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New media literacies for transmedia learning. How students are regarding their transliteracy in Italian licei classici

Cinzia Runchina¹, Anna Sánchez-Caballé² and Juan González-Martínez^{2*}

Abstract: In recent years, the integration of *new media literacies* and, consequently, strategies such as transmedia learning in the teaching-learning processes has been a topic of interest among various types of national and international institutions and governments. In this sense, the current article deals with the abilities and habits that Italian students of *licei classici* have in order to face these new formative contexts that are coming. For this purpose, two quantitative instruments (one referring to digital attitudes and skills and the other corresponding to transmedia attitudes) were administered to 400 students. The results obtained show that the majority of young people have access to devices and that they prefer mobile phones. Furthermore, although they are inclined towards transmedia practices, they have certain difficulties in becoming the creative part that collaborates in a digital citizenship.

Subjects: Multimedia; Information & Communication Technology (ICT); ICT; Secondary Education

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PUBLIC INTEREST STATEMENT

Description: The spreading of ICT is opening new learning possibilities in schools. One of these is transmedia learning, which links to the idea of media convergence and the motivational potential of transmedia narratives. These are initiatives not only by teachers, but also by national and international institutions and governments. In this context, this article analyses the skills and habits of Italian *licei classici* students to cope with these new learning approaches: they seem often a highly technological generation, but this does not necessarily mean they are able to participate fruitfully in these digital learning experiences. We administered different questionnaires (one on digital attitudes and skills and one on transmedia attitudes) to 400 Italian students. The results show that most students are generally inclined towards transmedia practices; therefore, transmedia learning could be appropriate for them; but they have some difficulties in producing on-line content and to collaborate in a network. Therefore, we must help them to develop also the skills they require for these transmedia learning experiences.

Keywords: transmedia learning; digital competence; secondary education; new media literacies

1. Introduction

Despite the publication in 2015 of the *Piano Nazionale Scuola Digitale* (hereinafter PNSD), the Italian education system, like schools all over the world, still faces a major challenge in terms of the need to ensure the development of students' digital skills, with all that this entails, as set out in Law 107/2015. In fact, beyond the conceptual frameworks relating to the digital competences or literacies that the education system must guarantee (Ugolini, 2016), the PNSD marks a positive break with the past, with a significant commitment to the inclusion of Information and Communication Technologies (ICT) in everyday school life (Cappello, 2019) in a transversal way, permeating all learning processes and in all educational levels. In this sense, the desired change is related to the educational actions in the rest of Europe (and generally all over the world), which looks for to concretize the European Recommendation of 23 May 2018 on lifelong learning, in line with the DigComp reference framework, which suggests educational policies that enable citizens to develop the digital competences they need to participate in the Knowledge Society (Fabiano, 2020).

The challenge is related to the classic split between the school and personal reality of students whose ways of learning in the academic environment are not usually transferred to their informal everyday life (Esteban-Guitart, 2016). All this takes place in a context of the rise of participatory culture in which we do not only consume culture, but also produce it in a participatory way (Jenkins, 2006). Given this situation, it would be interesting to blur the lines between the formal and the informal in order to create a continuum of efficient and convergent media learning.

In this context, it is possible to consider that transmedia learning can offer an interesting approach, that can allow us to set a bridge between the formal and the informal learning strategies; and this can be an opportunity to satisfy to the need for adolescents to learn that citizenship is put into practice by participating in an also digital society; a society where they produce and not only consume, and must do it in an ethical, responsible and critical way (González-Martínez et al., 2019). Transmedia learning is a socioconstructivist and connectivist learning approach that guides us towards the production of content guided by a narrative, where both analogical and digital resources are used and alternate (Dickinson-Delaporte et al., 2020; Fleming, 2013). It can also represent a clear opportunity to revitalize classical culture within the educational system (and, therefore, in society itself, where it is in decline). And the fact is that, although its eternal vitality lies in its commitment to universal vocation (in the themes, in its approaches; Cavalli Sforza & Cavalli Sforza, 2007; Ferrarotti, 2014), there is no doubt that one of the disciplinary problems has its cause in outlooks that are not very updated, linked to the less universal and disconnected part of that culture with ours (Catafalmo, 2020), with which a look of transmedia learning can link the universal of the classic with the personal of the adolescents of the Italian school.

However, there is no doubt that both transmedia learning and action in this participatory culture that we live in involve particular skills and abilities, which convulse the very concept of digital competence and lead us to ask ourselves whether Italian teenagers possess those *new media literacies* (Jenkins et al., 2009) that are essential for both media convergence and the leap from media consumption to creation (here, for learning purposes). This paper aims to analyse of the transmedia literacy of Italian students in the context of the *licei classici*.

2. Theoretical framework

2.1. Transmedia and transmedia learning

The term *transmedia*, as we understand it, was coined by Marsha Kinder in the 90s (Kinder, 1991) and has known an important dissemination since Henry Jenkins used it in his reflections about

convergence culture in the 21st century. Specifically, it stems from fan culture and the emergence of cultural media phenomena in which consumers change their role and also become participants thanks to technologies. In this context, the concepts of media convergence and participatory culture appear (Jenkins, 2006). On the one hand, we can define media convergence as the overlapping and alternation between digital media in a non-linear but branching way. On the other hand, participatory culture refers to the participation of society in the process of digital creation through its devices. At this point, it is when we move from conceiving the consumer as a mere passive element to becoming a community creator (this whole process does not occur in an individualized way).

In the educational context, there have also been several definitions of the transmedia concept. The focus of most of these is a story or narrative that is produced through various media and different participants and participations (Chung, 2014; Fleming, 2013). However, it can also be a set of skills (developed or to be developed) that the individual must mobilize (Benedict et al., 2013; Wiklund-Engblom et al., 2013). And finally, it can also be understood as a learning strategy in which those involved must develop a narrative with educational objectives (Benedict et al., 2013; Dickinson-Delaporte et al., 2020). It is this last definition that is the focus of this paper.

Although there is no single definition of *transmedia learning*, the concept is supported by two pillars: the ideas of participatory culture and media convergence by Jenkins (2006), which provide the cultural framework; and the key ideas of socioconstructivism with Vygotskian roots (Biggs, 1996; Shepard, 2006) and connectivism by Siemens (2006), where we can find the pedagogical framework. Within them, learning experiences are focused on the need for the student to develop a narrative; and in this process students can use the resources they have and they prefer (analogue and digital, mixed or alternated) and they do that in a community context, where they have no alternative to develop it (and to learn) than collaborate with their peers. This is a big statement, no doubt; and the recipe is quite complex at this moment, since some important elements have been put on the table. This learning approach is not a new one, of course; and it must be said that as a didactic model it is even vague, since it is indeterminate; but it does imply a new and potentially interesting way of approaching learning (specially from the digital perspective). Besides from these ideas, or to finish their development, the literature highlights some more elements: connections with enactivism, since learning experiences are seen as meaningful when students value them in relation to their own lives (Campalans, 2015); ludic elements, since quite often transmedia learning experiences include elements coming from gamified proposals (Barreneche et al., 2018); or, finally, a common link with foreign language learning, since sometimes transmedia learning seems a good strategy for achieving didactic linguistic goals at the same time the story is being developed (Rodrigues & Bidarra, 2015, 2019). It is also an opportunity (also a limitation) because transmedia learning can fit into multiple contexts and it is under construction according to the contexts where it is performed: within the educational institutions, but also outside them (with direct connection to what can be played in the classroom, like a complement to it; independently of formal learning), with different agents involved (teachers, educators in a wide sense and families), every educational level (early childhood education, secondary education, university studies or professional training). Therefore, transmedia learning shows always certain elements (media convergence, collaboration, narrative), but is concretized to some extent according to some characteristics of the context where it happens (Amador, 2013). Among the first ones, then, we can find processes of (trans)media convergence that imply user's participation, considered at the same time consumers and producers (prosumers) of their story or their cultural content. Users moved by their interest or passion (like fans), who alternate different media platforms to collaborate in the development of that story (Raybourn, 2014; Raybourn et al., 2019).

Particular, transmedia learning opportunities are born just from the possibility of concretizing pedagogical principles that are so often quite difficult to put into practice (constructivism, connectivism) in engaging experiences (intrinsic learning motivation), customizable (the story offers

different layers, opportunities, recurring learning experiences), harmonious with our surrounding digital context (but, at the same time, with no restrictions regarding specific technologies and very compatible with the analogical side of media and cultural dimensions).

2.2. Media education, digital competence and transmedia literacy

However, before considering the details of transmedia learning proposals, we must consider the nature of the subject who learns (in any context). As we said, an important part of these reflections, when situated in the educational sphere, focuses on the conditions (characteristics, knowledge, skills, attitudes) of the subject who participates in transmedia experiences (Alper, 2013; Anderson, 2014). Something very close to the concept we talked about before, a kind of transmedia literacy, which allows the subject to participate actively and productively in the participatory and convergent culture that Jenkins (2006) talked about and which is also yet to be defined and contextualized within the general panorama of digital skills.

In this moment, since we must take care of the economy of space, we cannot offer here a broad synthesis of the existing knowledge on the digital nature of citizenship within the Knowledge Society, although it may be very interesting. In this regard, research has already gone deeply exploring the relationships between young subjects and technology in their personal and academic roles (Bullen et al., 2011); and some research is also starting to be found related to those differences when learning experiences are formal or informal, institutionalised or not (Cappello, 2019; Scarcelli & Riva, 2016). However, we must define briefly what we understand by digital competence and why it is different from our concept of *transliteracy*. Regarding this, we can start in the concept of *media literacy* in the Italian context, understood like the ability to use digital media and languages (Buonauro & Domenici, 2020). To this, we can add, in a key position, the need to improve the strategies of information analysis, content curation and critical reflection (Ranieri, 2019). In the background of these reflections, we can see a complex myriad of theoretical frameworks and approaches to *digital skills* (Sánchez-Caballé et al., 2020) which cannot even be summarised here.

Considering the previous ideas and the increasing number of approaches and definitions that have been made on the concept of digital competence, a convenient initial point can be the year 2006, when the European Commission included it among a list of key competences we need as citizens for lifelong learning. By that moment, digital competence was the confident and critical use of information and communication technologies in different domains of citizens' daily lives (work and leisure, for instance). In 2018, also the European Commission went a step beyond this definition and considered this competence essential for any citizen of the 21st century. However, after those statements, the question should be: what do we need to be digitally competent citizens?

Obviously, this question can be resolved in very different ways, since there is a large number of frameworks and models that try to solve it and the referents chosen for doing that may vary slightly. For doing that, according to the DigComp model (currently in its 2.1 version), commonly recognized in Europe; Carretero et al., 2017), a digitally competent citizen shows technical, cognitive and application skills when performing with digital technologies (in the digital worlds). And it implies skills referring to: (1) information and data literacy; (2) communication; (3) content creation and development; (4) device security and safety; and (5) technical troubleshooting.

Nevertheless, beyond these approaches, we must think that these new digital ecologies offer new ways of learning; and as a consequence of that, we must also consider that students may need a special competence (or specific skills) to successfully perform through those media platforms and, at the same time, fold and unfold the thread of the development of the story. That is what we call *transmedia literacy* (*transmedia literacy*, or *transliteracy*; Alper, 2013; Fraiberg, 2017; González-Martínez et al., 2018; Kline, 2010), whose components are still to be determined. Different skills are listed as important for living the new digital cultural contexts: negotiation,

networking, transmedia navigation, judgment, game, collective intelligence, performance, or distributed cognition. In our reflection on transliteracy, we must also foresee a certain age cut-off, which makes it more close to young people than to older people. This is the direction of the research, for example, of the Transmedia Literacy project (Scolari, 2018), which investigates how a new way of consuming and producing can be found among adolescents, and attempts to go beyond the classic analyses of media education. His ethnographic analysis focuses on adolescents' (trans)media literacy in the formal and informal spheres and, from there, suggests a new taxonomy of elements of this transmedia literacy. With all these practices, adolescents undoubtedly learn; and this leads us to reflect on which of these practices and skills are most useful in the relationship between transmedia and education.

However, besides these lists and analysis, no prioritization is offered among those skills, and their special incidence from an educational perspective is still to be explored in depth. So, we can consider as a reference the proposal by González-Martínez et al. (2018), who highlight four particularly important elements: transmedia navigation, presumption (the movement from consumers to the alternation between media consumers and producers), collaboration (and interaction among peers); and, finally, critical skills (the ability to curate content and evaluate information).

2.3. Transmedia learning, a possible link between two worlds

In recent years, some educational research on Information and Communication Technologies (ICTs) has highlighted and decried with great effort the gap between adolescents and young people' informal learning practices (and the literacies they show and need) (for instance, fan groups, social networks and video games), and the learning processes that occur within the institutional context of the school (Bender & Peppler, 2019; Esteban-Guitart, 2016; Gee & Esteban-Guitart, 2019; Jenkins et al., 2009; Zhang & Cassany, 2019). This gap is undoubtedly related to the distance between, on the one hand, how adolescents learn (quite often using digital devices) in experiences where they decide what to learn and why to do it (Esteban-Guitart, 2016); and, on the other hand, those situations where the teacher offers the learning proposal in a completely institutionalized approach (Buonauro & Domenici, 2020). While the first experiences are engaging and completely satisfactory to young people, the second ones not always imply in the end meaningful learning for them (Esteban-Guitart, 2016).

However, we can agree that educational institutions must prepare for everyone's life and, therefore, for being digitally competent citizens (Fabiano, 2020), according to the European recommendations we highlighted above. Because of that, it is important to analyse the digital (and transmedia) literacy of Italian adolescents, especially when we consider that transmedia learning is an opportunity to effectively take care of the challenges we have ahead. In this sense, we don't know that much from research about the digital profile Italian teenagers: they are constantly connected (more than every other population cohort), and they are a complex and not uniform regarding their consumption habits (Gremigni, 2019); besides, it is not always translated into an important capacity or even an advantage from the perspective of social participation or cultural production. Finally, the research confirms a deep division between the different dimensions of adolescents' lives: personal, family and school. Of these, the worlds of family and school maintain relationships with vertical and unidirectional flows as far as digital technology is concerned: from parents and teachers to teenagers and not the other way around; in their personal world, on the other hand, technological practices are developed between peers (Scarcelli & Riva, 2016).

As we have seen, transmedia learning offers to a certain extent an opportunity to change this order, according to the goals that the school has been following from some years ago (and written, for instance, in the PNSD) without clear progress. For this, transmedia learning can allow us to go beyond the walls of the school and to engage adolescents with a learning approach that uses in a more cohesive way elements closer to their ecosystems. It can also be a way to revitalize disciplinary areas such as classical culture, which often arouse more interest spontaneously in

the informal than in the formal sphere (Catafalmo, 2020). However, in order to do this, we first need to know the media (and transmedia) profile of the students who can participate in it, about whom we know little in particular.

Therefore, the present study has the following objectives:

- To identify the competences and the transmedia profile of Italian students of the *licei classici*, using different instruments (digital literacy, multitasking, transmedia profile, attitudes towards ICT).
- Determine which elements of these profiles can favour or hinder the implementation of transmedia learning strategies.

It also aims to answer the following questions:

- What is the transmedia profile of the Italian students of the classical lyceum?
- What elements of this profile favour or hinder the implementation of transmedia learning strategies?

3. Methodology

For analysing the universe of adolescent students, it was set to focus on an accessible and incidental sample formed by subjects from all courses at the *licei classici* G. M. Dettori and Siotto Pintor of Cagliari (Italy). Those subjects decided to voluntarily answer the questionnaire we proposed to them; it was administered in a single way and by an on-line channel, at the request of the research team and under the auspices and the supervision of the principals of the participating high schools and the teachers involved. The fieldwork was performed between December 2020 and January 2021.

The *liceo classico* is part of the public education system in Italy. A *liceo classico* offers training in the different classical-humanistic fields (equivalent to what we know as baccalaureate on other different contexts). Besides, this educational itinerary also focuses on the development of scientific and logical-mathematical skills, scientific methodologies, art, and foreign languages. This educational period is the step prior to the access to university and implies two general years and three years of specialization. In the first part of it, students take subjects related to Italian, Latin, Greek, geography, history and art history, mathematics, and science. The second period also include subjects such as literature (classical and foreign), philosophy or physics. In recent years, the *liceo*

Table 1. Characteristics of the participants

Variable	Frequency	%
Gender		
Woman	300	75
Man	99	24.75
Non-binary gender	1	0.25
Course and age		
1st (14–15 years)	118	29.5
2nd (15–16 years)	61	15.25
3rd (16–17 years)	92	23
4th (17–18 years)	53	13.25
5th (18–19 years)	76	19

Table 2. Reliability indices (*Item discarded for analysis due to low reliability)

Scale	Variable	Crombach Alpha
Literat (2014)	Collective intelligence	0.669
	Trial	0.693
	Transmedia navigation	0.691
	Display	0.742
Rosen et al. (2013)	Positive attitudes	0.660
	Anxiety and dependence	0.756
	Negative attitudes	0.686
	Multitasking trend	0.135*
Rodríguez de Dios (2018)	Digital Literacy	0.735

classico has been and option specially considered by girls, while boys are more inclined to take technical-vocational studies (in other kind of *licei*). As a matter of fact, for instance, in 2019, 60.5% of *licei classici* students were female according to the public information of the Italian Ministero dell’Istruzione dell’Università e della Ricerca.

In this context, a total of 402 informants answered the call, of which 400 complete responses could be consolidated (N = 400). As can be seen in [Table 1](#), by gender, 78.1% were female, 20.5% were male and 0.4% chose not to be classified. By age, the majority of the sample was between 14 and 18 years old, and 21 and 25 years old, while less than 10% of the participants were above 26 years old. 56.3% belonged to the Liceo C. Siotto Pintor and the rest, 43.7%, to the Liceo C. G. M. Dettori.

3.1. Instruments

For this research, it was decided to use two existing instruments, both from the conceptual sphere of *new media literacy* and media education, to which probing (non-psychometric) questions on the availability and consumption of digital resources were added, in order to better define the media profile of the informants. On the one hand, the *New Media Scale* (Literat, 2014) was applied, which develops the categories of Jenkins et al. (2009), in relation to the items of collective intelligence, judgment, transmedia navigation and visualization. On the other hand, the Media and Technology Usage and Attitude Scale, by Rosen et al. (2013), was applied in order to profile their attitudes towards the use of technology in general contexts; this scale provides information on positive and negative attitudes, preference for multitasking and anxiety and dependence on ICT. To delve deeper into multitasking habits, and insofar as it is a skill linked to transmedia processes, we also applied the Multitasking during homework scale, by Martín-Perpiñá et al. (2019). And, finally, to know their level of digital literacy, we selected the Digital Literacy Scale by Rodríguez de Dios (2018), which provides information on technological, personal safety, critical, device safety, informational and communicative skills; it is a scale developed in convergence with the theoretical models with European validity in digital competences and specially designed for adolescents. This questionnaire was administered in digital format with informed consent.

Regarding data treatment, we managed those with the SPSS 17.0 statistical package. Significance tests were a chi-square test for the non-parametric responses and an ANOVA test for the parametric responses, with confidence levels of 0.05. As for reliability, our results are considered acceptable for the ranges commonly considered in the educational field, as can be seen in [Table 2](#).

4. Results

In order to better organize the results, we first offer some general characteristics on the availability of technological resources and the usage and consumption profiles; and secondly, we will look at the digital profile indicators.

4.1. Overview

From a general perspective, and in terms of the resources available to the participants in the research processes, they mainly have mobile devices (98% of the participants) and mostly with an IOS operating system (72.6%). These types of devices are the ones mainly used to connect (when at home 60.5% choose to connect via mobile devices, at school 6.4%). On the other hand, the computer is the option used by 21.8% of students when they are at home and 3.2% when they are at school. In terms of time spent online: 40.7% of students spend 3 to 5 hours a day; 35.5% spend 6 to 8 hours a day and 11.5% consider that they are online all the time. Part of this online time is spent using social networks, with 93.5% of students having such profiles. In fact, the social network they use the most is Instagram (91%) and, in terms of instant messaging, they prefer WhatsApp (98.5%).

If we follow this general analysis by focusing on the consumption profiles of the participants, we can consider that they mainly use mobile devices (such as smartphones and tablets) for: study-related activities (85.1%), listening to music (88.3%), reading novels or newspapers (23.4%), watching movies or series (64.2%), mail (65.2%), photography (taken or shared, 71.6%), shopping (52%), or social networks (82.1%).

From a more social perspective and in terms of the contacts they accept on networks, 56.5% say that they only accept people they previously know and, in addition, 53.5% say that they verify the real identity of the subjects they are in contact with on the Internet. With these contacts, students establish conversations around: topics related to school (53.5%), sports (32.6%), music (65.2%) or leisure in general (books, movies, series, TV, 61.3%); anecdotally, there is little discussion about politics (1%) or the environment (0.5%) or current affairs (0.2%). In reference to safety on the Internet, and in this type of online relationships, 80.9% consider that they have never felt unsafe in situations of attacks on the Internet and 83% state that they have never suffered grooming, sexting or cyberbullying experiences.

To conclude this general analysis, we focus on the more academic component of the use of these devices and social networks. Participants state that they use these digital resources for the following activities: to extend class activities (61.4%), to carry out learning activities in their entirety (73.6%), to collaborate synchronously with colleagues when they are at home (66.7%) or when they are at school (17.4%), or to communicate with their teachers outside of school (35.8%). Most participants consider that they use them to extend class activities (61.4%). As far as information is concerned, they mainly use Wikipedia (84.3%). In reference to the fields of study they are most concerned about are mainly the historical-geographical (78.9%) or linguistic (61.4%), than from the scientific-mathematical (51.5%) or technical-artistic (20.6%). Finally, as regards the type of activities related to the teaching-learning processes in which they prefer to be involved: those involving foreign schools (64.4%), extracurricular realities (47%), or students from other groups (33.8%) or from other schools in the surrounding area (34.3%).

4.2. Digital profile

Regarding digital literacy according to Rodríguez de Dios (2018), we find the values reflected in Table 3, in which we also incorporate the reference values. In it we can see that while in some dimensions our informants' values are slightly higher than those documented by this author (for example, personal safety or critical skills), in others they are especially lower (above all, technological or informational skills). In addition, the standard deviations (which provide information on the homogeneity of the group) are lower (in some cases considerably) than the reference values.

Table 3. Digital literacy scale				
			Reference values	
	mean	SD	mean	SD
Technological skills	3.36	0.44	3.80	0.73
Personal safety skills	4.12	0.63	4.09	0.83
Critical Skills	3.73	0.63	3.43	0.74
Device security skills	3.20	0.87	3.25	0.93
Information literacy	2.62	0.67	3.37	0.70
Communication skills	3.52	0.61	3.69	0.58

If we look at the behavior of the scale according to the profile variables, we see that there are significant differences in some dimensions according to gender (Figure 1). Thus, male informants have more confident patterns in the safe use of devices (3.1 for women, 3.5 for men; 3.25 was the reference value), but are more confident in the management of information (2.67 for women, 2.47 for men, 3.37 was the reference value).

Age (or school group) is also interesting, although in a different sense, as shown in Figure 2. Here we can see an evolution in crescendo in all dimensions, with a certain curve (or regression) in the last year (perhaps explainable by maturity and awareness, which modulates the assessment of personal digital skills). In any case, there are significant differences both in technological skills and in personal security, so that students in the last year feel more capable than those in the first year.

Related to this, we find both the transmedia and attitudinal profiles. Regarding the four dimensions of transmedia analyzed here (Table 4), our informants are especially inclined to transmedia navigation and to everything that has to do with the evaluation of the information found on the network (judgment), while they present more contained values both in the community dimension (collective intelligence) and in the assumption of other identities (visualization). As in the previous case, we offer the reference values, in this case from Estebanell-Minguell et al. (2021):

Figure 1. Digital Literacy Scale according to gender (* significant differences <0.05).

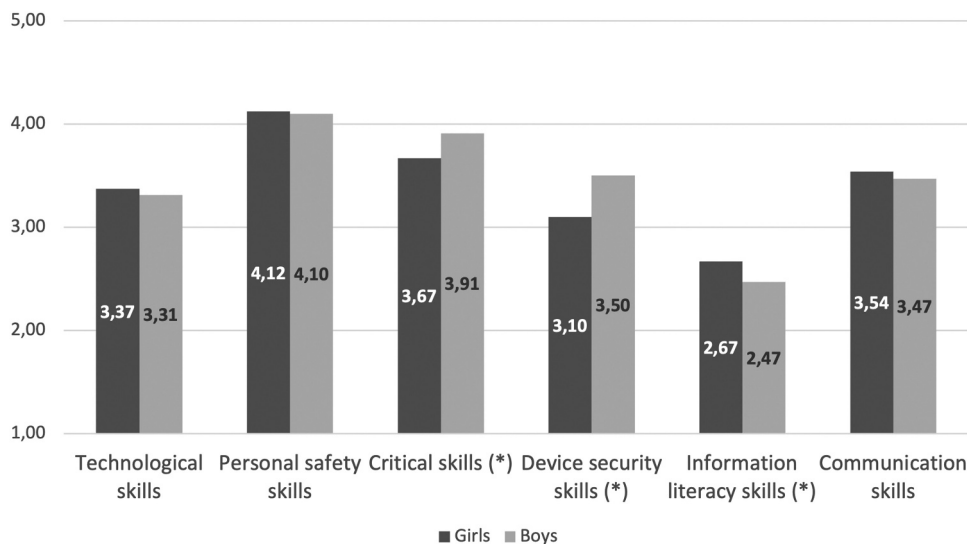


Figure 2. Digital Literacy Scale according to age (* significant differences <0.05).

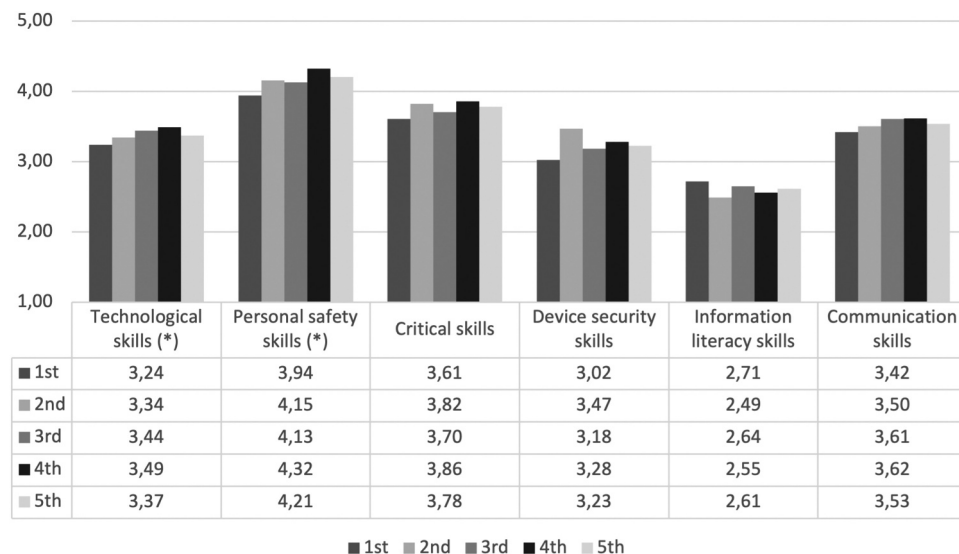


Table 4. Transmedia profile

	Reference values			
	mean	SD	mean	SD
Collective intelligence	3.89	0.61	4.12	0.56
judgment	3.91	0.55	3.88	0.59
Transmedia navigation	4.00	0.59	3.75	0.70
Visualization	3.67	0.52	3.82	0.56

Table 5. Attitudinal profile towards ICT

	Reference values			
	mean	SD	mean	SD
Positive attitude	3.64	0.51	3.66	0.84
Anxiety and dependence	2.89	0.95	3.15	1.09
Negative attitude	2.89	0.81	3.35	0.92

Also in this case we find interesting differences in relation to gender (always higher values for girls than for boys), although only in relation to transmedia navigation are the differences statistically significant: in this case, girls indicate higher values than boys (4.05 for girls, 3.83 for boys; 4.00 was the reference value). There is also a note regarding age, although in this case there is no general pattern (and informants in higher grades do not always show themselves to be more transmediated than those in lower grades). In this case, the differences are significant only in the judgment dimension, in which students in 5th grade score 3.98 while those in first grade score 3.82 (the reference value was 3.88).

Table 6. Rates of multitasking during homework

			Reference values	
	mean	SD	mean	SD
Watching TV	1.34	0.73	2.20	1.16
Listening to music	2.53	1.22	3.11	1.10
Reading	1.43	0.91	2.11	1.13
Phoning	1.96	0.97	2.15	1.14
Sending messages	2.81	1.05	3.08	1.08
Interacting on social networks	2.52	1.05	2.53	1.24
Watching movies	1.48	0.85	2.07	1.23
Using the computer	2.23	1.03	2.61	1.16
Playing video games	1.15	0.51	1.79	1.14

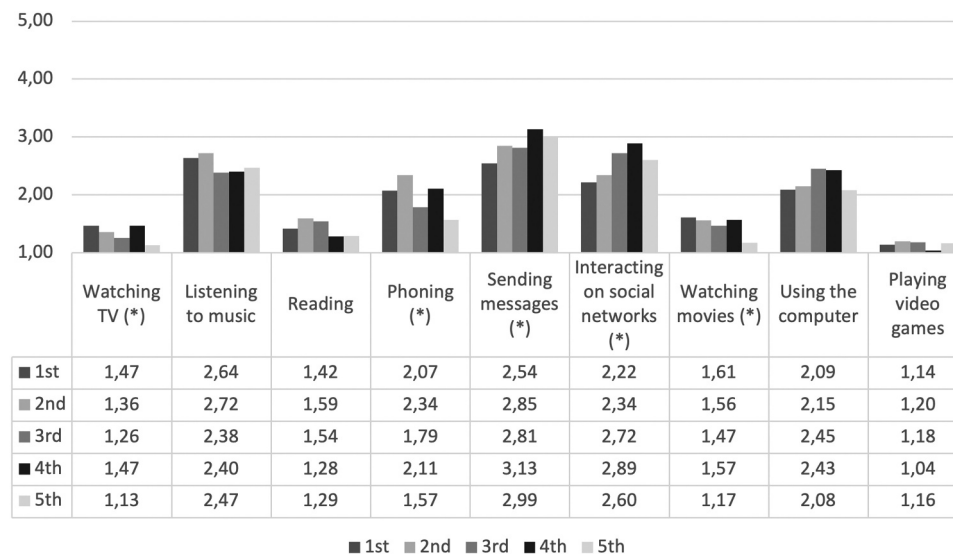
Regarding attitudes, we find interesting elements if we compare them with the reference values (Rosen et al., 2013) Table 5: on the one hand, the dimension of positive attitudes is on a par; on the other hand, the values of the dimensions of anxiety and dependence or negative attitudes are significantly lower. All of this makes up an attitudinal profile that is favourable to ICTs as a whole.

Also in this case we found some slight differences in terms of gender and age. In relation to gender, women present significantly higher values than men, both in anxiety and dependence (2.96 women, 2.66 men, 3.15 was the reference value) and in negative attitudes (2.97 women, 2.64 men, 3.35 is the reference value). As a whole, the negative attitudes of the whole sample are lower than those indicated by Rosen et al. (2013); but it is clear that in the case of the informants this is especially intense. As for age, there is no clear pattern linking attitudes with age; it would seem that, again, we should pay attention to negative attitudes, which increase with age (2.79 in first grade, 3.17 in fifth grade; 3.35 is the reference value). Therefore, as we said in terms of gender, all the values in our sample are lower than the reference values for negative attitudes, but they are especially so in the youngest students.

Finally, we can look at the multitasking profile (even more interesting, insofar as the reliability data have led us to discard the corresponding dimension of the previous instrument), since *multitasking*, as stated in the New Media Literacies of Jenkins et al. (2009), is a skill closely linked to transmedia in general and transmedia navigation in particular. In this sense, as shown in Table 6, the values of the sample are significantly lower than the reference values (Martín-Perpiñá et al., 2019), which indicates that the students of our two *licei classici* are more focused on academic tasks than the Spanish students. In fact, except in the most social dimension (messaging and social networks), which to some extent may be linked to the school itself, the values are appreciably lower. As in the reference study, the standard deviations are very high, which speaks of an important diversity of the sample in relation to multitasking.

There are few significant differences in this case in relation to gender, although the girls message more than boys (girls 2.88, boys 2.60, the reference value was 3.08); in any case, in the rest of the situations we do not even find a constant gender pattern. In terms of age, we do see some interesting issues. On the one hand, it would seem that in the more individual complementary activities (watching TV or movies) there is a tendency for students to decline in them as they move up the grades (the values of younger students are lower than those of older students); and, on the other hand, the social dimension (messaging and social networks) increases as they get older. An exception to this is the last of the situations in which there are significant differences according to age, talking on the phone, in which there is also

Figure 3. Differences in multi-tasking by age (* significant differences <0.05).



a decreasing trend (in curve) between the first and fifth grades. All of this is shown in [Figure 3](#):

5. Conclusions

As a first conclusion, we confirm wide access to devices that facilitate access to the network. In this specific case, practically all the informants of the *licei classici* have a phone, tablet or computer that allows them to access the information found on the network and to have a notable presence on it, a *sine qua non* condition for any transmedia reflection. And, going a step further, their preferred tools or resources or, failing that, the ones they use most frequently, are those that ensure ubiquity (mobile phones or tablets) and omnichannel connection. This same situation seems not to be exclusive to the Italian context, for example, in a study conducted with Spanish first-year university students the results obtained were similar (Sánchez-Caballé et al., 2019). Likewise, the 2018 report of the Association for Media Research indicated that there is currently a natural trend towards the use of this type of devices.

In this sense, when they decide to make use of ICT they tend to have a positive attitude towards it. If this information is viewed from an academic perspective, Edmunds et al. (2012) indicate that students have a positive predisposition towards the use of ICT, especially when these have a direct and obvious application to the academic tasks they have been given. However, their attitude in academics is also closely linked to the difficulty of the task or content they have to deal with (Erdener & Y Kandemir, 2019). In this case, students have not transferred a significantly lower score in reference to anxiety and dependence on ICT with respect to Rosen et al. (2013).

Regardless of all that has been explained so far, the students present a good level of digital competence, a fact that coincides with other studies of similar characteristics such as those of Son et al. (2017) or Maderick et al. (2015). In addition, specifically, the group of studies analysed stands out especially in skills related to personal safety and critical thinking. On the other hand, they show difficulties in relation to skills linked to information and technologies. It is precisely this last skill, the one related to technologies, which is one of those that the HORIZON reports consider essential to include in current curricula (Becker et al., 2017).

As for the transmedia profile, although it is true that they have a considerable predisposition for transmediality, they are contained in collective intelligence and the assumption of other identities. This circumstance is even shocking: on the one hand, because the item referring to transmediality is closely related to the informational skills in which they score relatively low in digital competence; on the other hand, because this type of transmedia practices is normally related to multitasking, although our informants do not tend to do so, and less so as they grow up (perhaps due to the pressure of a very traditional educational system, the Italian one). In other words, on the one hand we see elements that make us think that transmedia learning is well received (both competency and attitudinal), which brings us to the sphere of Fleming (2013) or Rodrigues and Bidarra (2019); but on the other hand we see that idea of Esteban-Guitart (2016) in relation to the splitting of personal and academic practices is still valid and we cannot take for granted that these positive elements for transmedia learning are necessarily sufficient (and they are sufficient for the whole student body, which we have confirmed to be diverse). In short, although in some ways students are becoming more and more accustomed to technology-mediated and transmediated contexts, there are still many challenges to be faced in order to usefully include these didactic strategies in E-A processes, as Scolari et al. (2020) point out, is considerably complex. Finally, a brief reflection about this research limitations and strengths. Undoubtedly, our results only refer to two specific contexts and, therefore, the knowledge provided by this research should be generalised very carefully. However, analysing the transmedia profile of these adolescents in Italian *licei classici* clarifies some doubts about how the actions envisaged in digital education plans (such as the Italian PNSD) can be deployed: not only in relation to media education in a broad sense, but also as an opportunity, in this context, to design innovative didactic experiences with the use of technologies. This is where we can find the importance of these findings: our students can participate in these experiences, and we can even expect them to find them motivating; but we must consider that they are diverse in terms of their digital competences, and we must plan to accompany them also when acquiring them. And maybe that's also a way setting a bridge between their academic environment and their informal everyday life, according to Esteban-Guitart's (2016) initial ideas.

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