VISUAL REVIEW | Vol. 17, No. 1, 2025 | ISSN 2695-9631
International Visual Culture Review / Revista Internacional de Cultura Visual
https://doi.org/10.62161/revvisual.v16.5333

WAKING UP TO SCREENS
Digital Consumption in Adult Population at the Start of the Day and Opportunity Cost Perceived

LAURA PICAZO SÁNCHEZ [1]
[1] International University of Valencia, Spain

KEYWORDS

Media literacy
Digital consumption
Attention economy
Techno-addiction
Screens
Critical Attitude
Social media

ABSTRACT

A study was conducted on a sample of 447 adults in Spain who recorded their digital consumption habits upon waking up in the morning, still in bed. The analysis instrument included a total of 67 parameters related to the device, content consulted, and perceived cost-opportunity, which involved 29,949 open-ended responses. The results demonstrate that, upon waking, individuals utilise their mobile devices to access WhatsApp, the alarm application, and Instagram, thereby compromising their sleep time, improving their organisational skills, initiating the day with a sense of calm and composure, and engaging in physical exercise. It is imperative that society integrates attention economy and digital self-criticism as educommunicative practices.

Received: 27 / 06 / 2024
Accepted: 12 / 09 / 2024

1. Introduction

We are witnessing the integration of technological expansion and normalised screen consumption into our society, which has been in place for almost two decades. However, the global pandemic of 2020 has brought about changes in our daily and social lives, particularly in the way we interact with each other and the media. This has led to a multi-screen approach to communication within families and social groups, as well as a rise in the controversy surrounding the use of digital media by younger people (Lozano et al., 2020). The global pandemic led to a significant surge in the demand for and consumption of information and communication media, resulting in an exponential increase in the following:

> (...) the prevalence of information overload, misinformation, and unverified data. This highlights the crucial need to equip individuals with the ability to discern reliable information and apply a critical lens to the content they consume, preparing them for what they call a new era of uncertainty (Condeza-Dall' Orso et al., 2019 in Gutiérrez-Martín et al., 2022, p.23).

Buitrago Alonso et al. (2017) posit that media literacy is a requisite skill, defining it as "the different competences of each individual to be able to use and understand new technologies." (p. 89). Several initiatives, initiated by various entities, including UNESCO's MIL curriculum of 2019 and, in particular, that of Alfamed 2021, have established dynamics, activities and practices that help to build capacity and, above all, a "critical attitude" (Ferrés Prats, 2020, p.15) among the target population (Cloutier, 1975). These methodologies have been found to be particularly effective in promoting self-awareness and sensitisation. These are mechanisms of media education, which facilitate the development a self-regulatory aptitude refered to below:

> (...) it is considered fundamental for the full development of citizens in contemporary society. In this context, the theoretical, political and pedagogical ambitions in the field of media education are considerable, as they are considered a priority and necessary for empowerment, critical literacy and the democratic commitment and participatory culture of citizens in an increasingly mediatised and digitalised world (Marta-Lazo and Grandío, 2013, p.114).

In our environment, and in a customary manner, the debate on the adverse consequences of interaction on social media platforms and networks and the considerable length of time spent in front of screens often pertains to children and adolescents, given their adept handling and familiarity with technology, as well as the demonstrated average technological proficiency of Spanish households (INE, 2023), which makes these resources readily accessible to young people and children (Cardona and Picazo, 2023; Lozano et al., 2020).

1.1. Digital Society

There is a growing chorus of critical voices today that point to the foreseeable changes that the widespread consumption of virtual devices and content may bring. In this context, Byung-Chul Han characterises our relationship with information in the contemporary digital environment as a surface on which "information can be pursued without reaching knowledge" (Han, 2021, p. 20). However, the mere availability of a greater range of information does not necessarily guarantee more optimal decision-making (Gigerenzer, 2008).

Such comparisons frequently juxtapose the tangible and physical with the virtual. To illustrate, the tangible experience that digital users elect to relinquish in favour of virtual interaction prompts this author to posit that "we take note of everything without acquiring knowledge, (...) travel everywhere without acquiring experience, (...) communicate continually without participating in a community, (...) store large amounts of data with no memories to retain, (...) accumulate friends and followers without knowing each other" (Han 2021, p. 20).

The term "phono sapiens" (Han 2021, p. 23) is defined as a person who is not actively engaged in manual tasks, who chooses rather than acts, and who reproduces himself in his networks. This individual represents his identity (Han 2021, pp. 22, 51). "In a selfie, there is noise, there is a pose, and we interpret ourselves and invent interpretations" (Han 2021, p.51).

Among these changes, Byung-Chul Han identifies an authenticity that is expressed through consumption and narcissism. He defines these concepts (applied to the web) as a constant and superficial interaction with social media information, which is based on content related to that which we have previously chosen.

> Today, the network is transformed into a special sounding board, an echo chamber from which all otherness, all strangeness, has been eliminated (...) Global communication only permits the existence of equals or others as long as they are equal (Han 2019, p.16).

Humans consume content and, as a result, consume similar content. "Narcissism is a condition that renders the individual incapable of perceiving the world in any way other than through the lens of their own self-perception. The ultimate result of this is that the other is rendered invisible (Han 2019, 40). The concept of otherness is understood as that which is different yet also perceived as negative due to its distinction: "(...) In today's society, the elimination of all forms of negativity is a prevailing trend. Everything is polished and refined, even communication is rendered into an exchange of complacencies" (Han 2019, 40).

This is why the approach of this work and of the global research in which it is framed is to pursue the self-diagnosis of this virtual experimentation and of the individual attention paid to the screens that each participant recognises in themselves. Furthermore, it is to examine the changes that this produces in their interaction with the environment. In particular, it is hoped that the implementation of a reflexive dynamic will facilitate the drawing of conclusions regarding digital consumption and its impact on human, individual, and social behaviour.

1.2. The Opportunity Cost Concept

This term is commonly used in economics to differentiate between the budget and resources that are invested in one intervention and those that are not invested in others (Añel Rodríguez et al., 2023). In this context, the term is applied to the aspect of investment of time and attention towards a particular activity. It signifies the foregone, unattainable, or unobtainable outcomes resulting from the selected course of action.

The study examined the cost-opportunity of choosing screens at a specific time of the day. It was found that individuals had stopped doing certain activities in order to invest their time and attention in front of digital devices at the start of the day. This was demonstrated by Añel Rodríguez et al. (2023).

The pervasive use of the Internet throughout the day fosters an individualistic tendency that is characteristic of the socio-communicative context in which we find ourselves (Han, 2019). Nevertheless, there are studies that present arguments to the contrary. In a study conducted by Gao et al. (2020), a relationship was identified between daily internet consumption and perceived quality of life. Among the authors' contributions is the identification of a correlation between these variables. Participants indicated that the integration of the Internet into work activities is associated with improvements in quality of life, particularly in terms of social relations.

Furthermore, the researchers linked internet usage at work to self-efficacy, which is regarded as a favourable attribute associated with screen use. However, problematic use of the Internet is associated with feelings of stress and negative affect, including depression and anxiety. The study concludes that an imbalance in the use of the Internet in both professional and private contexts is associated with problematic technology use, which in turn is associated with a poor quality of life (Gao et al., 2020).

1.3. Postponing Sleep over Screens

In the case of adolescents and adults, the postponement of rest time is linked in many scientific approaches to their digital diet, associating this "sleep procrastination" with "the perception of sleep". This is evidenced by the fact that insufficient sleep, later awakening and increased fatigue (Kadzikowska-Wrzosek, 2018, p.12), as well as the general delay in the day (Kroese et al., 2014), are all factors that contribute to this phenomenon.

This cost-opportunity of screens is the subject of study in other scientific approaches. De Zambotti et al. (2018) posit that the use of smartphones, computers, televisions, and other

entertainment platforms and devices is limitless, which may result in the postponement of the time when one should rest in order to enjoy a good night's sleep.

This results in a postponement of sleep time and a reduction in the amount of sleep obtained. Indeed, the authors posit that screens continue to be used in the adolescent bedroom, even in bed before bedtime, which delays the time at which sleep is initiated and disrupts sleep with their light or sound. In Valensi's own words: "The presence of multimedia technology has been found to predict shorter sleep duration and worse sleep habits" (Valensi, 2022, p. 19). In the same study, it was observed that "100% of adolescents used at least one electronic device in bed (...) The devices were as follows: 57% watched television, 90% used music players, 43% used computers, and 64% used telephones" (Valensi, 2022, p. 119).

This study demonstrates that the consumption of night-time television is being supplanted by interactive screens, not only among young people. "38.8% of adults indicated a preference for watching videos on YouTube, TikTok, and other platforms before going to bed (...) Conversely, 20.9% preferred to watch local news" (Valensi, 2022, p. 119).

These findings demonstrate that, despite the typical context of night-time rest (bed), there is a tendency to continue using social networks, watching movies on the TV in one's own room or videos from the smartphone for a prolonged and indefinite period. This prolonged screen exposure may influence the success or failure of that sleep time, as the screen accompaniment is a decisive factor. e.g. "They can go to bed at the scheduled time (routine bedtime) but cannot sleep at the scheduled time (they postpone sleep onset)" (Valensi, 2022, p. 119).

1.4. Objectives and Justification

The precedents set out above present a socio-communicative scenario that would be worthy of further detailed investigation. It is our contention that an investigation into the habits and changes that digital use is bringing about among individuals would be of great scientific interest. Furthermore, we believe that an approach based on the personal and open diagnosis and reflection that people can carry out on their technological consumption and their economy of attention has the potential to shed light on the academic field and integrate effective media education and critical thinking.

This article forms part of a wider investigation into the use of digital devices and content among a Spanish adult population of 447 individuals. The study examined the devices and digital content consulted throughout a full day, structured at different times of the day.

The following times were considered: upon waking (before leaving the bed), during breakfast, on the way to work/study, at work/class, during breaks, during lunch, after lunch, afternoon chores, before dinner, during dinner, after dinner, and in bed (before going to sleep).

Furthermore, the opportunity cost associated with this use is calculated, allowing the participant to reflect on what they feel they have missed out on by consulting this digital content on their device.

This article presents the results and analysis corresponding to the first moment of awakening (before getting out of bed), with the purpose of answering the following research questions:

QI 1. With regard to the devices used upon awakening, the following questions were posed:

Q.I.1.1. What devices do Spanish university students utilise when they awaken?
Q.I.1.2. Does the use of devices by men and women differ significantly when they wake up?
Q.I.1.3. What are the main trends in the use of devices when waking up among the Spanish university population?

QI 2. With reference to the contents consulted at that time.

Q.I.2.1. What digital content and applications do Spanish university students consult when they wake up?
Q.I.2.2. Are there any significant differences between men and women in the digital content consulted when waking up?
Q.I.2.3. What is the most frequently consulted digital content among the Spanish university population when they wake up?

QI 3. In accordance with the perceived cost-opportunity of utilising devices upon waking

Q.I.3.1. What is the perception of this population regarding the opportunities foregone as a result of digital consultation?
Q.I.3.2. Are there significant differences between men and women in their perception of the activities that they undertake on their devices when they wake up?
Q.I.3.3. What action or activity is the most frequently substituted among the Spanish university population for the use of digital devices when waking up?

The present study has two main objectives: firstly, to gain insight into how the Spanish adult population assesses their own use of technology, and secondly, to ascertain their perceptions regarding the activities they cease when using screens. This investigation is contextualised at the moment of waking up, when participants are still in bed. In order to achieve the aforementioned objective and respond to the research questions, a methodological tool has been designed and described in the following section.

2. Design and Method

The objective of this study is to analyse the responses of 447 questionnaires, provided on a voluntary basis, corresponding to students from different university degrees at a Spanish online university.

2.1. Sample and Data Collection

The total number of participants was 331 women and 116 men. Their contributions were digitally collected by the author of the study from 2018 to the end of 2023. In order to preserve the anonymity of the participants, only their gender (with no other information provided than male or female) and the responses they provided were processed.

The qualitative design of the questionnaire was intended to ensure the representativeness and personal casuistry of the interaction with the screens. This approach enabled the collection of free and open answers from the participants, which could be organised and processed through a telematic approach carried out with the Atlas.ti tool (V.22.1.0). This also facilitated the processing of the data quantitatively. The tool enabled the recording of variables pertaining to the digital device used, the content consulted and the perceived cost-opportunity associated with such use, all linked to a specific time of day.

The participants were asked to indicate the time of day at which they typically engage with digital devices. The options included: 1. When waking up (before getting out of bed). 2. During breakfast. 3. Commuting to work/study. 4. At work/class. 5. During breaks. 6. During lunch. 7. After lunch - 8. Afternoon tasks. 9. Before dinner. 10. During dinner. 11. After dinner. 12. In bed.

As previously stated, the present study has concentrated exclusively on the initial phase of the day. The initial stage of the day was defined as the period preceding the act of getting out of bed. It is anticipated that the remaining results, pertaining to other periods of the day, will permit the completion of this study in the future with the inclusion of pertinent contributions.

The utilisation of the Atlas.ti results and the processing and identification of the qualitative responses has enabled the identification of patterns corresponding to 67 variables related to the utilisation of digital devices by the Spanish university population when waking up (before getting out of bed). The variables are organised into four areas or blocks of parameters.

The variables Gender, Device, Content and Cost-Opportunity are reflected in the Codebook (Tables 1a and 1b), which was generated to obtain statistical data. Following the application of the aforementioned variables to 447 individuals, a total of 29,949 responses were obtained, which are reflected in the results presented in this article.

Table 1a. Codebook (1st part)

Block of parameters	Variable	Assigned code
Gender (2 variables)	Man	H
	Woman	M
Device (9 variables)	Smartphone	SM
	Smartphone+ Smartwatch	SS
	Smartphone + Tablet	ST
	Smartphone + Computer	SO
	Computer	O
	Tablet	T
	Smartwatch	SW
	Alarm clock radio	RD
	Do not use device	0D
Content (25 variables)	WhatsApp	W
	Alarm	A
	Instagram	I
	Internet in general	RRSS
	Facebook	FB
	Mail	MA
	X	X
	News	NO
	Tik Tok	TK
	Telegram	TG
	YouTube	YT
	Calendar App	AC
	Weather App	AT
	App Bank	AB
	App Jobs	AE
	Health App	AS
	Shopping App	AC
	Baby App	BB
	Netflix	NE
	Pinterest	IP
	Kindle	KI
	App Notes	NT
	App Podcast	PO
	SMS	SMS

Source: Own elaboration, 2024.

Table 1b. Codebook (2nd part)

Block of parameters	Variable	Assigned code
Cost-Opportunity (31 variables)	Rest - Sleep	DESC
	Organisation and use of time	ORG
	Start the day with peace of mind	TRAN
	Have less stress	EST
	Self-care in general	AUT
	Self-care reflection-self-awareness	AUTR
	Self-care food	AUTA
	Self-care hygiene	AUTH
	Doing some sport	DEP

Block of parameters	Variable	Assigned code
	Taking care of your eyesight	VIS
	Doing homework	CAS
	Do not be distracted by other applications	DIS
	Training	FOR
	Reading	LEC
	Devote time and attention to the family	FAM
	Devote time and attention to your partner	PAR
	Walking the pet or paying attention to the pet	PET
	Going out on the streets	CALL
	Consult other media	WTO
	No cost-opportunity to consult Alarm	NCA
	No cost-opportunity to consult WhatsApp	NCW
	No cost-opportunity to consult Internet in general	NCRRSS
	No cost-opportunity to consult News	NCN
	No cost-opportunity to consult Mail	NCM
	No cost-opportunity to consult Instagram	NCI
	No cost-opportunity to consult Facebook	NCF
	No cost-opportunity to consult Baby App	NCBB
	No cost-opportunity to consult Weather App	NCTI
	No cost-opportunity to consult Calendar App	NCC
	No cost-opportunity to consult App Podcast	NCPO
	No cost-opportunity to consult Kindle	NCK

Source: Own elaboration, 2024.

3. Results

3.1. The Device: Screens Used on Awakening

In regard to the Device block, the data indicate that the majority of individuals, comprising 104 men and 283 women, utilize a smartphone as soon as they wake up. This represents a prevalent trend among the Spanish university population. The next most relevant value is that of individuals who do not use any device at all (4 men and 26 women, representing almost 7% of the total). The remaining responses yielded insignificant data. Additionally, the smartphone and smartwatch were consulted concurrently upon waking, representing 2.5% of the total (Table 2).

The only notable discrepancy between genders is the proportion of individuals who abstain from device use upon waking, with a higher prevalence observed among women (7.85%) compared to men (3.4%) (Fig. 1).

Table 2. Device used upon awakening in percentages and total values

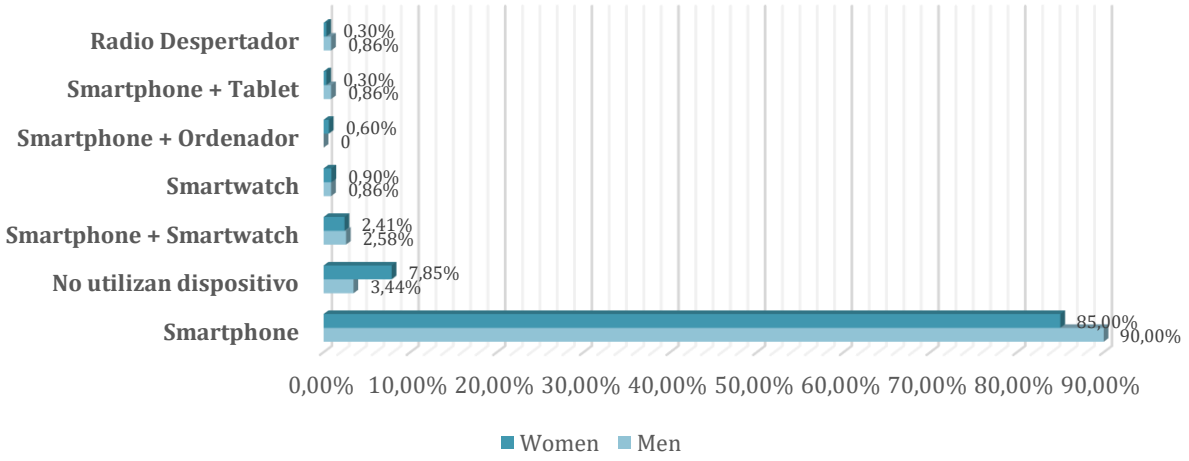
Device	Men (Total 116)	% Women (Total 331)	Total value (Sample 447)
Smartphone	89,7%	85,49%	387
Smartphone + Smartwatch	2,6%	2,41%	11
Smartphone + Tablet	1,9%	0,3%	2

Device	Men (Total 116)	% Women (Total 331)	Total value (Sample 447)
Smartphone + Computer	0	0,6%	2
Tablet	0	0	0
Computer	0	0	0
Smartwatch	0,9%	0,9%	4
Alarm clock radio	0,9%	0,3%	2
Do not use device	3,4%	7,85%	30

Source: Own elaboration, 2024.

Figure 1 shows the differences between women and men when they consult digital screens in the morning, still in bed.

Figure 1. Device used upon awakening



Source: Own elaboration, 2024.

3.2. Contents: Applications Consulted upon Awakening

As illustrated in Table 3, a considerable proportion of the Spanish university population (53%) accesses WhatsApp upon waking, with the majority of these interactions occurring at the start of the day.

This is followed by consulting the Alarm app, which was accessed by 39% of the total sample. Of this figure, 50% of respondents indicated that the alarm was the only content consulted upon waking (20%), while the remaining 50% reported consulting other apps and content (19%) (Table 3).

The next most frequently consumed content at the start of the day is Instagram, with an incidence of 29%.

Table 3. Digital content consulted when waking up in percentages and total values

Content	Men (Total 116)	% Women (Total 331)	Total value (Sample 447)
Alarm Only[1]	21,6%	19,6%	90
WhatsApp	46,60%	55,28%	237
Alarm[2]	15,4	20,6	86
Instagram	24,13%	30,21%	128
Internet in general	10,34%	4,83%	28
Facebook	6,89%	12,99%	51
Mail	9,48%	12,08%	51
X	7,75%	4,22%	23
News	7,75%	4,83%	25
Tik Tok	0	3,02%	10

[1] People who only use the *Alarm app* when they wake up.
[2] People who consult the *Alarm app* when they wake up, but not exclusively.

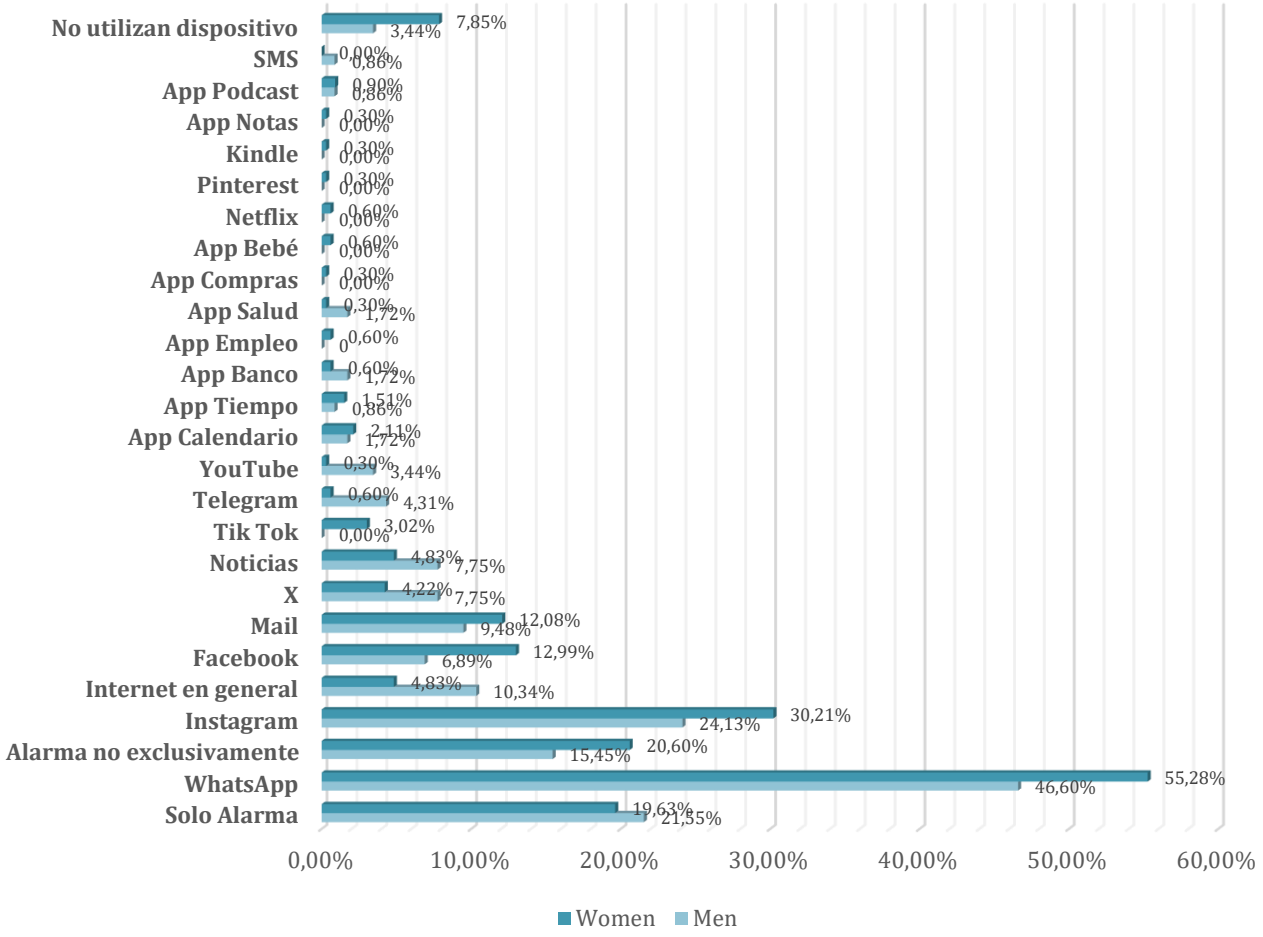
Content	Men (Total 116)	% Women (Total 331)	Total value (Sample 447)
Telegram	4,31%	0,60%	7
YouTube	3,44%	0,30%	4
Calendar App	1,72%	2,11%	9
Weather App	0,86%	1,51%	6
App Bank	1,72%	0,60%	4
App Jobs	0	0,60%	2
Health App	1,72%	0,30%	3
Shopping App	0	0,30%	1
Baby App	0	0,60%	2
Netflix	0	0,60%	2
Pinterest	0	0,30%	1
Kindle	0	0,30%	1
App Notes	0	0,30%	1
App Podcast	0,86%	0,90%	4
SMS	0,86%	0	1
Do not use device	3,44%	7,85%	30

Source: Own elaboration, 2024.

In consideration of the pronounced disparities between the sexes, it is observed that the prevalence of consultation in women is marginally higher on WhatsApp (55% vs. 46%), Instagram (30% vs. 24%) and Facebook (13% vs. 7%), as illustrated in Figure 2.

Conversely, no male respondents consult TikTok, Netflix, Pinterest, Kindle, or employment, shopping, or baby video surveillance apps. The most frequently consumed apps at the time of waking are X, Telegram, YouTube, news, banking and health apps, or the Internet in general. However, the incidence of these variables is very low (Figure 2).

Figure 2. Digital content consulted when waking up



Source: Own elaboration, 2024

3.3. Perceived Opportunity Cost: What is Foregone by Using Screens when Waking Up

As evidenced in Table 4, approximately one-third (32%) of the population under examination reported a loss of rest or sleep due to the use of screens. "I always set my alarm clock half an hour earlier to allow for a period of undisturbed and uninterrupted time to check the applications installed on my mobile device." "Consequently, I was able to enjoy a slightly longer period of nocturnal repose on a daily basis" [M_W_FB_MA_AC].

A significant proportion of respondents (15%) believe that the use of digital devices impairs their time management and organisation in the mornings. Furthermore, at least 1 in 10 respondents admit that checking their smartphone when they wake up increases their sense of stress or prevents them from starting the day calmly. This is evidenced by the following quote: "The cost is that from the first moment you are already connected to all the messages that come in. In other words, they affect one's ability to remain calm and serene" [M_W_A_I]. They claim to have sacrificed "the ability to wake up with a predisposition that is not conditioned by the information they can access from their mobile devices" [H_W_X_ AB].

Other activities that are commonly displaced include self-care, which accounts for 9.4% of cases, and which may be aimed at reflection and self-awareness. "I miss the opportunity to observe the day from my window, enjoy the company of my partner in bed, reflect, and give thanks for being able to enjoy a new day" [M_W_A].

Hygiene or the preparation of quality food: "I would get out of bed earlier and prepare a more elaborate and healthy breakfast. Frequently, due to a lack of time, I am compelled to turn to industrial food products that are already packaged and ready to eat" [H_W_MA].

Other activities are present, albeit with low prevalence, and are substituted by digital consultation time in bed. These include sport (4.5%), housework (2%), and paying attention to the family or partner

(3.2%). "Enjoying time in bed with my daughter" [M_I]; "Taking the opportunity to converse and engage in mirth with my partner" [H_A_W]. Furthermore, the time spent away from attending to pets is also recorded (1%). "I forgo providing my dog with a longer walk in order to allocate more time to perusing Instagram stories and TikTok videos" [M_W_I_TK].

Additionally, other observations, such as the assertion that screens act as a distraction (1.8%), cause damage to eyesight (0.7%), or result in a lack of engagement in other activities due to their use (0.9%), were also documented (Table 4).

Table 4. Perceived cost-opportunity upon awakening in percentages and total values

Cost-Opportunity	Men (Total 116)	% Women (Total 331)	Total value (Sample 447)
Rest - Sleep	24,1	34,1	14
Organisation and use of time	34,5	8,2	67
Start the day with peace of mind	5,2	9,7	38
Have less stress	2,6	1,5	8
Self-care in general	3,4	2,4	12
Self-care reflection-self-awareness	1,7	4,5	17
Self-care food	0,9	1,5	6
Self-care hygiene	2,6	1,2	7
Doing some sport	4,3	4,5	20
Taking care of your eyesight	0,9	0,6	3
Doing homework	1,7	2,1	9
Do not be distracted by other applications	0,9	2,1	8
Training	0,9	1,2	5
Reading	0	1,5	5
Devote time and attention to the family	0,9	1,8	7
Devote time and attention to your partner	1,7	1,5	7
Walking the pet or paying attention to the pet	0	1,5	5
Going out on the streets	0	0,3	1
Consult other media	0	1,5	5
Living	0	1,2	0,9

Source: Own elaboration, 2024.

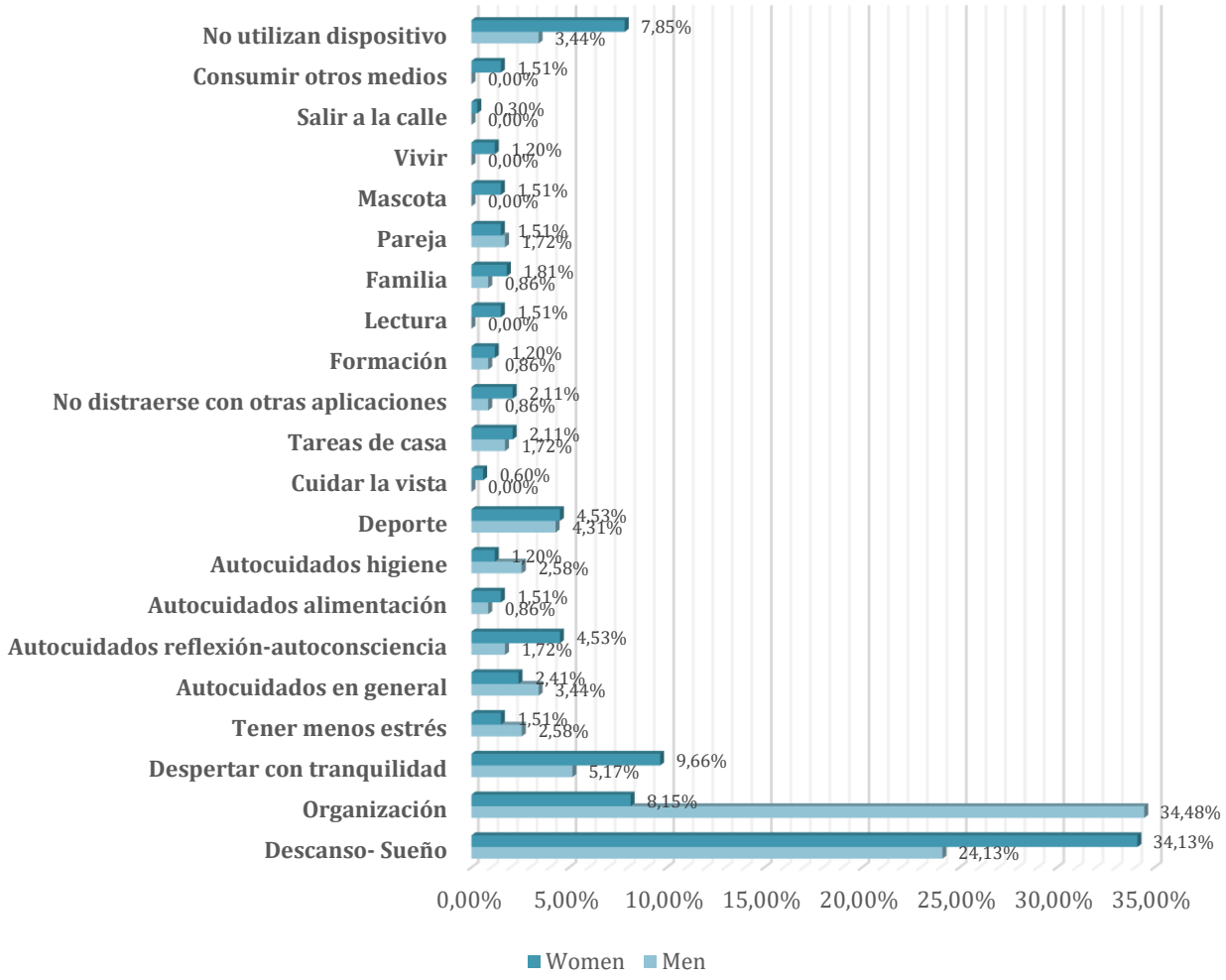
The observed differences between genders indicate that women appear to place a higher value on the time lost to sleep or rest than men. Additionally, they seem to prioritize the ability to wake up with peace of mind and without stress. "The alarm is an indispensable element that allows me to awaken and, consequently, to avoid any potential cost or opportunity. However, this convenience comes at a cost in terms of time spent on mobile phone usage, which in turn reduces the time available for preparation and relaxation before work. Perhaps I would be less inclined to reach for my smartphone if I were still using an analogue alarm clock." [M_I_W_MA].

In contrast, they indicate that one of the primary disadvantages of consulting digital devices upon waking is the loss of the opportunity to organise themselves and utilise time more effectively. "I could rise slightly earlier and utilise that time to make the bed or tidy the room" [H_A_W].

Both genders express concerns about the potential impact of digital device use on their engagement with physical activity and self-care routines. Women highlight concerns related to mindfulness, reflection, and healthier eating, while men indicate a greater concern that digital devices might be used for hygiene and self-care tasks in the morning.

With low prevalence, women report that the use of screens results in the displacement of family time, time spent with their partner, time spent with their pets, time spent reading, and time spent at home. Furthermore, they indicate that the devices in general act as a source of distraction. Additionally, male respondents indicated that they spend time away from their homes, yet they did not report experiencing any opportunity costs in the areas identified by their female counterparts (Figure 3).

Figure 3. Perceived Opportunity Cost of screen use on waking up



Source: Own elaboration, 2024.

The analysis of the responses to the variables in the Cost-Opportunity block revealed the presence of a recurring category, namely the lack of identification of any alternative to the use of screens upon waking. These results were consistently linked to the specific content consulted in each case, as illustrated in Table 5.

Table 5. Contents without cost-opportunity associated with their consultation.

No-cost content-Opportunity	Men (Total 116)	% Women (Total 331)	Total value (Sample 447)
Alarm	29,3	26,3	121
WhatsApp	4,3	2,7	14
Internet in general	4,3	1,2	9
News	1,7	0,9	5
Mail	1,7	0,6	4
Instagram	0,9	0,3	2
Facebook	1	0	1
Baby App	0	0,3	1
Weather App	0	0,3	1
Calendar App	0	0,9	3
App Podcast	0	0,3	1

Kindle	0	0,3	1

Source: Own elaboration, 2024.

The most common case represents 20% of the participating population, who consider that, as they only check the alarm on their digital device, this action does not result in any loss. Of particular note is the 12% of respondents who indicated that they perform at least one digital consultation (excluding the Alarm app) that they consider essential before getting out of bed.

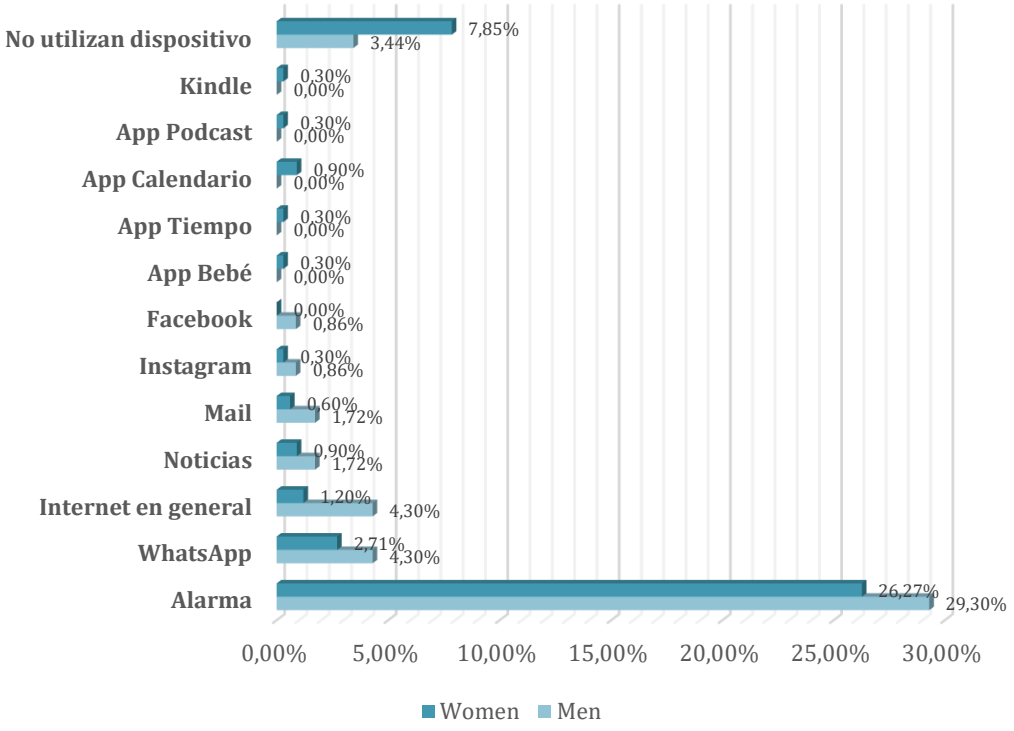
Other activities that are perceived to have no cost-opportunity and minimal impact include checking WhatsApp (3%), news (1%), email (0.9%), the calendar app (0.7%) or Instagram (0.4%), as well as surfing the internet (2%).

The results indicate that men are more likely than women to consider checking WhatsApp and surfing the internet when waking up an irreplaceable activity. However, the proportion of men and women who find this activity essential is similar, with men tending to report spending a longer time on these activities.

One participant, H_W_I_X, stated, "I find it essential to spend a quarter of an hour looking at my mobile notifications before getting up."

Email, news, Facebook, and Instagram are other queries that they recognize as being of greater value to them than the aforementioned activities, although this is not a universal sentiment. "It facilitates my transition from rest to activity, allowing me to become fully awake" [M_I]. Furthermore, respondents indicated that they utilize various applications, including calendars, baby video surveillance, weather, podcasts, and Kindle (Figure 4), to varying degrees. "There is no perceived cost-opportunity; it is work time" [M_W_AC].

Figure 4. Content consulted when waking up with no perceived Opportunity Cost to users



Source: Own elaboration, 2024.

Finally, we proceed to answer the research questions:

QI 1. In regard to the devices utilized upon awakening:

Q.I.1.1. What devices do Spanish university students employ when they awaken? The majority of the Spanish university population (87%) utilises a smartphone. This figure is immediately followed by those who do not use any device when waking up, representing 7% of the total sample.
QI 1.2 Are there significant differences between men and women in the devices they use upon awakening? A slightly higher proportion of women (8%) than men (3%) reported not using any device when waking up.
Q.I.1.3 What are the principal trends in the utilisation of devices at the time of waking among the Spanish university population? The predominant trend among the Spanish university population with regard to the utilisation of devices at the time of waking is the use of smartphones.

QI 2. In consideration of the consulted content at the time in question:

Q.I.2.1. What digital content and applications do Spanish university students access first thing in the morning? The results indicated that 53% of the respondents consulted WhatsApp, 29% accessed Instagram, 20% only consulted the Alarm app, and 19% consulted the alarm along with other content.
Q.I.2.2. Are there any notable differences between men and women in the digital content consulted at the time of waking? Women have slightly greater access to social networks at the time of waking. WhatsApp was the most popular app among women (55%) and men (46%), while Instagram was more prevalent among men (30%) than women (24%). Facebook was the third most used app, with a higher proportion of men (13%) accessing it than women (7%).
No male respondents indicated that they access TikTok, Netflix, Pinterest, Kindle, job applications, shopping or baby video surveillance. The aforementioned cohort is more likely to access X, Telegram, YouTube, news, banking and health-related applications upon waking, or alternatively, to engage in general web browsing.
Q.I.2.3. What is the most frequently consulted content among the Spanish university population when they wake up? The most frequently consulted content among the Spanish university population when they wake up is WhatsApp, followed by the alarm and Instagram.

QI 3. The perceived cost-opportunity of using devices upon awakening:

Q.I.3.1. What are the perceptions of this population regarding the opportunities they are foregoing as a result of digital consultation? A significant proportion (approximately one-third) of the sample reported that they had lost time that would otherwise have been spent on rest or sleep. Furthermore, 15% perceived a decline in their capacity to manage and organise their time in the morning, while 10% acknowledged that checking their devices upon waking had a detrimental effect on their mental state, increasing their stress levels and reducing their sense of wellbeing. A further 20% of respondents stated that checking the alarm on their smartphone is an indispensable routine.
QI 3.2 Are there significant differences between men and women in their perception of what activities are replaced by screen use when waking up? Women are more likely to cite the time spent resting and sleeping on screens, as well as the ability to wake up calmly and without stress, as being replaced by digital devices. The respondents indicated that their inability to organise themselves effectively in the morning was primarily due to the time they spent on their mobile phones. Both genders concede that their devices act as a distraction, with the time spent on them substituting for activities such as sport and self-care. Women, however, are more vocal about the loss of moments for reflection and self-awareness, while men are more concerned about the time spent on hygiene and food. Additionally, the female participants expressed concern about the loss of time with their families, partners, or pets, as well as reading or domestic responsibilities, which were rarely mentioned by the male participants.
Question I.3.3. Which activity or action is most frequently replaced by the use of digital devices at the time of waking among the Spanish university population? Rest or sleep time.

4. Conclusions and Discussion

4.1. Conclusions

The objective of this study was to document the amount of time the Spanish adult population spends engaging with digital devices upon waking, and to analyse their personal assessments of the cost-opportunity of this screen time. The chosen methodology and research process enabled us to answer the research questions and achieve the study's objectives, exceeding expectations set by this scientific approach.

As evidenced by the data presented above, the Spanish adult and university population demonstrates a proclivity for technology dependence, with a notable focus on smartphone usage upon waking, while still in bed. A mere 7% of the surveyed population indicated that they do not utilize any digital device at the outset of the day, with the majority of these individuals being women.

The most frequently consulted content is social media, specifically WhatsApp and Instagram. In our country, more than half of the adult university population accesses WhatsApp immediately after waking up. One in five individuals utilize their mobile phones solely to deactivate or adjust the alarm settings upon waking.

The question that provokes introspection among the participants is the perception of what is sacrificed by using screens when waking up. The most common response is the rest or sleep time that each person substitutes for their digital consultation. Additionally, there is a perception that time is not used effectively and that one's morning routine is less well-organised as a result of starting the day with stress and less peace of mind.

This research is based on an educommunication activity, namely a 24-hour record of screen use by participants, the results of which were largely sensitising. Furthermore, it provided an opportunity to gain insight into how they perceive themselves in terms of the activities they choose to prioritize over, postpone, or forego due to their engagement with digital devices.

The findings demonstrate the efficacy of media education initiatives as a means of gaining insight into the societal transformations precipitated by the current technological context. By focusing on a single moment in the day, we can gain insight into how our rest, time management, and the origins of daily stress are affected. Furthermore, it is evident that a proportion of the population deems their digital routine at the commencement of the day to be indispensable.

Accordingly, an expansion of the parameters of our research is necessary to ascertain significant discrepancies between the media skills acquired and the extent to which these skills directly influence digital habits, as well as the perception of opportunity cost.

It would be beneficial to integrate the following elements from Ferrés and Piscitelli's Media Competences Proposal: technology, interaction processes, production and dissemination, and ethics and values. In particular, it is proposed that the following variables be adapted:

Technology

- An understanding of the role played in society by information and communication technologies, and an appreciation of the potential consequences of their use.
- The capacity to engage with media that enhance cognitive abilities in a meaningful manner.

Interaction Processes

- The capacity to select, review and self-evaluate one's own media diet in accordance with conscious and reasonable criteria.
- An active attitude in the interaction with screens is understood as an opportunity to build a fuller citizenship, an integral development, and to transform oneself and the environment.

Production and Dissemination

- The capacity to elucidate the reasons behind the popularity and success of media products or content, both at the individual and collective levels, is essential. This entails identifying the

needs and desires that these products or content satisfy, whether in sensorial, emotional, cognitive, aesthetic, or cultural terms.

- The capacity to evaluate the cognitive impact of emotional responses is essential. This entails discerning the ideas and values associated with characters, actions, and situations that elicit positive or negative emotions.
- The capacity to discern and manage dissociations between sensation and opinion, and between emotion and rationality, is also required.
- The capacity to utilise media leisure as an avenue for knowledge acquisition.

Ethics and Values.

- The capacity to discern how media representations structure our perception of reality, frequently through unintentional communications.
- The capacity to regulate one's own emotions when engaging with digital media, taking into account the ideologies and values conveyed by such platforms (Ferrés Prats & Piscitelli, 2012, 79-81).

It is anticipated, based on related studies, that individuals with superior media skills will demonstrate a reduced reliance on technology.

Moreover, the extensive reach of the group of content creators and influencers on young people and their need for constant updating (Collado-Alonso et al., 2022) provides a crucial avenue for research on this population. The high level of exposure to online content experienced by minors, which is proportional to their age (Smahel et al., 2020), as well as the indications that they convey about their perceptions of cost-opportunity (Calderón Gómez and Gómez Miguel, 2022), allow us to design patterns to extend and expand this object of study to adolescents and children.

Future research on screen consumption in adults, such as the present study, which analyses data relating to the remainder of the day, should consider the broader context of social change and displaced habits. This will enable an assessment of the critical capacity of participants and the establishment of correlations between media education and media diet. It is hoped that this training, which is both thought-provoking and effective, will help to counteract the tendency of modern humans to perceive freedom through the act of choosing on the screen, thereby displacing experience (Han, 2019).

These digital consumption and production habits underscore the necessity for critical accompaniment that enables the interpretation of the content with which we interact, the balancing of the time we dedicate to virtual attention, and the reflection on the significance of this activity in our daily lives, as well as the underlying reasons.

In order to fully benefit from the opportunities afforded by digital progress, immediacy, the emergence of content and the multidirectionality of information, it is essential that society adopts a critical attitude. Only in this way can the autonomy and human balance of technology be maintained.

5. Acknowledgements

This research would not have been possible without the contribution of 447 university students who participated in the We Use Screens survey. Their willingness to engage with the research, and to contribute their insights and experiences, was invaluable. Furthermore, the We Users project, which was initiated in 2017, has facilitated the development and consolidation of this academic media education initiative.

References

Aguaded, I., Jaramillo-Dent, D., & Delgado-Ponce, A. (Eds). (2021). *Currículum Alfamed de formación de profesores en educación mediática.* Octaedro.

Añel Rodríguez, R.M., Astier Peña, M.P. & Coll Benejam, T. (2023) ¿Por qué resulta cada vez más complicado "hacer lo que hay que hacer" y "dejar de hacer lo que no hay que hacer"? Estrategias para revertir las prácticas de bajo valor, *Atención Primaria*, 55(7), 1-12, 102630. https://doi.org/10.1016/j.aprim.2023.102630

Buitrago Alonso, A., García Matilla, A. & Gutiérrez Martín, A (2017). Perspectiva histórica y claves actuales de la diversidad terminológica aplicada a la educación mediática. *Edmetic: Revista de Educación Mediática y TIC*, *6*(2), 81–104. https://doi.org/10.21071/edmetic.v6i2.7002

Calderón Gómez, D. & Gómez Miguel, A. (2022). *Consumir, crear, jugar. Panorámica del ocio digital de la juventud*. Madrid: Centro Reina Sofía sobre Adolescencia y Juventud, Fundación FAD Juventud. https://doi.org.10.5281/zenodo.6338126

Cardona Santamaría, C. & Picazo-Sánchez, L. (2023) El uso de pantallas en edades tempranas y su influencia en el desarrollo del lenguaje. *Memorare, Tubarão*, 10(2), 113-135 https://doi.org/10.59306/memorare.v10e22023113-135

Cloutier, J. (1975). Insertion de l'audio-visuel a l'universite. *Communication et langages*, *25*, 19-36. https://doi.org/10.3406/colan.1975.4174

Collado-Alonso, R., Picazo-Sánchez, L., López-Pastor, A.-T., & García-Matilla, A. (2023). ¿Qué enseña el social media? Influencers y followers ante la educación informal en redes sociales. *Revista Mediterránea De Comunicación*, *14*(2), 259–270. https://doi.org/10.14198/MEDCOM.23658

Cordón-García, J.-A. (2018). Combates por el libro: Inconclusa dialéctica del modelo digital. *Profesional De La información*, *27*(3), 467–481. https://doi.org/10.3145/epi.2018.may.02

De Zambotti, M., Goldstone A., Colrain, I.M. (2018) Insomnia disorder in adolescence: diagnosis, impact, and treatment. *Sleep Med Rev.*, *39*, 12-24. https://doi.org/10.1016/j.smrv.2017.06.009

Ferrés Prats, J. (2020). Grandes carencias de la educación mediática. *Temas De Comunicación*, *41*, 8– 18. https://doi.org/10.62876/tc.v0i41.4726

Ferrés, Prats J., & Piscitelli, A. (2012). Media competence. Articulated proposal of dimensions and indicators. [La competencia mediática: propuesta articulada de dimensiones e indicadores]. *Comunicar, 38*, 75-82. https://doi.org/10.3916/C38-2012-02-08

Gao L, Gan Y, Whittal A, & Lippke S. (2020) Problematic Internet Use and Perceived Quality of Life: Findings from a Cross-Sectional Study Investigating Work-Time and Leisure-Time Internet Use. *International Journal of Environmental Research and Public Health*., *17*(11), 4056. https://doi.org/10.3390/ijerph17114056

Gigerenzer, G. (2008). Why Heuristics Work. *Perspectives on Psychological Science*, *3*(1), 20-29. https://doi.org/10.1111/j.1745-6916.2008.00058.

Grizzle, A., Wilson, C., Tuazon, R., Cheung, C. K. Lau,J., Fischer, R., Ggrdon, D., Akyempong, K., Singh, J., Carr, P. R., Stewart, K., Tayie, S., Suraj, O., Jaakkola, M., Thésée, G. & Aulston, C.(2021). Media & Information Literacy *Curriculum For Educators & Learner*s. United Nations Educational, Scientific and Cultural Organization (UNESCO). https://acortar.link/XYWFuM

Gutiérrez-Martín, A., Pinedo-González, R. & Gil-Puente, C. (2022) ICT and media competencies of teachers. Convergence towards an integrated MIL-ICT model. *Comunicar*, 30(70), 21–33. https://doi.org/10.3916/C70-2022-02

Han, B.-C. (2021). *No-cosas. Quiebras del mundo de hoy.* Trad. J. Chamorro Mielke, Barcelona: Taurus.

Han, B.-C. (2019). *La sociedad de la transparencia*. Trad: R. Gabás, Barcelona: Herder.

INE (2023). *Encuesta de equipamiento TIC en los hogares.* Instituto Nacional de Estadística, España. https://www.ine.es/prensa/tich_2023.pdf

Lozano, R., Quílez Robres, A., Latorre-Cosculluela, C. & Cortés-Pascual, A. (2020) Multi-pantallas en la primera infancia: Familias del siglo XXI. *Enseñanza & Teaching*, 38(2), 47–65. https://doi.org/10.14201/et20203824765

Kadzikowska-Wrzosek R. (2018). Self-regulation and bedtime procrastination: the role of self-regulation skills and chronotype. *Pers Individ Dif.*, 128, 10-15. https://doi.org/10.1016/j.paid.2018.02.015

Kroese F.M., De Ridder D.T., Evers C. & Adriaanse M. A. (2014). Bedtime procrastination: introducing a new area of procrastination. *Front Psychol.* 5, 611. https://doi.org/10.3389/fpsyg.2014.00611

Marta-Lazo, C.M. & Grandío, M. (2013). Análisis de la competencia audiovisual de la ciudadanía española en la dimensión de recepción y audiencia. *Communication & Society*, 26(2), 114-130. https://dx.doi.org/10.15581/003.26.36129

Smahel, D., Machackova, H., Mascheroni, G., Dedkova, L., Staksrud, E., Ólafsson, K., Livingstone, S., & Hasebrink, U. (2020). *EU Kids Online 2020: Survey results from 19 countries.* EU Kids Online. https://doi.org/10.21953/lse.47fdeqj01ofo

Valiensi, S. M. . (2022). La procrastinación del sueño. *Revista Del Hospital Italiano De Buenos Aires*, *42*(3), p. 119–120. https://doi.org/10.51987/revhospitalbaires.v42i3.196