ICT, learning styles and musical uses at Western Brittany University

TIC, estilos de aprendizaje y usos musicales en la universidad de Bretaña occidental

对布列塔尼大学的信息通讯技术、学习方式和音乐用途的研究

ИКТ, стили обучения и использование музыки в университете Western Brittany University

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Resumen

Este artículo analiza los usos y costumbres musicales de los universitarios bretones, teniendo en cuenta cómo emplean la música mediante las nuevas tecnologías (TIC) y sus estilos de aprendizaje predominantes. Para ello, se indagó en cómo influyen las características personales y el manejo de determinadas herramientas TIC en la adquisición de conocimientos y en el aprendizaje de contenidos musicales tras escuchar y compartir diferentes tipos de música. La investigación siguió un enfoque de tipo cuantitativo con un diseño no experimental descriptivo mediante encuesta. Con el fin de averiguar los estilos predominantes y los patrones de uso y consumo musical utilizando las TIC, se aplicaron dos cuestionarios a una muestra formada por 308 estudiantes de las Facultades de Educación de la Universidad de la Bretaña Occidental. Tras analizar los datos, los resultados revelaron la existencia de diferencias estadísticamente significativas en los usos musicales en cuanto a los estilos de aprendizaje y campus de procedencia, evidenciando que la forma particular de aprendizaje es un factor condicionante entre la población juvenil cuando consume música mediante las nuevas tecnologías.

Palabras clave: estudiantes universitarios, consumo musical, estilos de aprendizaje, TIC.

Abstract

This article analyses the musical habits of French Brittany university students, taking into account how they interact with music through new technologies (ICT) and their predominant learning styles. This allowed to study how personal characteristics and the use of some ICT tools can influence the acquisition of knowledge and learning of musical content after listening and sharing different types of music. The current research followed a quantitative approach with a non-experimental descriptive survey design. In order to find out the prevailing styles and patterns of music usage and consumption by means of ICT, two questionnaires were applied to a sample of 308 undergraduate students from the Schools of Education at the University of Western Brittany (Université de Bretagne-Occidentale). After analyzing the data, the results revealed the existence of statistically significant differences in musical uses in terms of learning styles and campus of origin, showing that the particular style of learning is a conditioning factor among the youth population when consuming music through new technologies.

Keywords: university students, music consumption, learning styles, ICT.

概要

本文分析了布列塔尼大学学生间的音乐习俗及其用途，同时考虑了他们如何通过信息通讯技术（ICT）和他们主要的学习方式来使用音乐。为此，我们调查了在听和分享不同类型的音乐后，受试者的个人特征和某些 ICT 工具的使用如何影响知识的获取和对音乐内容的学习。该研究采用定量方法和描述性非实验性调查设计。为了找出使用 ICT 的音乐的主要风格和使用模式，我们对来自西布列塔尼大学教育学院的 308 名学生进行了两份问卷调查。分析数据后，结果显示，在学习方式和校区来源方面，音乐使用存在统计上的显着差异，证明特定的学习方式是年轻人通过新技术消费音乐时的决定性因素.

关键词：大学生，音乐消费，学习方式，信息通讯技术.

Аннотация

В данной статье анализируются музыкальные привычки и традиции студентов бретонских университетов с учетом того, как они используют музыку с помощью новых технологий (ИКТ) и их преобладающих стилей обучения. Для этого мы изучили, как личные характеристики и использование определенных инструментов ИКТ влияют на приобретение знаний и усвоение музыкального контента после прослушивания и совместного использования различных видов музыки. В исследовании использовался количественный подход с неэкспериментальным дескриптивным методом опроса. Для того чтобы выяснить преобладающие стили и модели использования и прослушивания музыки с помощью ИКТ, были заполнены две анкеты для 308 студентов педагогического факультета Университета Западной Бретани. После анализа данных были выявлены статистически значимые различия в использовании музыки в зависимости от стиля обучения и города происхождения, что свидетельствует о том, что конкретный способ обучения является определяющим фактором среди молодежи при потреблении музыки с помощью новых технологий.

Ключевые слова: студенты университетов, потребление музыки, стили обучения, ИКТ.

Introduction

Historically, music has been an important part of different civilisations and, more precisely, in the formation of urban culture. It is an anthropological, sociological and artistic universal reference. In this sense, music and its different manifestations have been closely linked to the historical context in which they have developed, exerting an influence on the population and, more decisively, on young people (Cremades et al., 2010). Thus, since the mid-twentieth century, young people found in music a way to identify themselves within their own 'urban culture' and to differentiate themselves from the previous generation (Lorenzo et al., 2011; Wortman, 2008). This tendency continued to develop in the following years and is nowadays strongly associated with the development of Information and Communication Technologies (hereafter ICTs) that permeate all youth activities, both academic and leisure and entertainment. According to Campos (2008), when music is supported by technology, it transmits more than what it says explicitly as an artistic discourse, it is not on the margins of social changes, so it is always transmitted in interaction with different realities. In this sense, an interesting line of study opens up within the field of music education, which delves into a sociological phenomenon of the first order, centred on the growing apogee of music within the information and communication society.

On another note, it is worth remembering that in recent years there has been a growing interest in knowing the predominant learning styles in university students (Alvarado et al., 2017; Canizales et al., 2020; Esteves et al., 2020; Fernández and Beligoy, 2015; Freiberg et al., 2017; Gutiérrez-Tapias, 2018; Juárez-Lugo et al., 2016; Ordóñez-Pizarro et al., 2017; Pérez-Hernández et al., 2019) and in those people who are studying music subjects (Arias, 2011; Bahamón et al., 2012; González, 2013). In this sense, students have a wealth of musical knowledge, procedures and attitudes that have been acquired through their habitual consumption and that they use in their own musical learning processes (Aranguren, 2011). This is why teachers must start from this background in order to mobilise different didactic strategies that contribute to the improvement of their students' musical education, according to their learning styles. Thus, the interest in analysing the incidence of music in the university population arises from the knowl-

edge of the activities and attitudes that students have towards music in their daily lives, using different tools and technological artefacts. Therefore, it is worth remembering that the motivational capacity of ICT, understood as a learning tool, may vary or be influenced by the predominant learning styles of students (García et al., 2009).

Regarding the relevance that the inclusion of ICT has acquired when carrying out educational innovations, the great potential of the various digital tools and their use in the classroom is noteworthy, especially if the educational aim is to generate virtual learning environments, as reflected in the abundant and valuable existing literature (Cabero, 2014; Chao et al., 2020; Cores, 2020; Galanouli et al., 2004; Kirschner & Davis, 2003; Llorente, 2008; Mcvee et al., 2008; Morón et al., 2015; Prendes, 2010; Rangel, 2015; Raposo et al., 2006; Silva et al., 2006; Tello & Aguaded, 2009; Tondeur et al., 2007; Yuen & Ma, 2008).

All innovation requires changes in attitudes and behaviours that promote the transition from training to education; for educational innovation to take place, it is essential that training has been developed beforehand (Nieto & Alfageme-González, 2017). It is in this initial phase when various activities aimed at improving the teacher's knowledge of the class group together with the students' self-knowledge must take place, this being a basic premise if we want our teaching activities to produce educational innovations. One of the main objectives of all our research work is to obtain quality professional self-training that will lead to an improvement in our teaching activities. As Hattie (2009) puts forward, "the more the student becomes the teacher and the more the teacher becomes the learner, the better the results" (p. 25).

Justification of the main study problem

The increasing complexity that characterises today's society requires an effective and decisive response to the constant and rapid changes occurring in the academic world. In this context, the individualisation of teaching and the development of proactive learning aimed at a better understanding of the strategies involved in the teaching-learning process are becoming increasingly important. To achieve this end, knowledge of the particular way in which each individual learns is essential, based on the conviction that the most effective learning is that which adjusts to the particular conditions of each individual in a given educational and life situation (Bahamón et al., 2012).

Following this line of argument, it is important to address the study of learning styles, since they refer to the way each person thinks and learns. For this reason, knowledge of personal learning styles is of great importance for both students and teachers, as is the acquisition of strategies on how to continue learning and how to access new knowledge. According to Alonso and Gallego (2003), the study of learning styles has taken on educational and research relevance in recent years due to the fact that the deepening of this field of study allows each one to adapt a series of strategies that facilitate the acquisition of knowledge, the resolution of problems and the implementation of social skills to successfully face everyday situations.

Research on learning styles and strategies has abundantly proved that it is a precious and interesting element, so it is advisable that it is known by the university community, teachers and students, whatever their speciality (Acevedo et al., 2015; Alducin-Ochoa & Vázquez-Martínez, 2016; Blumen et al., 2011; Evans et al., 2010; Komarraju et al., 2011; Pantoja et al., 2013). In other words, it is highly useful for any university lecturer, in all areas and fields of research, to know the learning styles of their students in or-

der to optimise all types of methodologies that they wish to carry out in their classes, without forgetting that knowing the learning styles of students, whatever their level is, also helps in the acquisition of basic competences.

The concept of learning styles has been addressed by numerous researchers (Alonso et al., 1994; Arias, 2011; Bahamón et al., 2012; Beltrán et al., 2021; González, 2013; Reyes Rivero et al., 2017) who have agreed that each learning style corresponds to a particular way of processing information in the mind. Thus, the term "learning style" refers to the method or set of strategies that each person chooses when they want to learn something. In this sense, there is a tendency to develop global preferences, although the specific strategies used vary depending on what one wants to learn. These preferences or tendencies, together with certain ways of learning, constitute the different learning styles (Díaz & Hernández, 2010). There are various theories in this regard that explain learning styles from different approaches, such as Gardner's Multiple Intelligences (1983) (auditory, visual, musical, etc.), Kolb's model (1976, 1984) (convergent, accommodating, assimilating and divergent) or the theory of Alonso, Gallego and Honey (1994) (active, reflective, pragmatic or theoretical), among others. This last model ranks those who like to experiment with new situations as active; those who prefer to observe before taking action as reflective; those who focus on concrete objectives as pragmatic; and those who prioritise information over facts as theoretical.

The above-mentioned researchers, as well as many others who have worked on learning styles, they do agree that learning styles are not immovable, but they can change; as the learners progress in their learning process, they will discover better ways or modes of learning and they will vary their learning style. Moreover, it will depend on circumstances, contexts and learning times. Thus, styles may be different in different situations. They vary according to the learner's age and levels of demand, and are susceptible to improvement. The student, with the help of the teacher, will learn to discover which are the traits that outline his or her own style and, at the same time, will identify which of them should be used in each situation in order to obtain better results. Students learn more effectively when they are taught using their own predominant learning style, so teachers need to be aware of their students' learning styles in order for them to achieve more effective and meaningful learning. In this sense, the aim is for students to control their own learning, to be aware of their strengths and weaknesses, to know under what conditions they learn best, to learn how to overcome the difficulties that appear in the processes and to be willing to investigate and create new combinations. The growing interest in learning and research on learning styles has rethought the concepts of intelligence, strategies and learning models, knowing that they are different processes in each person and that they are influenced by various factors. In this sense, the aforementioned work by Pantoja et al. (2013) stands out, in which the evolution over time of the different theories on learning styles is analysed, while the most relevant publications carried out are compiled, within a framework of theoretical and conceptual clarity.

Additionally, it is necessary to reflect on the undeniable protagonism that ICTs have acquired in the daily life of our society, with a greater impact on the youth sector, born in between screens and different formats, applications and versions of various digital devices that are increasingly accessible to the general public. Thus, a complex pedagogical world has been generated within this technological macrocosm whose magnitude, complexity and rapid and constant changes require study and research, with classrooms being the best scenarios to experience this ICT revolution in its didactic aspect. In this way, we will be ensuring that the knowledge, uses and skills are appro-

priate for successfully navigating the intricacies of this digital era, taking advantage of today's studies for tomorrow's job training, making the classroom a favourable space for learning and developing digital competence (Herrera, 2015).

The presence of ICT in university classrooms highlights the importance of ongoing training in this technological field for students and teachers, and it is beneficial to take into account their learning styles (García et al., 2009; Isaza Valencia, 2014; Jiménez-Becerra, 2020; Villarreal et al., 2020). Certainly, the adaptability of ICT to the educational needs of students is an element that facilitates learning as it adapts to the different styles of students. Therefore, the binomial ICT and learning styles in the university world is a field that offers great possibilities to study, analyse and work on it. Finally, we should mention that, as indicated by Gutiérrez et al. (2017), when it comes to assessing digital competence, the survey is one of the most widely used techniques in recent research work (Cabero & Llorente, 2006; Dornaleteche et al., 2015; García-Ruiz et al., 2014; Hatlevik and Christophersen, 2013; Kadijevich, 2006; Pedraza et al., 2013; Rangel, 2015; Roig & Guete, 2011; Smarkola, 2008; Vera et al., 2014), the main reason that prompted us to design the REATIC and USMUS questionnaires.

Following this same line, our work has also tried to gather the idea of the participating students on the consideration of music as a universal phenomenon, which is represented in all times and cultures with different manifestations. From this perspective, it is necessary to bear in mind that, nowadays, its public availability and easy access, due to the Internet and the different sound reproduction devices, makes the music and its reproduction a constant and routine activity of everyday life. Access to music via the Internet is a common practice in our lives, encouraged by composers and performers themselves, who make their works public in digital format, seeking greater dissemination and adaptation to current fashions and habits (Noya, 2017). This has led, among other things, to a growing interest in understanding the influence of music on users and the emotions it arouses (Lorenzo et al., 2011). Traditionally, music has been considered a source of pleasure and enjoyment, due to its capacity to generate all kinds of emotions in the listener, to allow the participation of several subjects in its performance and to provoke basic group emotional responses, such as the rebound effect, sympathy or emotional spreed. Nowadays, technologies provide users with quick, easy and cheap access to all kinds of music, even without the need to download it through streaming. In addition, there are meta search engines and applications that allow the selection of all kinds of musical works, already ordered and classified by groups or categories of different musical genres and styles, and recommended, due to their suitability, for different moments, activities, needs and moods (López, 2014).

Based on the above considerations on learning styles, ICT and musical uses, the research group wanted to explore the link between learning styles and ICT in greater depth. This article analyses the relationship between learning styles, ICT and music consumption among students at the University of Western Brittany's Higher Schools of Education and Teaching (ESPEs). These Schools, which offer Bachelor's, Master's and Doctoral degrees, were created from the former Instituts Universitaires de Formation des Maîtres (IUFMs) that were in place until 2013. The University of Western Brittany has a regional dimension with its centre in Brest and branches in Quimper, Morlaix, Vannes, Rennes and Saint-Brieuc. It receives a majority of Breton students, with 7% of its student body being of foreign nationality.

Returning to the starting point, a series of study hypotheses were established as general questions: did a predominant learning style determine young university students' habitual use of and attitudes towards music; did students' locality influence this style

and musical attitudes; was the use of ICT directly related to daily music consumption; was there any link between learning style, ICT use and music consumption; was there any link between learning style, ICT use and music consumption; and was there any link between learning style, ICT use and music consumption?

In order to operationalise the study hypotheses, the following research objectives were established:

1) To find out the music use and consumption patterns of Breton university students according to their learning style (active, reflective, theoretical, pragmatic).

2) To analyse how the patterns musical use and playback, as well as the attitudes towards music of university students differ according to the university campus.

Method

Approach and design

In this project, it was followed a quantitative approach in order to respond to the research objectives set out of the study. This approach seeks to explain reality through the collection and analysis of data from observations that can be quantified and measured (Cea, 2014). A descriptive non-experimental design was chosen by means of a survey, a type of design widely used in quantitative methodology to learn about the reality studied and to prepare future more in-depth research.

Participants

The sample consisted of 308 undergraduate students from the University of Western Brittany (France) belonging to the Higher Schools of Teaching and Education. The sample was mostly female (87%), as shown in Table 1.

Table 1
Distribution of participating students by gender

	Frecuency	Porcentage
Men	39	12.7%
Women	269	87.3%
Total	308	100%

The students were chosen on the basis of accessibility and sample availability. The students participating in this study came from the four campuses that make up the University of Western Brittany: Brest, Vannes, Quimper and Rennes (see Table 2).

Table 2

Distribution of participating students per campus

	Frecuency	Percentage
Brest	76	24.7%
Vannes	38	12.3%
Quimper	51	16.6%
Rennes	143	46.4%
Total	308	100%

Variables and instruments

Two instruments were used to measure the variables studied (predominant learning style and musical use and consumption):

Honey-Alonso about learning styles questionnaire CHAEA (Alonso et al., 1994) was used for measuring learning styles and the musical uses and styles questionnaire.

USMUS (De Moya-Martínez et al., 2014) was used to analyse musical knowledge, use and attitudes in relation to ICT and the predominant learning style. This second instrument was subjected to different tests to ensure its reliability and validity, obtaining, in the case of reliability, a high internal consistency index (Cronbrach's alpha = .88).

The evidence of construct validity was obtained from a factor analysis, using the tests of sample adequacy (KMO = .78) and Barlett's sphericity, χ^2 (3182 = 566, p = .000), which proved to be appropriate for this type of statistical test, since as supported by various authors (Yong, 2013; Kaiser, 1974), a value close to .8 resulting in the KMO test indicates that the relationship between the variables is high, as in this study.

In the initial phase of the research, the CHAEA was used on the participating students (see Table 3), followed by the USMUS. For data analysis, descriptive statistics (mean and standard deviation) and inferential statistics (ANOVA) were calculated, with a statistically significant level at 5% or higher in the comparison of means, using the SPSS software package version 25 for Windows.

Table 3

Distribution of participating students according to their learning style

	Frecuency	Percentage
Active	54	17.5%
Reflexive	180	58.4%
Theoretical	31	10.1%
Pragmatic	43	14%
Total	308	100%

Results

The results of this research according to learning style, ICT, music use and Breton university campuses are presented below. Due to the layout of the data and the size of the tables, they are shown at the end of the text in the Annexes section.

In order to obtain these results, first of all, the equivalence of the groups investigated was taken into account by assessing the homogeneity of variances using Levene's test. To compare the means of the different groups, the ANOVA F statistic was used, following the assumptions of normality and homoscedasticity, and the degree of freedom and significance were calculated at a confidence level of 5% or higher. Finally, post hoc multiple comparisons were performed using the Scheffé test, controlling for sample error rate (Lizasoain & Joaristi, 2003). The above statistical analyses showed a normal distribution of the groups and, together with an acceptable sample (above 150 students), it was pertinent to carry out parametric tests with more exhaustive analyses of comparison of means by means of ANOVA tests. In detail, the most relevant results of the present investigation are shown.

In the active style, statistically significant differences were observed in 13 items, being highly significant ($p \leq .001$) in three of them: Use of music player [Brest (M = 2.53; SD = .74), Vannes (M = 3.29; SD = .48), Quimper (M = 3.00; SD = .89), Rennes (M = 3.65; SD = .62), Music is important in daily life [Brest (M = 2.47; SD = 1.12, Vannes (M = 3.71; SD = .48), Quimper (M = 3.00; SD = .89), Rennes (M = 3.65; SD = . 62)], Music is important in everyday life [Brest (M = 2.47; SD = 1.12), Vannes (M = 3.71; SD = .48), Quimper (M = 3.00; SD = .63), Rennes (M = 3.77; SD = . 43)] and I do musical discussions in class [Brest (M = 1.53; SD = .74), Vannes (M = 3.14; SD = .90), Quimper (M = 1.83; SD = .75), Rennes (M = 2.58; SD = .85)]. Other items showed significant differences at 5% or higher: I know video portals ($p = .001$), I use video portals ($p = .009$), It is important in school ($p = .002$), It fosters relationships in class ($p = .017$), Music is an important art in history ($p = .034$), It is impossible to understand without video portals ($p = .008$), It is impossible to understand without video portals ($p = .008$), It is impossible to understand without video portals ($p = .009$), It is important in school ($p = .002$). 034), It is impossible to understand without knowledge ($p = .015$), It is basic in society ($p = .002$), It is an offer for leisure time ($p = .005$), I organise musical gatherings ($p = .002$), Musical discussions connect classmates ($p = .011$).

In the reflective style, a large number of noteworthy data were observed (21 significant items). Of these, 10 items ranked strongly ($p \leq .001$): I know video portals [Brest (M = 2.91; SD = .84), Vannes (M = 3.60; SD = .50), Quimper (M = 3.42; SD = .70), Rennes (M = 3.45; SD = .64)], Use music player [Brest (M = 2. 42; SD = .98), Vannes (M = 3.08; SD = .86), Quimper (M = 3.31; SD = .88), Rennes (M = 3.51; SD = .69)], Use of video portals [Brest (M = 2.49; SD = 1.03), Vannes (M = 3.40; SD = . 70), Quimper (M = 3.27; SD = .72), Rennes (M = 3.30; SD = .79)], Music is important in everyday life [Brest (M = 2.35; SD = 1.02), Vannes (M = 3.64; SD = .49), Quimper (M = 3. 62; SD = .69), Rennes (M = 3.36; SD = .75)], It is important at school [Brest (M = 2.42; SD = .95), Vannes (M = 3.04; SD = .97), Quimper (M = 3.23; SD = .90), Rennes (M = 3.21; SD = . 76)], They have easy access through ICT [Brest (M = 2.81; SD = 1.00), Vannes (M = 3.76; SD = .43), Quimper (M = 3.62; SD = .57), Rennes (M = 3.52; SD = . 73)], Music is an important art in history [Brest (M = 2.47; SD = 1.07), Vannes (M = 3.40; SD = .57), Quimper (M = 3.31; SD = .88), Rennes (M = 3.31; SD = .74)], It is basic in society [Brest (M = 2.42; SD = 1. 07), Vannes (M = 3.08; SD = .86), Quimper (M = 3.31; SD = .73), Rennes (M = 3.20; SD = .71)], It is an offer for leisure time [Brest (M = 2.26; SD = 1.02), Vannes (M = 3.20; SD = .91), Quimper

(M = 3. 19; SD = .89), Rennes (M = 3.09; SD = .91)], I organise musical gatherings [Brest (M = 2.35; SD = .87), Vannes (M = 1.08; SD = .27), Quimper (M = 1.08; SD = .27), Rennes (M = 1.23; SD = .58)].

Concerning the theoretical style, there were only six items with substantial scores: Music is important in everyday life (p = .020), It is easily accessible through ICT (p = .008), I acquire culture through music (p = .036), Music is an important art in history (p = .033), It is basic in society (p = .024), I organise musical get-togethers (p = .010).

In the pragmatic style, the item "Music is important in everyday life" stood out with a statistically highly significant score (p ≤ .001) [Brest (M = 1.50; SD = .70), Vannes (M = 3.75; SD = .50), Quimper (M = 2.50; SD = 1.26), Rennes (M = 3.42; SD = .60)]. Significant scores were also obtained for other items: I know virtual encyclopaedias (p = .005), I know multimedia devices (p = .020), I use virtual encyclopaedias (p = .010), I use multimedia devices (p = .002), Music is important at school (p = .004), They have easy access through ICT (p = . 001), I acquire culture through music (p = .018), It should be preserved and disseminated (p = .043), Music is an important art in history (p = .009), I know about new music (p = .003), I listen to the same music (p = .044), I teach new music to friends (p = .011), I organise music gatherings (p = .010).

Analysis of the results

The analysis of the results revealed statistically significative differences in the use of music according to the learning styles and campus of origin of the university students. In this regard, more than half of the students surveyed had a reflective learning style, although the musical uses differed according to the campus they belonged to. This result is in line with other research (Alonso & Gallego, 2003) which identifies the reflective-theoretical style as the predominant one among university students.

Thus, on the Vannes campus, the highest averages were found for students with a reflective learning style, a fact that is confirmed by the high number of significant items. The results revealed that students in Vannes regularly used music players and video portals, emphasised the importance of music in their daily lives and considered that music fosters relationships in class, is important in school and is basic in society. Furthermore, these students agreed that ICT enabled them to access music easily and that music is an important offer for leisure and free time.

With regard to the Rennes campus, the predominant learning style was active, with 13 significant items. As on the Vannes campus, the results showed that Rennes students knew and used music players and online video portals and that music occupied an important place in their daily life.

Regarding the Quimper campus, the theoretical style stood out above the other learning styles, although only six significant scores were achieved. These results showed that music allowed them to acquire culture, that it was an important art in history and that it was basic in society. They also expressed the usefulness of ICT for easy access to music.

The pragmatic learning style was the one with the lowest significant scores, being spread across the different campuses. Thus, students at Vannes, where this style predominated, they knew about and used virtual encyclopaedias, used multimedia devices, kept up to date with musical news and passed them on to their friends. On the Brest campus, university students also used multimedia devices and organised

musical gatherings. Finally, students in Rennes expressed the importance of music at school, stressing the duty to preserve and disseminate it.

Discussion

The use and consumption of music by young people is a common and undeniable fact in today's society (Molteni & Ordanini, 2003), to which is added, as it could not be otherwise, in a globalised and virtualised world such as the one we live in, the use of various ICT tools; in other words, the link between both facts. It is clear that young people consume music in a very different way than decades ago, as they can easily access a wide variety of musical pieces instantly thanks to the Internet and, at the same time, they share their preferences and tastes on social networks, making artists and songs known in a way never seen before. Music is no longer only listened to at home, but is also present in any environment thanks to electronic devices such as smartphones, tablets or laptops.

Therefore, music consumption and the use of technological tools form such a perfect binomial that young people cannot conceive of using music without applying ICTs (Aguiar & Martens, 2016).

In the aforementioned technological context in which we live, university students follow the same trend as other young people their age with regard to how they approach and enjoy music through the Internet and electronic devices, offering relevant information about a group that is in an age bracket that makes it decisive in the years to come (López & Pastor, 2016; Terrazas et al., 2015); in fact, this current approach will determine the future consumption of music, as well as the interests and expectations of Internet users. In this sense, there is a wide range of online services for listening to and buying digital music (Spotify, Apple Music, Amazon Prime Music, YouTube Music, among others) that include everything from subscriptions to streaming and that guide the recording industry on users' tastes based on the playlists generated by consumers themselves. Algorithms determine which songs or artists should appear in each playlist based on previous choices to reinforce a certain genre or music group or to recommend similar music that producers want to promote.

The new pedagogical trends, marked by the virtualisation of learning environments, force us to contemplate the inclusion of ICT in the different training processes, in which we must not forget the acquisition of different competences. Therefore, if we want our students to be able to "learn to learn", it will be of great help to help them to know their particular learning styles in order to control and improve them, overcome difficulties and learn from daily experiences, admit that they do not have all the answers, know how to find and share all kinds of information using ICT, be willing to investigate, try and create new tools that contribute to expanding knowledge and strengthen personal maturity in different training processes that must be maintained throughout life (Aranguren, 2011). For this reason, students must necessarily be trained in the development of digital competence with a critical perspective, so that they are able to search digital platforms and select music according to their preferences beyond musical fashions. It should be stressed that these digital competences are essential in a new context of music consumption, where the philosophy of physical possession of the work has shifted to a model of on-demand access.

From the educational point of view, this new reality entails a necessary readaptation of musical teaching and learning processes, as well as the consideration of other aspects

relevant to education beyond the curricular ones, such as learning styles, multiple intelligences or competence development, among others, which have a decisive influence on educational processes and which, however, are often not taken into account by teachers. Therefore, being aware of this fact and knowing how to interrelate all these elements with students' musical tastes and uses can help teachers to improve their professional competence in a particular way and, in general, to improve the quality of education, based on the conviction that the most effective teaching process is the one that responds to the real needs of students.

As far as the results collected in this study are concerned, it should be noted that they obey a specific context and some particular characteristics of the students, a fact that limits the extrapolation of the conclusions. Similarly, the sample selection procedure, carried out by sample accessibility, restricts the generalisability of the results. Nevertheless, we must consider the profile of the students analysed, which is in line with the objectives set out, i.e. it corresponds to a chronologically young population with a high level of studies who regularly consume music, and is therefore of considerable interest for the present study. We hope that it will be useful, in the immediate future, to undertake other related research, such as, for example, assessing the acquisition of digital competence in students; or the relationship between technological tools, training resources and learning styles, among others. We believe that these are factors to be taken into account by university teaching staff, who are concerned with offering quality teaching in line with our times.

Despite the numerous implications of this topic and its interest for the scientific field, there is still a dearth of researches, which are not progressing as fast as the new technologies are, which have become the hallmark of the 21st century, a vital and almost indispensable phenomenon, with a sociological impact so outstanding that it is not possible to gauge it in all its magnitude and intensity.

Technology has profoundly transformed all social dimensions, including music, providing new forms of access, distribution and consumption. Faced with this reality, education has to assert its social responsibility through the development of competences that provide students with effective strategies that make them more aware of the musical fact in which they are participating.

Within the framework of Higher Education, the acquisition of this type of strategies is more necessary than ever in order to train open, flexible and plural people in a globalised world that tends towards cultural and musical uniformity. For this reason, we hope that this work will help to reflect on where the technological uses, customs and attitudes of the everyday life of young university students may be heading in the immediate future.

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Annex: Comparison of means (ANOVA) by learning style and University of Brittany campus

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