Indeed, readers' and affiliates' collaboration was already requested in the first number of the fanzine, in order to create a software library upon their participation: 'the main source of programs should be the members themselves' [20: p.2].

Regarding the main goal of the community, the first number of the fanzine also remarked what follows: 'Gathering information, experiences, programs, etc. collected by all the ZX81 users in Spain and facilitate their diffusion with the aim of creating knowledge, as well as teaching others multiple ways to discover and maximize their potentiality'. According to this, Josep Oriol add that 'I know that the ZX81 is a thing too novel in Spain and therefore not so many people must have discovered yet its enormous potential' (p.3).

Other specific activities and goals pursued by the NZXU and its affiliates were mentioned too. For example, providing programming courses for their members; setting up a software library through membership participation; translation and distribution of existent ZX81 books into Spanish; Q&A and op-ed sections to clarify doubts, start discussions on the fanzine and the ZX81 itself, and make it possible to buy applications, gadgets, devices, software, etc. through Ventamatic. All this shows the willingness of participation and communication among its members and affiliates, as well as their penchant to share individual achievements with the rest of the group.

How was it possible for Josep Oriol to reach an anonymous audience at that time that shared, in turn, similar concerns and enthusiasm of computing and programming? According to his own account, he started by personally distributing information leaflets and pamphlets of the NZXU in one of the most important department stores in Spain, *El Corte Inglés*, as well as in other smaller stores that had begun to sell computers [16].[8]

Through this and the aid of word-of-mouth support as well, he advertised the club and its fanzine among practitioners and hobbyists that had never been in contact until then. He recognizes that 'for some time this was like a bomb, it was all about delivering computing in the hands of everybody. It was like opening up an attractive

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[8] Skinner explains that large store chains had to be convinced of the viability of the computer as a mass consumer good. He also adds that 'shops displayed the products and the activities of computing not only to those already involved but to the uninitiated. The high street became the place where the computer and the cultures of computing were most visible' [4: p.176].

and unknown world […]. They did pay the annual subscription without hesitation. People were just jumping in with both feet' [Ibid.].

4 Description of the NZXU's Affiliates Beyond the Traditional 'Cult of Celebrity'

On this basis, we must consider these people, not only because they had shown an early interest in computing but also, because they contributed to make available – sometimes programming and improving by themselves– computing knowledge that could not be reached by any other means in the early eighties. However, although we do acknowledge the relevance of these people regarding the sharing and producing of computing knowledge, we still know little or nothing about them. Thus, and in order to break with the cult of celebrity that I aim to problematize here, an effort should be made to identify who these anonymous practitioners and hobbyists were and what sort of practices they carried out, partly as a result of playfulness, whenever they used a personal computer.

Josep Oriol still recalls when he went to the ZX-Microfair in London in 1982. This convention was focusing on the Sinclair 'ZX80' and 'ZX81' computer models and it took place at the Westminster Central Hall, a Methodist church located in the heart of London. In a column from the third bulletin of the NZXU called 'Informe: La 4ª ZX-Microfair de Londres' [Report: 4th ZX-Microfair in London], Josep Oriol explains that there was not a clear average age among participants: 'There were 10-year-old children that brought and showed their software programs, as well as grandparents aged seventy that were discussing the possibilities of a program when using machine code' [22: pp.9-11]. He also claims that most of the exhibitors 'had arrived accompanied by their families, and while dad was speaking with clients, mom and kids were busy distributing leaflets for a hundred people waiting there; these families seemed all tired, and completely lost their voices, though were also satisfied' [Ibid.]. Whereas the target publics who attended the London Microfair were both familiar and diverse, Josep Oriol believes that this situation was slightly different concerning the audiences and contributors that the NZXU had. According to him, most of the affiliates were aged between 15 and 30, and most of them 'well-educated' as he puts it [16]. However, Joan Sales pointed out that age ranges could not be that clear since some of the affiliates were, for example, over fifty [19].

In any case, something very common was that they had not studied computing. This should be emphasized at a time when only computer scientists and professional engineers seemed to have access to jobs related with the uses of what was collectively identified or perceived as 'professional' or 'serious' computing. Such categories were employed very often to define professional activities and working practices concerned with the uses of larger and expensive computer models, like the ones sold by the IBM Company. Regarding this, Josep Oriol notes that 'the relationship between computer scientists and newcomers was based on an absolute arrogance of the former […]. These computer scientists could stand above them. In fact, the computers they used cost an arm and a leg' [16]. Consequently, it was like if the computing domain bore two opposite realities in the country: the first one, 'serious' computing, was identified

with the big computers and the most expensive systems used by major banks and large companies; the other one, reflected instead the advent of a new digital generation of users that, in spite of not having formal degrees or qualifications in computing, began to show interest in taking control of the new micros and personal computers, much more affordable in terms of prices and the space required for their settlement.

Another widely held view within the club was the curiosity and excitement that most of the affiliates had over the new technologies that were arriving. For example, Joan Sales explains how he became fascinated very early:

> My initial contact with a computer was in a Barcelona Fair […]. The fact that I could tell a machine to do something and that this did it immediately, and that this machine could be tasked to manage different things at once […], such a greater plasticity and freedom were the elements that fascinated me the most [19].

Despite this common enthusiasm among practitioners and hobbyists, Joan Sales also stresses their professional and cultural diversity: 'I knew people from the show business and entertainment industry, people from museums, etc.' [19]. Such diversity may also be appreciated in the fanzine by collecting the major areas of interest that the early members had, according to a sample survey conducted by Josep Oriol to finding out their preferences [20].[9] In this regard, the most relevant areas highlighted by the affiliates were the following: management (accounting, inventory control systems, payroll, data archive systems, word processors, etc.), games, statistics, mathematics, medicine, process control, amateur radio technology (RTTY) [23], introduction to computing and BASIC programming language, music, astronomy, structural calculation, astrology, and air traffic control systems.

Eventually, there was another issue regarding NZXU's members that must be taken into account: the vast majority of collaborators were male. As it is expressed on the inside pages of one of the early bulletins of the fanzine, 'on the closure of this publication, we already are 650 members, only two are women (we are moving forward though)' [22: p.3]. Moreover, Josep Oriol recently admitted that the club had never achieved a significant number of females at the end [16]. Far from accepting that computing was an exclusive male domain since the beginning, I defend that this situations do not prove that women were neither interested nor involved in computing activities in Spain. In reality, as defended by Skinner, computing was more a shared activity which largely depended on access to other users who could offer support, advice and encouragement and socialize the novice into a particular 'user subculture' [4: p.133]. According to this, he stresses that 'users who are isolated from or marginal to such networks may experience considerable difficulty in acquiring the competences required by certain uses and in sustaining their interest and motivation over time' [Ibid.]. It is thus necessary to carry out further research on gender appropriations of technology and the role of social networks of computer and gaming users in Spain.[10]

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[9] This survey was conducted shortly before the publication of the first bulletin of the fanzine, in 1982. Some of its partial results are referenced in the section 'Áreas de interés' [Main Areas] of this bulletin, on page 4.

[10] Graeme Kirkpatrick analyzed computer gaming as a codified male practice in the UK by the mid-1980s [24]. Regarding male computing accesses in the USA, see Nathan Ensmenger [25].

5 The Values of Playfulness When Programming a Personal Computer

Given the variety of issues chosen by the affiliates, should 'playfulness' be then stressed as a common and significant trait shared by most of them? In Joan Sales' opinion, the gateway for becoming engaged into this new digital world was video games [19]. In this regard, he also calls for a better understanding of this issue since the videogame sector in Spain had not started as a regular consumer market wherein clients would buy products following the law of the supply and demand. In point of fact, it seems that early Spanish video games started more as a mere hobby among amateurs [9], [18]. As Joan Sales admits,

> This was like a pastime at the beginning and afterwards became an entrepreneurial and serious activity […] because we are speaking of a period in which there were neither formal studies in computing […] nor a videogame sector at all. Therefore, the beginning had likely to be a hobby because you did not have anyone to turn to for help. Everyone had to find his own way [19].

At the same time, Josep Oriol points out that by running Ventamatic he early realized that digital games were the ones taking over since those were the type of programs that early hobbyists and practitioners were delivering to the company in order to achieve personal recognition –and economic reward too– for their programming: 'people made video games more than any other thing' [16].

Playfulness was also a recurrent topic within the fanzine. To give a few examples, I will show you now a selection of pieces picked up from different bulletins of the fanzine, wherein affiliates and hobbyists shared information and contributed to improve knowledge on how to program digital games. In the 2nd bulletin belonging to the 2nd volume of the fanzine [26: p.16], references to how to program video games are recurrent, as the next quote selected from the section 'Cosas a tener en cuenta en programas para el ZX-Spectrum' [Things to consider in 'ZX-Spectrum' programs]:

> Video games become more interesting as they include extra stages and get more complicated as we go on. We must not forget to add scores, options to allow multiple players, and record tables with the names of players. If you can achieve all this using machine code, whether you have an original idea or you are accurately adapting a game from an arcade machine, home-made games or others from APPLE or ATARI computers […] your success and reputation will be assured [Ibid.].

In the next number published on 1 August 1983 [27: pp.25-26], there was a section called 'Un cero no es una nave' [A zero is not a spacecraft], praising most of the games made by hobbyists, practitioners and home programmers at large, for they were acceptable and well-done, even though they 'look poor because of their graphic presentation. It is difficult to imagine a zero character landing in our own garden in a summer's night, and a monster with an asterisk shape is not as terrifying as an E.T. The Extraterrestrial' [Ibid.]. See the illustration below:

Fig.2. This is an image picked up from the third bulletin belonging to the 2nd volume of the fanzine [27: p.25]. It was aimed for readers and aficionados to understand how to program characters that looked like a spacecraft. The goal was to persuade programmers to stop using an asterisk shape (*) and start programming, for example, a figure like the one inside this illustration. Here, we may also read the following quote in Spanish language: 'To understand how to build these patterns, we are going to use this spacecraft as an example'.

By way of example, see in the next figure below how programmers needed first to breaking up the 'spacecraft' –represented by black squares– into a set of lines. The goal was to represent the spacecraft in a single line of code, given that computers had little RAM memory at that time and thus, programmers and practitioners usually had to figure out different ways to introduce the whole code of their programs into such tiny digital memories.

Fig.3. Black squares represented how the spacecraft should appear lately in the screen. Given that the last spaces (or the squares) on the right side of each line do not provide any further information, they become irrelevant when programming and may therefore be ignored. In the image, we may appreciate that these squares have been portrayed by diagonal lines and have been called 'marcador fin linea' [marker at the end of the line].

Due to the need of storing the appropriate figure into a programming line of code, it was recommended to use markers that did not appear on the computer screen, yet
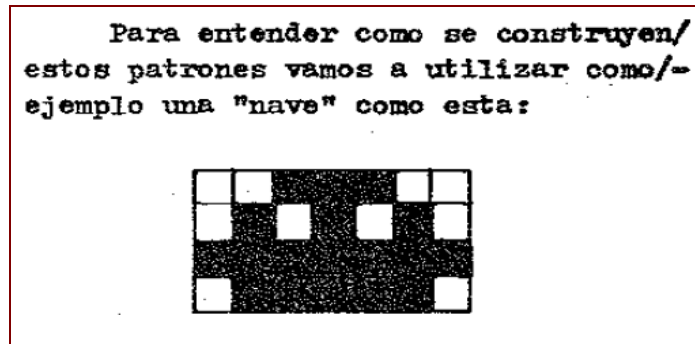
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Fig.2. This is an image picked up from the third bulletin belonging to the 2nd volume of the fanzine [27: p.25]. It was aimed for readers and aficionados to understand how to program characters that looked like a spacecraft. The goal was to persuade programmers to stop using an asterisk shape (*) and start programming, for example, a figure like the one inside this illustration. Here, we may also read the following quote in Spanish language: 'To understand how to build these patterns, we are going to use this spacecraft as an example'.

By way of example, see in the next figure below how programmers needed first to breaking up the 'spacecraft' –represented by black squares– into a set of lines. The goal was to represent the spacecraft in a single line of code, given that computers had little RAM memory at that time and thus, programmers and practitioners usually had to figure out different ways to introduce the whole code of their programs into such tiny digital memories.
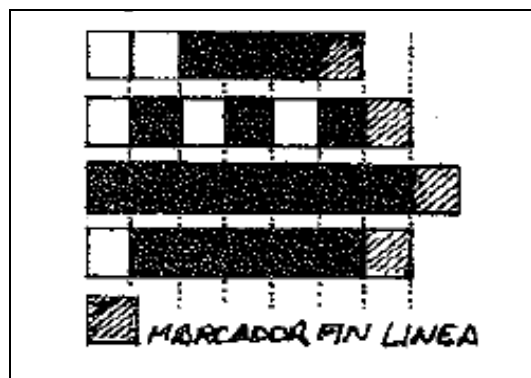

Fig.3. Black squares represented how the spacecraft should appear lately in the screen. Given that the last spaces (or the squares) on the right side of each line do not provide any further information, they become irrelevant when programming and may therefore be ignored. In the image, we may appreciate that these squares have been portrayed by diagonal lines and have been called 'marcador fin linea' [marker at the end of the line].

Due to the need of storing the appropriate figure into a programming line of code, it was recommended to use markers that did not appear on the computer screen, yet

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corresponded to the same figure in one line, even though the programmer was apparently working through different lines on the screen, as we can appreciate in the previous illustration. Thus, the markers were used to turn different lines of the screen into a larger although single line of code that will be represented as follows: black squares coded by 'X', white squares by '!', the markers at the end of each line by '$', and the end point as '%'. This would tell the computer that the figure had been finished. According to this, the programming code line we should obtain to represent the spacecraft portrayed in Figure 2, would be like this (p.26):

!!XXX$!X!X!X$XXXXXXX$!XXXXX$%

6 Concluding remarks

Aside from users that did, in fact, apply the most basic early machines to tasks such as word processing or managing household accounts, an extended use of these machines proved ultimately to be video games. Despite the manufacturers' initial wishes, the early micros, such as 'ZX81' and 'ZX Spectrum' began to be used in Spain for entertainment purposes as well. These digital devices became one of the most notorious entertainment platforms from the mid-1980s on and, in turn, fostered the circulation of related literature. By giving voice to the NZXU and its fanzine, we have shown that playfulness with computers along with the circulation and exchange of computer information among its affiliates and readers were, in fact, intertwined processes that facilitated and made available a new kind of digital knowledge, otherwise difficult to attain in the country at that time.

Besides this, Skinner also notes that many computer clubs had an interest in its own self-perpetuation, expanding and maintaining its membership, in conjunction with the spread of expertise in and enthusiasm for computing as widely as possible: 'They sought not only to promote computing per se but also particular definitions of the activity' [4: pp.181-182]. In this particular case, the NZXU also sought to attract a wider membership while educating and encouraging people to promote awareness and interest in computers. This in turn gives way to analyze video games from a different theoretical frame than the traditional game studies, usually focused on identifying novelty and significance, such as the recollection of the emergence of games and technologic devices to play with. Therefore, as I said above, by taking into consideration both, playfulness and the arrival of computers into the households, we must consider the valuable contributions of other very different actors and their everyday practices, as we have shown throughout this article. A member belonging to the NZXU wrote the following comment in a letter published within one of the bulletins:

> As far as I know, Sinclair's computer has been the first one that, given its technological features and price, has inspired a large amount of non-professionals and allowed them to enter into the exciting world of data processing. Sinclair ZX81 is a funny toy of endless possibilities, a learning tool of prime importance, and an intellectual tool far more useful than anyone can imagine. With this, time flies without becoming aware of it [26: p.7].

Such a new exciting context shows that computing in the early eighties was perceived more as an open world by their practitioners and, thus, personal computers, as well as the early micros, were not seen as black boxes making knowledge difficult to reach. On the contrary, such technology was seen more as a tool that would allow practitioners and hobbyists to open up those computers and create new knowledge by programming. In conclusion, as shown, 'another' framework of computing knowledge, quite different from the one in the hands of white-coat technicians, engineers, the administration, the banks and the large corporations, was thriving in Spain in the eighties. There started to grow particular new subcultures of users [4], like the members of the NZXU who were creating and circulating other ways of doing things with computers, including playfully programming, coding and sharing with others. These users ultimately understood that it was software instead of hardware what was valuable with computing. After all, home computers had the flexibility to be programmed to serve an almost infinite number of purposes –in spite of limited RAM memories–. This is, therefore, one of the main reasons behind the fact of electronic digital computer becoming such a powerful and compelling technology [28].

Acknowledgements

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