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Technologies and Second Languages

Tecnologías y segundas lenguas

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Seamless Language Learning: Second Language Learning with Social Media

Aprendizaje de idiomas «sin costuras»: Aprendizaje de segundas lenguas y redes sociales

Dr. Lung-Hsiang Wong is Senior Research Scientist of the National Institute of Education at the Nanyang Technological University (Singapore) (lunghsiang.wong@nie.edu.sg) (http://orcid.org/0000-0002-0402-9199)

Dr. Ching Sing Chai is Associate Professor of the National Institute of Education at the Nanyang Technological University (Singapore) (chingsing.chai@nie.edu.sg) (http://orcid.org/0000-0002-6298-4813)

Dr. Guat Poh Aw is Associate Professor of the National Institute of Education at the Nanyang Technological University (Singapore) (guatpoh.aw@nie.edu.sg) (http://orcid.org/0000-0001-6034-089X)

ABSTRACT

This conceptual paper describes a language learning model that applies social media to foster contextualized and connected language learning in communities. The model emphasizes weaving together different forms of language learning activities that take place in different learning contexts to achieve seamless language learning. It promotes social interactions with social media about the learners' day-to-day life using the targeted second or foreign language. The paper first identifies three key features of the language learning approach, namely, authenticity, contextualization and socialization. How these features are related to the communicative approach of language learning are subsequently explicated. This is followed by further explication on how the notion of seamless language learning could inform learning designers and learners in synergizing the desired characteristics of language learning together. Eventually, we propose the SMILLA (Social MedIa as Language Learning Artifacts) Framework to operationalize seamless language learning with the use of social media. A case of seamless language learning environment design known as MyCLOUD will be described to illustrate the practicality of the SMILLA Framework.

RESUMEN

Este artículo describe un modelo de aprendizaje de lenguas que se sirve de las redes sociales para promover un aprendizaje contextualizado y conectado en comunidades. El modelo propone la interconexión entre diferentes tipos de actividades de aprendizaje en contextos diversos con el objetivo de lograr un aprendizaje discontinuo. Promueve las interacciones sociales a través de los medios compartiendo aspectos de la vida cotidiana en la lengua meta. Este trabajo identifica en primer lugar aspectos clave del enfoque de aprendizaje tales como la autenticidad, la contextualización y la socialización, al tiempo que explica cómo se relacionan estos aspectos con el enfoque comunicativo en el aprendizaje de lenguas. A continuación se presenta una discusión acerca de cómo la noción de aprendizaje discontinuo puede orientar a los creadores de materiales, docentes y aprendientes en la sinergia de todas las características del aprendizaje de lenguas. Para concluir, se propone el modelo SMILLA (Redes sociales como instrumentos para el aprendizaje de lenguas) para poner en práctica la noción de aprendizaje discontinuo con la ayuda de las redes sociales. Los resultados de su aplicación sugieren un potencial efecto sobre los aprendientes, generando usuarios más activos en contextos socialmente significativos, preparados para la autorreflexión sobre el uso que hacen de esa lengua, y con una menor necesidad de intervención del docente.

KEYWORDS | PALABRAS CLAVE

Social media, second language instruction, on-line learning, ecological perspective of language learning, communicative language teaching.

Redes sociales, enseñanza de segundas lenguas, aprendizaje en línea, perspectiva ecológica del aprendizaje de idiomas, enfoque comunicativo.

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1. Introduction

This conceptual paper aims to explain a model that applies social media in fostering contextualized and connected second language (L2) or foreign language learning communities. Seamless Language Learning (SLL) (Kukulska-Hulme, 2015; Wong, Chai, & Aw, 2015) is an emerging model that emphasizes connecting language learning activities that occur in different learning spaces. The learning spaces that SLL connects typically encompass formal and informal learning spaces, individual and social spaces, as well as physical and digital spaces. The model seeks to facilitate social interactions in authentic learning contexts with social media in order to foster meaning making and idea sharing with the target language. The model can be applied to most L2 or foreign language learning contexts, including language learners who are not living in the authentic environments that offer adequate opportunities for them to apply the target languages for communication purpose (e.g., English learners in remote areas of China).

Recurrent criticisms on the current elementary and high school language classroom practices typically highlighted the dominance of the behaviorist PPP procedure (presentation, practice, production), over-relying on decontextualized materials, and unbalanced foci (e.g., direct teaching of language knowledge over communicative skills, language input over output activities, etc.) (Liu & Zhao, 2008; Tedick & Walker, 2009). Underlying these classroom practices is the structuralist movement which views language as a rigorous structure that is made up of grammatical elements and vocabulary (Canagarajah & Wurr, 2011). Hence, language knowledge is compartmentalized into prepackaged teaching materials that fail to address the contextualized nature of communication.

The key pedagogical challenge is to transform the target language into a 'living' language for learners. We have to consider other modalities of communication and make sense of how to leverage the authentic contexts to facilitate communication. In the rest of this manuscript, we will first explain the key features of the language learning approach that we envisage, namely, authenticity, contextualization and socialization, and relate it to the communicative approach of language learning. This is illustrated by previous research on how social media could be employed to mediate such language learning endeavours (although not without limitations); and how the notion of SLL could inform instructors and learners in synergizing all these desired characteristics of language learning. Eventually, we will propose the SMILLA (Social MedIa as Language Learning Artifacts) framework to elaborate a holistic strategy of appropriating social media to mediate a pervasive seamless language journey.

2. Literature review

2.2. The ecological perspective and communicative language teaching

In recent decades, there has been a rise of the ecological perspective in linguistics and language learning. The new perspective regards language environments as sociocultural complex adaptive systems. Thus, the stated field is about "the study of the relations between language use and the world within which language is used". Lafford (2009: 674-675) distilled a list of salient characteristics from the literature on ecological approach to language learning. The three characteristics that are most relevant to this study are,

• Language is a context-bound phenomenon. Language learning should arise from a learning community where learners perform learning activities by drawing on the learning context.

• The role of language is to mediate relationships between people and the world. Thus, the aim of language learning is to develop the ability to relate more effectively to other people. This can be achieved through joining a language learning community and carry out dialogical interaction.

• Language use is subject to the communicative needs of the people involved in specific authentic situations. Thus, in language learning situations, what should be evaluated and given feedback on is the learners' linguistic outputs (i.e., their writing texts, dialogues, and other modalities of language).

The ecological perspective could retrospectively serve as the theoretical basis of the communicative language teaching (CLT) that flags up interaction as both the objective and the means of language learning. The key is to encourage learners to partake in and reflect on linguistic interactions in multiple contexts (Thompson, 1996). The key characteristics of CLT include the incorporation of authentic material into the learning activity, the learner's personal experiences as learning resources, and the connection of in-class and out-of-class language tasks. Furthermore, form-focused activities (e.g., to correct linguistic errors) should occur not before but during or after learners' focus-on-meaning communicative tasks (i.e., to communicate meaning in the target language without worrying about the linguistic accuracy) (Widdowson, 1998).

Such a meaning-before-form perspective of language learning can be seen as "informalization of formal lear-

ning" (Boström, 2002). It advocates that teachers should facilitate the learning tasks without imposing a rigid structure on the tasks or intervene in students' learning from the beginning. According to Barron (2006), learners are more willing to tinker and experiment with things when external (e.g., teacher's) control is relaxed. Through such a process of tinkering, meanings are made. The learners may then (self-)organize learning into more structured inquiry. Thus, it is advisable to transform learning practice into the way that the students could be involved in social settings and consequently acquire tacit knowledge (Hung, Lee, & Lim, 2012).

Nevertheless, a common misconception among CLT practitioners is the over-focus on communicative practice, and that the mastery of form will take care of itself following these practices (Thompson, 1996). Meaning-before-form does not imply that form focus is irrelevant. Instead, a retrospective learning of the form triggered by learners' communicative outputs in language use should ensue. The discussion of the form should be explicit, but it should be the learners who are doing most of the discussing and peer coaching – with teachers' guidance.

Seamless Language Learning (SLL) (Kukulska-Hulme, 2015; Wong, Chai, & Aw, 2015) is an emerging model that emphasizes connecting language learning activities that occur in different learning spaces. The learning spaces that SLL connects typically encompass formal and informal learning spaces, individual and social spaces, as well as physical and digital spaces. The model seeks to facilitate social interactions in authentic learning contexts with social media in order to foster meaning making and idea sharing with the target language.

2.2. Social media and (language) learning

Social media, the online communities designed with Web 2.0/3.0 technologies, emerge as a new social space in the past decade. They are increasingly used for supporting students' communicative and creative endeavours (Greenhow & Robelia, 2009). They support process-oriented learning by promoting interactions among learners, or among learners and their teacher. Learners and teacher can involve others in their thinking through the posted "information pieces" and thoughts (Ebner, Lienhardt, Rohs, & Meyer, 2010).

Social media afford situating of language learning in authentic community/social contexts beyond classroom. This is critical for authentic language learning where language is learned via socialization and utilization (Gee, 2004). Such learner content generation activities can be regarded as a cultural citizenship practice, where learners appropriate their daily encounters and into engaging learning experiences (Kukulska-Hulme, Traxler, & Pettit, 2007). Henceforth, we envisage that social media spaces could be used to design for a seamless integration between classroom-based teacher-facilitated learning and autonomous, socialized learning in the learners' daily life.

In the perspective of the social network-based learning community, the social media generated by the learners can be appropriated as artifacts for learning. The posting of a social media item does not necessarily mark the end of the artifact generation process (Wong & Looi, 2010). Instead, utilising the reply feature, the social media can be transformed into a (social) mediator for subsequent cycles of collective reflection and (re-)production (Lewis, Pea, & Rosen, 2010) or social meaning making (Wong, Chin, Tan, & Liu, 2010). Thus, the online artifacts should be open to scrutiny, critique or recontextualization, as different perspectives or personal experiences are put forward and as new ideas are emerged (Lewis & al., 2010).

Thus, in addressing the need of authentic, contextualized and socialized language learning, students' acts of social media creation can be seen as self-initiated learning tasks with the use of the target language that aims to share (on their everyday encounters or thoughts, etc.) with their peers– at this stage, meanings are privileged. This is followed by social interactions not only to enrich or challenge the 'meaning' of the artifact, but also for peer reviews/supports in improving the linguistic accuracy (form). In short, the age of social media offers unprecedented opportunities

for language educators to create learning environments for the pervasive trajectory of authentic, cross-contextual and socialized language learning.

2.3. Seamless learning and seamless language learning

With academia's growing frustration over decontextualized and "controlled" formal curricula in schools, there is rich literature arguing for transforming the general learning practice from compartmentalized to seamless (Hung & al., 2012). The argument for seamless learning is congruent to similar arguments made in the field of language learning (Levy & Kennedy, 2005).

Whereas earlier literature tended to dichotomize decontextualization and contextualization in characterizing formal and informal learning respectively (Edwards & Miller, 2007; Lave & Wenger, 1991), the seamless learning community offers an alternative perspective of "recontextualization" of skills, knowledge or meaning through the cross-spatial and cross-temporal learning trajectories (Wong, Chai, Aw, & King, 2015). For example, skills learned through a meaning incubated in-class are objectified as social artifacts. It may be reused in authentic settings, and later be dissected, enriched, repurposed and/or 'remixed' within the social learning spaces. Through such a cross-contextual trajectory, both the knowledge/skill/meaning to be learned and the learning process itself are constantly "recontextualized", leading to deep learning.

In turn, seamless learning may inform the redesign of language learning practice with the intention of foregrounding contextualization/authenticity, "tinkering" and socialization. Specifically, Little's (2007) trajectory of learning-application-reflection bridging and recontextualizations across time and contexts could be updated through social media. For example, language "learning" could take place in classroom, "application" could ensue in real-life contexts, and "reflection" could be carried out online. The resultant SLL learning journey is pervasive and open-ended, consisting of intertwined learning tasks/pathways, which could either be learner-initiated or teacher-facilitated.

2.4. Related works (and their limitations)

There are two emerging directions of employing social media/networks in language learning in recent years. The first direction concentrates on developing L2 communities of learners within social networks (Wei, 2012; Yunus, Salehi, & Chen, 2012). Such social spaces typically involve minimal teacher guidance or teacher-imposed structure, to promote greater learner autonomy and social authenticity. The common intention is to build environments where L2 learners dare to "tinker" with self-expressions and communication in the target language without teachers' excessive correction acts that often result in demotivating learners in language use (Freeman & Freeman, 2001). However, such approaches may suffer from the lack of experts' linguistic guidance and quality peer reviews which might result in learners not being able to accomplish linguistic accuracy (form) beyond fluency (meaning).

Meanwhile, studies in the other direction seek to leverage social media to mediate relatively structured, task-oriented language learning activities. Such activities are more formal learning-oriented despite extending the learning processes beyond classroom. Examples are learning projects where learners collaboratively perform knowledge management or create/revise contents in the target language with multi-user editors such as wiki (Felea & Stanca, 2010; Zou, 2016), or the applications of social media tools in process-oriented writing (e.g., Ansarimoghaddam, Tan, Yong, & Kasim, 2012; Wong, Chen, Chai, Chin, & Gao, 2011). Such writing approaches typically require learners to recurringly contemplate the theme, language, purpose for writing, and particularly with the readers in mind (Boas, 2011).

Notwithstanding, the learning activities in the second direction may give students a sense of producing "formal" linguistic artifacts despite a greater emphasis on the writing process. Such an approach of "informalizing formal writing (of FULL compositions/reports)" may not be conducive for L2 learners who are subject to "language threshold", i.e., they may not possess adequate L2 proficiency for their first language writing skills to be transferred to L2 writing (Williams, 2005). Instead, they often put in greater efforts in dealing with writing micro-skills such as grammar and vocabulary, and yet neglect the meaning-focused tasks including outlining and reviewing (Silva, 1993). This might undermine the power of authentic socialization and denying students' willingness in tinkering.

3. The SMILLA Model: "Social media as language learning artifacts"

To address the limitations of most of the existing social-media-mediated L2 learning strategies, we advocate for balanced (formal/informal learning, individual/social learning, meaning/form, language input/output activities, etc.) approaches in appropriating social media for developing L2 learners' communicative competencies. Informed by the

notion of SLL, we propose SMILLA (Social Media as Language Learning Artifacts) Framework as a guide for constructing a social media space with multiple learning pathways for L2 learners (figure 1). Specifically, SMILLA uses microblogs with reply feature (such as status updates on Facebook, tweets on twitters, etc.) to facilitate activities where language learning and application are interwoven.

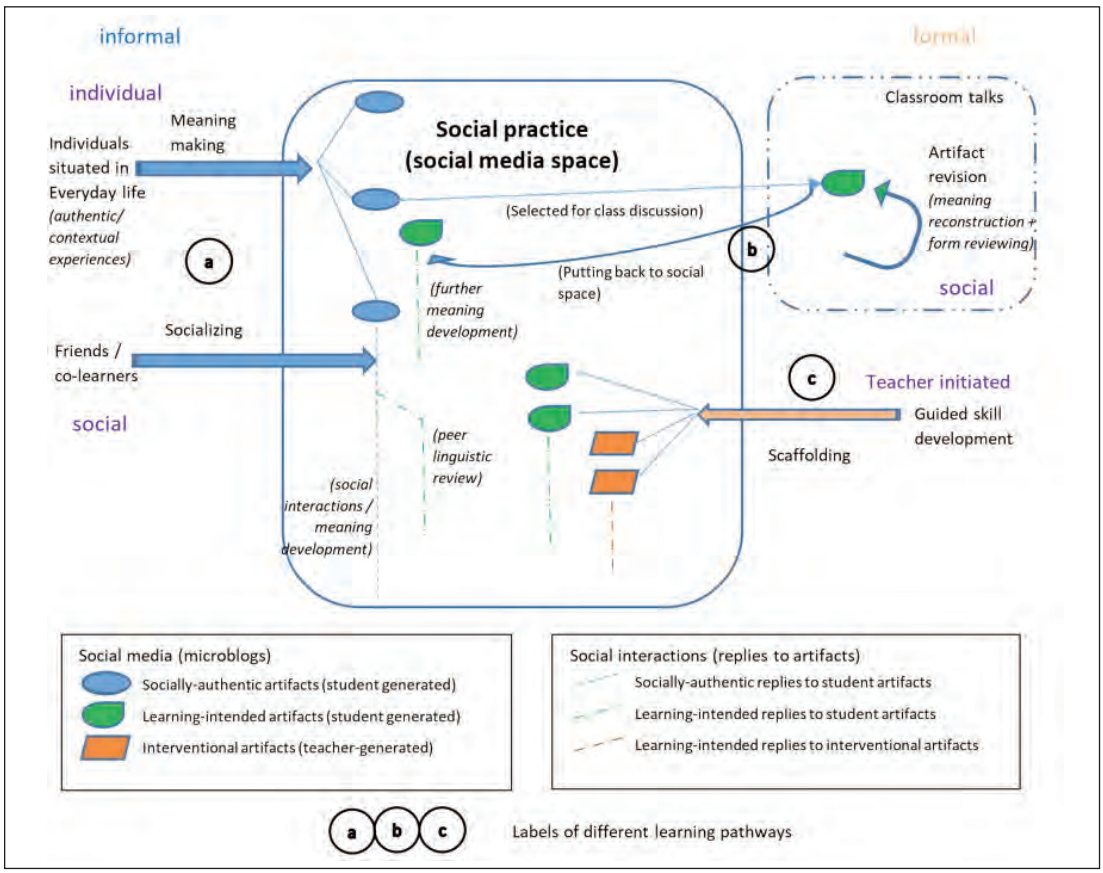

Figure 1. The SMILLA framework.

In the framework, we distinguish social media (learner artifacts) into three types: "socially-authentic artifacts", "learning-intended artifacts", and "interventional artifacts". Socially-authentic artifacts are artifacts created by learners in a self-initiated manner – microblog items reflecting their everyday life or thoughts, not triggered by any specific teacher instruction. Such artifacts are "socially-authentic" because they are created with authors' personal "authentic" desires to share their lives and socialize within the community. These artifacts may trigger "socially-authentic replies", ensuing a trajectory of individual-to-social meaning making (i.e., learning pathway (a) in figure 1). However, these artifacts may also trigger peer feedback on its linguistic form (i.e., a form of "learning-intended replies").

In contrast, learning-intended artifacts are either created by learners as per teachers' instructions for specific learning purposes (pathway (c) in figure 1). In addition, some socially-authentic artifacts may later be appropriated by the teachers and transformed into learning-intended artifacts (pathway (b)). For example, a teacher may select a set of socially-authentic artifacts for classroom talks or small-group discussions to solicit peer feedback on each artifact. Based on the feedback, the author of an artifact will be encouraged to edit/revise/extend his/her work, which will then be 'put back' to the social space for further meaning development. It is important to note that such in-class artifact review activities should be conducted in a non-threatening manner in order not to jeopardize the lower stakes "atmosphere" of the social media space.

Finally, interventional artifacts are teacher-created microblog items to initiate specific learning activities that require online social participation (pathway c). Similar to 'learning-intended artifacts', such artifacts are meant for

enactment of strategies to assist the learners in building specific skills. The learners' replies to these types of artifacts are all categorized under "learning-intended replies".

Under the SLL perspective, all the artifact creation and socializing activities as depicted in the framework are neither totally formal- nor completely informal-oriented. They constitute an intertwining of both types of learning with some artifacts leaning towards being informal and others more towards the formal aspect. We envisage that a SMILLA-style social media space would consist of all three types of student artifacts. Henceforth, the social media space becomes a mediator for connecting formal and informal learning, while social media items become mediators for individual and social learning (i.e., individual application of the target language through self-creation of social media, and subsequent online peer interactions and linguistic reviews). An ideal situation is that a majority of the social media are socially-authentic artifacts as they are supposedly the products of self-directed learning and perhaps an indicator of the learners' enthusiasm in social networking with the target language. Furthermore, such artifacts may become rich resources for follow-up learning activities and a means of formative assessment.

4. A case to illustrate the SMILLA framework: MyCLOUD

4.1. The intervention design

MyCLOUD is a mobile-assisted learning environment targeting for primary school Chinese L2 students in Singapore. A cloud-based platform with both web and mobile app interfaces was developed for the purpose. The platform connects in-class language learning with out-of-class language application and reflection processes. The platform consists of the following key modules:

• My e-Textbook: This is a digitized version of the Chinese Language textbook. Within the e-Textbook, students may select and store unfamiliar words that they encounter in the Mictionary (see below).

• Mictionary: This is a personalized mobile dictionary for students to store unfamiliar words that they have learned from the e-textbook or incidentially (i.e., in their daily life), and check their pronunciations and meanings. Furthermore, Mictionary requires the students to self-create additional content in the form of social media (i.e., learning-intended artifacts) that utilize the target words. The social media uploaded to Mictionary will automatically be replicated in MyCLOUDNet (see below), thus connecting individual and social learning efforts, as well as bridging formal and informal learning spaces.

• MyCLOUDNet: This is a social media space where students may autonomously create and share social media (i.e., the socially-authentic artifacts) in Chinese, apart from the social media duplicated from Mictionary. Peer casual interactions (socially-authentic replies) or linguistic reviews (learning-intended replies) may then be carried out; the former for enriching the meaning and the latter for assisting the students in correcting their linguistic errors.

A 13-month empirical study was conducted in a neighbourhood elementary school and involved 37 students from a 3rd grade (9-year-old) class. Each student was equipped with a tablet, 3G broadband subscription and a MyCLOUD platform account to support one's SLL journey. During the intervention period, the researchers met with

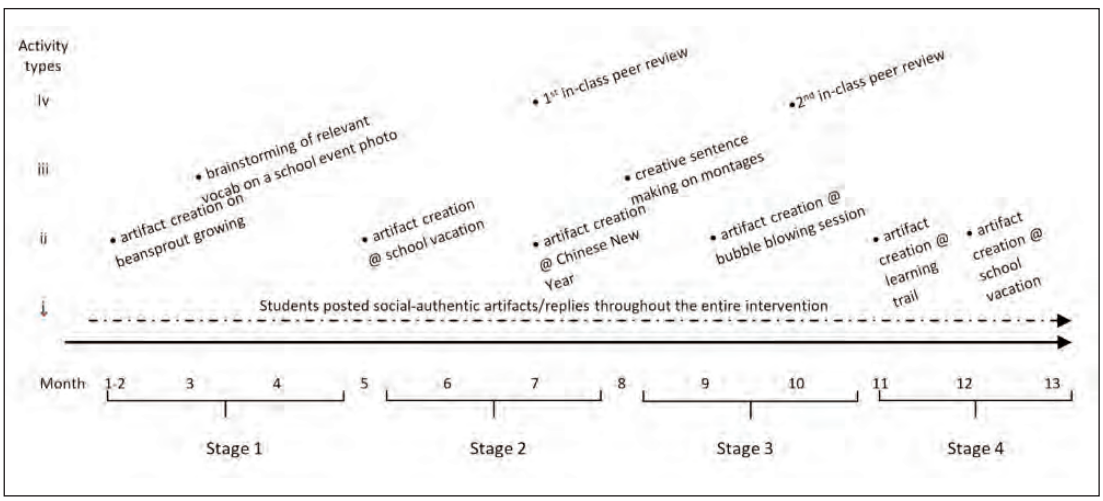

Figure 2. The timeline of the MyCLOUD intervention.

the Chinese teacher of the class, Sharon (a pseudonym), on a fortnightly basis to review lessons conducted and students' learning progress, as well as to co-design subsequent lessons. In this way, the core elements of the SMILLA framework were gradually and systematically enacted in the Chinese class throughout the 13-month period as four major types of activities (figure 2):

• Type I: Promotion of creating socially-authentic artifacts and making socially-authentic replies (attuning to pathway a in figure 1): Throughout the entire intervention period, Sharon encouraged the students to post social media about their everyday life experiences at their own convenience, and reply to peers' postings as though they were carrying out authentic social networking. Nevertheless, Sharon did not make such after-school artifact creation activities mandatory. Neither did she use the artifacts for formal assessments, in order not to overly formalize the informal-oriented learning tasks. To cultivate such a habit-of-mind among the students in the early stage, instead Sharon employed 'softer' strategies as described in the next paragraph.

• Type II: Tapping on authentic occasions or designing contexts to elicit learning-intended artifacts (pathway c): Sharon had opportunistically engineered special occasions in order to encourage students to create social media. These included two month-long school vacations in the 5th and the 11th month and the Chinese New Year holiday in the 7th month – the students were recommended to use contextually relevant vocabulary beforehand and at the same time they were open to share their personal holiday experiences in their social media with or without using the target words. In addition, Sharon designed contexts such as encouraging the students to plant beansprouts at home and share the progress by social media (the 2nd month), facilitating an in-class bubble blowing session and instructing the students to take photos and write a paragraph that utilized some recently learned complex sentence patterns with connectors (the 9th month), and an outdoor learning trail at a historical site with relevant social media being created on-site or afterward (the 10th month).

• Type III: Teacher-created learning-intended artifacts as the mediators of strategies to nurture specific skills (pathway c): For example, understanding that most students tended to compose literal and simple text descriptions to the photos they took for social media creation, Sharon designed activities to elevate their creative ie. making abilities. In the 3rd month, Sharon posted a context-rich photo taken during the school's sports' day and invited the students to brainstorm and propose words/idioms relevant to the context. In the 8th month, Sharon posted montages of two photos with supposedly unrelated contexts onto MyCLOUDNet and invited the students to compose sentences (with the reply feature) that connect the photo contexts (figure 3). After one student had composed a sentence on a photomontage, her/his peers may rephrase, expand or even re-contextualize the same sentence.

Student A: 小明和小丽把报纸收拾好，然后放进货车。 (Melvin and Li are tidying up the newspaper and then putting it into the van.)
Student B: 妈妈和弟弟在帮忙收拾报纸。他们收拾好了，就把报纸放在车子里。 (Mum and little brother are tidying up the newspaper. After that, they put the newspaper into the van.) *(rephrasing Student A's sentence)*
Student C: 这个家庭因为被坏人给骗了，没有钱，所以每天去捡旧报纸，放进货车里。 (This family was conned and is now penniless. Therefore, they have to tidy up the newspaper every day and put it into the van.) *(expanding the meaning of earlier sentences)*
Student D: 这辆货车不小心撞倒了草地上的一堆报纸。好心的妈妈和儿子在帮忙收拾报纸。 (The van accidentally knocked down a stack of newspaper on the grass field. The kind-hearted mother and son helped to tidy up the newspaper.) *(re-contextualizing)*

Figure 3. A teacher-created learning-intended artifact to facilitate "sentence composing relay" activity.

Type IV: Selection of socially-authentic artifacts for small-group peer reviews (pathway b): Such teacher-facilitated activities were conducted twice to nurture the students' abilities in performing peer reviews in MyCLOUDNet

after school. The first activity took place in the 7th month where Sharon picked several socially-authentic artifacts and instructed the students to correct errors in vocabulary usage and grammar within small-groups. The second activity was carried out in the 10th month with a set of longer artifacts being assigned to student groups. The students were required to review the artifacts not only in the aspects of vocabulary and grammar, but also richness of the context as depicted in the text, and the contextual alignment between the text and the photo. Apart from building the students' peer-review skills, the activities were also for promoting their awareness in reviewing artifacts in these criteria in the future. In both activities, the selected socially-authentic artifacts were transformed into learning-intended artifacts. The authors of these artifacts were then encouraged to revise the texts with respect to the peer comments.

4.2. Data analysis and findings

As this paper is submitted as a conceptual paper and due to the space constraint, we will not explain the full research method and empirical findings but only essential outcomes to demonstrate the effectiveness of the model. Essentially, we split the entire 13-month intervention into four stages (three months per stage, except for stage 1 with four months) and performed analysis on the social media created across the stages to find out the trend of the students' activities on MyCLOUD. Consequently, we determined the following statistical measurements as the indicators of the learning effects:

• Mean artifact score: All student-generated artifacts were scored by two researchers in the scale of 1-5 with a rubric co-developed by Sharon and the researchers to assess the students in task completion, expression and linguistic accuracy (Liu, Wong, Toh, & Li, 2015). The mean scores of all the student artifacts were computed stage-by-stage to gauge their general artifact qualities.

• Mean length of utterances (MLU): MLU is calculated by dividing the number of words by the number of utterances (i.e., the accumulated number of full sentences in the student artifacts). It is deemed as an appropriate indicator of linguistic maturation (Bennett-Kastor, 1988). Like mean artifact score, MLU is another indicator of the students' artifact qualities (and also an indicator of the general length of their works).

• Numbers of socially-authentic artifacts and learning intended artifacts: We classified the student artifacts into the two stated categories. This enabled us to trace the changes in the amounts of the two categories of artifacts across the four stages, which were then cross-checked with the new intervention elements being introduced at different time points. Thus, the statistics can be treated as indicators of the effects of such intervention elements (see below for more details).

• Number of socially-authentic replies and learning-intended replies: Similarly, we classified the student replies into the two stated categories and analyzed the code-and-count statistics in the same way as described in the previous bullet point.

Table 1. The statistics of student activities in MyCLOUD across four stages

	Stage 1	Stage 2	Stage 3	Stage 4	Total / Overall
Number of socially-authentic artifacts (type I) in bracket –number of socially–authentic artifacts being selected as learning-intended artifacts (type IV)	33 (0)	105 (6)	362 (16)	307 (0)	807 (24)
Number of student-created learning-intended artifacts (type II)	44	46	81	65	236
Total number of student-created artifacts	77	151	443	372	1043
Mean length of utterances	7.1	13.0	13.2	17.8	14.7
Mean artifact score	3.11	3.01	3.20	3.60	3.28
Number of artifacts with replies (in bracket: % of all artifacts)	4 (0.05%)	14 (0.09%)	215 (48.5%)	290 (78.0%)	523 (50.1%)
Number of socially-authentic replies	7	30	956	645	1638
Number of learning-intended replies (mostly peer reviews – related to type IV)	0	3	79	128	210
Total number of replies	7	33	1035	773	1848

Table 1 depicts the descriptive statistics of the stage-by-stage SMILLA activities. Indeed, there were significant improvements in all the tabulated aspects in table 1 in the last two stages as compared to the first two stages. There were slight depletions in number of artifacts and replies in stage 4 as compared to stage 3, mainly due to the month-long school holiday in the 11th month. However, the growths in the artefact quality (in terms of mean artefact score), the students' willingness in participating in the interactions triggered by the artifacts (in terms of the number and percentage of artifacts with replies) and peer reviews (in terms of number of learning-intended replies) in stage 4 as compared to stage 3 are prominent.

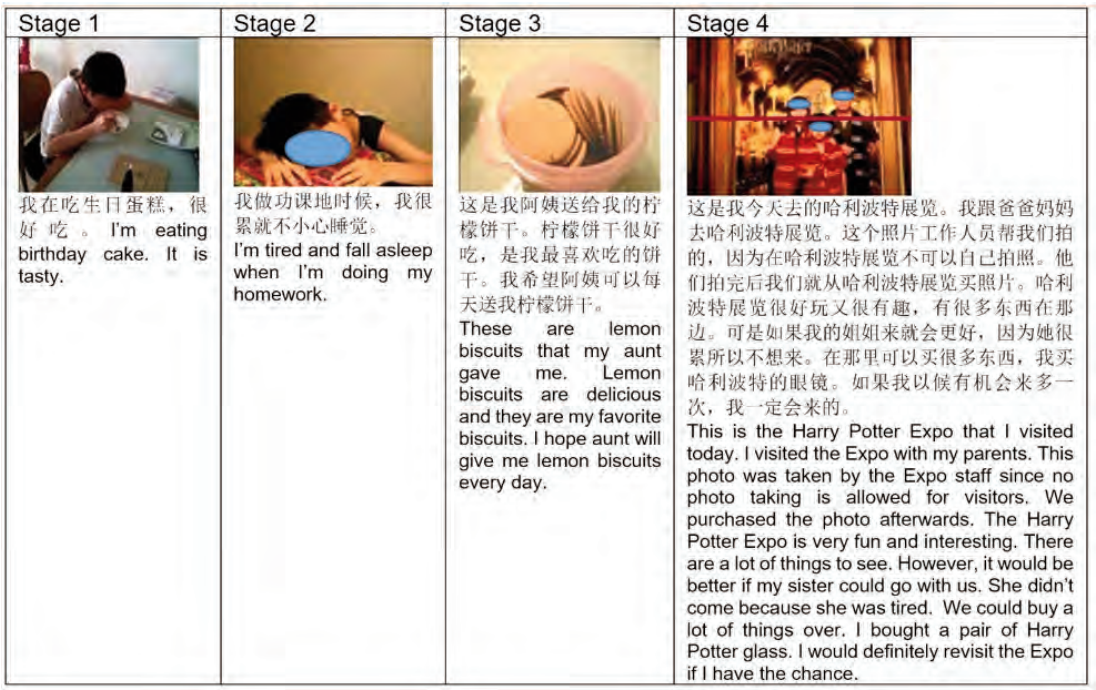

Figure 4. Four socially-authentic artifacts created by the same students in different stages (with English translations).

Figure 4 features exemplifying socially-authentic artifacts created by the same student across four stages, which may provide some clues on the development in the dynamics of the social media space. At the early stages, the students were new to social media and typically treated the artifact creation activities as a multimodal form of sentence making exercises. Thus, they tended to post artifacts in simple sentences and with dull contexts (with the mean length of utterances of 7.1 in stage 1; e.g., the Stage 1 artifact in figure 4). Furthermore, they did not bother to reply to their peers' postings (only 40 replies to 18 out of the 228 artifacts in the first two stages) – thus, the level of social interactions was very low. However, Sharon did not rush them for producing quality and rich artifacts. Instead, she promoted informal, low-stakes participation and let the students "tinker" with the use of Chinese without "fear" (i.e., meaning focus type-ii activities; e.g., the beansprout growing activity at home which resulted in most of the 44 learning-intended artifacts being created in stage 1).

Over the time, more students developed interest in sharing their real-life encounters out-of-school, resulting in a significant increase in the number of socially-authentic artifacts (i.e., 362 and 307 of such artifacts in stages 3 and 4 respectively). As time went by, the student artifacts were accumulating, and Sharon began to introduce type III and type IV activities to elevate the students' linguistic, peer review and meaning extending skills (foci on both meaning and form). These had resulted in better quality, longer and contextually-richer artifacts being created (with the mean artifact score of 3.6 and mean length of utterances of 17.8 in stage 4 –e.g., the Stage 4 artifact in figure 4), as well as active socially-authentic interactions and peer reviews in the last two stages (with 1631 socially-authentic replies, and 181 peer reviews out of 207 learning-intended replies). Figure 5 features an example of student interaction triggered by a socially-authentic artifact posted in the 9th month (stage 3), with an interplay of socially-authentic replies and learning-intended replies.

这是红茶。我随然没有喝过，可是闻起来很香，如果我有机会尝尝，我就会很高兴。
(This is black tea. *Through* I have never had it before, it smells good. If I have the chance to taste it, I will be very happy.) *[SA artifact]*

Student A: 写的很完整。 (What you have written is quite comprehensive.) *[LI reply – peer review]*
Student B: 如果你要尝的话，我可以给你我的茶包。 (If you want to taste it, I can give you my tea bag.) *[SA reply]*
Author: 不可以。我的妈妈说我不可以喝茶。因为如果我喝，我不可以睡觉。因为茶有 caffeine (No. My mom said I can't drink tea. If I drink it, I can't sleep. This is because tea contains *caffeine*.) *[SA reply]*
Student C: Caffeine 华文叫"咖啡因"。 ("Caffeine" is 咖啡因 in Chinese.) *[LI reply – translation]*
Student D: 不是"随然"，是"虽然"。 (It's not "through", but "though".) *[LI reply – correcting the word used in the original SA artifact]*
Student B: 茶没有咖啡因，咖啡才有咖啡因。 (Tea does not have caffeine. Only coffee has.) *[SA reply]*
Student E: 我也有红茶。 (I have black tea too.) *[SA reply]*
Student B: 当然啦！你是我的姐姐，怎么会没有呢？ (Of course! [Because] You are my sister.) *[SA reply – Student B and Student E are twin sisters.]*

Figure 5. An example of student interaction in the 8th month (SA = socially-authentic; LI = learning-intended).

The two in-class peer review activities carried out in the 7th and 10th months (type IV) had also resulted in more peer review-type learning-intended replies being posted. After the first activity, the students began to perform peer reviews (as seen in Stage 2 and 3), albeit limited to low-level amendments of punctuation marks and vocabulary, and translations from scattered English words to Chinese. During the second activity (took place in the last month of Stage 3), Sharon placed a greater emphasis on fostering the students' abilities in peer-reviewing grammar, rephrasing and expanding the contexts. Thus, online reviews on these aspects began to emerge in Stage 4, as 34 out of the 128 learning-intended replies in this stage belong to these categories. We argue that such peer review activities have rendered positive influence on the students' future artifact creation activities, as they would have become more aware of, and tried to avoid, these potential shortfalls in composing new texts.

5. Conclusion

In the past three decades, we have been witnessing paradigm shifts of language learning approaches from behaviorism and content mastery to contextualization and communication, and the more recent trend of hybridizing content, context and socialization where language learning and language application are interwoven, particularly in socially authentic settings. We see that the emerging paradigm of seamless language learning may constitute an overarching design principle to weave content, context and socialization, and the learning, application and reflection tasks together to form a holistic, cross-temporal and cross-contextual journey of L2 development for every learner. Social media, particularly microblogging, are appropriate mediators to bridge such multi-faceted learning efforts. Thus, in this paper, we proposed the SMILLA framework as a set of interweaving design/learning strategies for facilitation of multiple language learning pathways. The relationship between language learning and language use is no longer causal; instead, it is cyclical and reciprocal. We presented the design of MyCLOUD as a demonstration of how SMILLA can be operationalized. The results suggest the potential effectiveness of SMILLA-informed learning design in gradually enculturating L2 learners to become active L2 users in day-to-day socially-authentic settings, as well as learners who are able to self-reflect the forms and meaning of their language use with little teacher support.

Nevertheless, we acknowledge the limitation of the MyCLOUD study which was specifically applied to Chinese L2 primary school students in Singapore with a proprietary platform. Another caveat of implementing MyCLOUD is lying in the teachers' understanding in the notion of seamless language learning and ability in systematically designing and enacting such multifaceted learning activities over a long period of time. As such, to prove the generalizability of the SMILLA framework, more studies should be carried out with learners of other languages of different age groups, under different socio-cultural conditions, and perhaps with the use of more generally accessible platforms such as Facebook or Twitter. There is also a need to develop a corresponding teachers' professional development program to ensure their efficacious implementation of SMILLA-informed language learning.

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Original Language Subtitles: Their Effects on the Native and Foreign Viewer

Subtítulos en lengua original: sus efectos en el espectador nativo y extranjero

Dr. Jan-Louis Kruger is Associate Professor at the Department of Linguistics at the Macquarie University in Sydney (Australia) (JanLouis.Kruger@mq.edu.au) (http://orcid.org/0000-0002-4817-5390)
Dr. Stephen Doherty is Senior Lecturer in the School of Humanities & Languages at the University of New South Wales in Sydney (Australia) (s.doherty@unsw.edu.au) (http://orcid.org/0000-0003-0887-1049)
Dr. María-T. Soto-Sanfiel is Associate Professor at the Audiovisual Communication and Advertising Department at the Autonomous University of Barcelona (Spain) (MariaTeresa.Soto@uab.es) (http://orcid.org/0000-0002-1364-8821)

ABSTRACT

This study investigates the impact of same-language subtitles on the immersion into audiovisual narratives as a function of the viewer's language (native or foreigner). Students from two universities in Australia and one in Spain were assigned randomly to one of two experimental groups, in which they saw a drama with the original English soundtrack either with same-language English subtitles (n=81) or without subtitles (n=92). The sample included an English native control group, and Mandarin Chinese, Korean, and Spanish groups with English as a foreign language. Participants used post-hoc Likert scales to self-report their presence, transportation to the narrative world, perceived realism, identification with the characters, and enjoyment. The main results showed that subtitles did not significantly reduce these measures of immersion. However, subtitles produced higher transportation, identification with the characters, and perceived realism scores, where the first language of viewers and their viewing habits accounted for most of this variance. Moreover, presence and enjoyment were unaffected by either condition or language. Finally, the main results also revealed that transportation to the narrative world appears to be the most revealing measure of immersion in that it shows the strongest and most consistent correlations, and is a significant predictor of enjoyment.

RESUMEN

En este trabajo se estudia el impacto de los subtítulos en el mismo idioma de la narrativa audiovisual según el idioma del receptor (nativo o extranjero). Estudiantes de dos universidades australianas y una española fueron asignados al azar a uno de los dos grupos experimentales en los que se veía un drama con la banda sonora original en inglés con subtítulos en esa misma lengua (n=81) o sin subtítulos (n=92). La muestra incluía un grupo control de hablantes nativos de inglés, además de grupos de hablantes nativos de chino mandarín, coreano y español con inglés como lengua extranjera. Como medidas post-hoc, los participantes reportaron, mediante escalas Likert, su percepción de presencia, transporte, realismo percibido, identificación con los personajes y disfrute. Los resultados muestran que los subtítulos no reducen las medidas de inmersión. Además, que los subtítulos producen mayores puntuaciones de transporte, identificación con los personajes y percepción de realismo, cuya varianza se explica, esencialmente, por la primera lengua de los receptores y sus hábitos de visionado. Asimismo, los resultados señalan que ni a la presencia ni al disfrute les afectan la condición experimental o el idioma del receptor. Finalmente, muestran que el transporte es la medida más reveladora de la inmersión porque produce las correlaciones más fuertes y consistentes, aparte de ser un predictor significativo del disfrute de los espectadores.

KEYWORDS | PALABRAS CLAVE

Foreign language, subtitling, reception, enjoyment, immersion, perceived realism, transportation, identification with characters.
Lengua extranjera, subtitulación, recepción, disfrute, inmersión, realismo percibido, transporte, identificación con personajes.

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1. Introduction and state of the art

When we watch a film or television (particularly, but not exclusively, fiction) our attention is captured to such an extent that our awareness of our immediate surroundings sometimes becomes diminished or suppressed. We watch television or film because we want to be, or cannot help becoming, immersed in the world portrayed to us on the screen before us. This process of immersion is of course not limited to audiovisual text like film, but also occurs in the context of written narrative fiction. Audiences could therefore be said to select media to satisfy certain needs, such as the desire to escape from reality, to be transported into another reality, and the need to be entertained or to relax (McQuail, Blumler, & Brown, 1972). Similarly, for an audience to enjoy television and film, they need to be immersed into or engaged with the fictional reality created by the film (Bilandzic & Busselle, 2011; Vorderer, Klimmt, & Ritterfeld, 2014; Sasamoto & Doherty, 2015).

When we add subtitles as an additional textual element at the bottom of the screen, audiences often feel that the aesthetics of the film are marred by the subtitles, that the image is smudged. In addition to providing access to audiovisual texts to audiences excluded either from the language of the dialogue or from the soundtrack, subtitling has long been hailed as an important tool in language learning, language proficiency, and comprehension. Many studies have already confirmed the benefits of subtitles, particularly in language learning (Danan, 2004; Diao & al., 2007; Garza, 1991; Vanderplank, 1988, 1990; Winke & al., 2013). In the context of fiction film, it has likewise been established that, in spite of anecdotal complaints about the fact that subtitles somehow smudge the image, audiences process subtitles very effectively (d'Ydewalle, Praet, Verfaille, & Van Rensbergen, 1991; Perego, Del-Missier, Porta, & Mosconi, 2010; Perego, Del-Missier, & Bottiroli, 2014).

At a general level, immersion relates to the degree to which a viewer becomes absorbed in a fictional reality. In Media Psychology, the term is used in the same context as transportation and character identification (Green & al., 2004; Tal-Or & Cohen, 2010) but also with concepts such as presence, flow and enjoyment (Wissmath, Weibel, & Groner, 2009), or perceived realism (Cho & al., 2014). Immersion, as well as the related term of engagement, is also viewed as a product of transportation into fictional worlds, character identification, presence, and perceived realism (Bilandzic & Busselle, 2011; Soto-Sanfiel, 2015).

This immersion in film is a relatively sensitive cognitive state. It could, for example, be influenced by factors external to the film, like the physical context of viewing (at home or in a cinema or while traveling) or the social context (alone, with family, with friends or with strangers). What we are interested in here in the first instance, is whether the textual element of subtitles (which is technically external to the film, yet represents the dialogue), will have an impact on immersion. In the second instance, we are interested in the impact of language (that of the viewer, that of the film and that of the subtitles) on immersion.

At an intuitive level it is reasonable to expect that the audience's immersion in film will not be unaffected by the addition of subtitles for the simple reason that visual attention is divided. In other words, unlike the viewer who watches the unsubtitled film, the viewer who watches the subtitled film has to divide visual attention between the image and the words at the bottom of the screen. When viewers do not have access to the audio, or do not understand the language of the dialogue, they are dependent on the subtitles to understand the film, so there is an obvious trade-off. However, when viewers do have access to the audio and understand the language of the dialogue, the subtitles become a redundant source of information. In this case, the viewers may still use the (same language) subtitles to read along with the spoken words, particularly if the latter are not in their first language. The viewer may of course ignore the subtitles, but this is not likely as it has been established empirically that viewers read subtitles automatically regardless of whether they understand the language of the audio (d'Ydewalle & al., 1991). The notion that viewers attend to subtitles automatically is also supported by research on the effect of abrupt onset on the capturing of attention (Remington, Johnston, & Yantis, 1992).

When reading subtitles, viewers therefore have to process an additional visual and verbal source of information that should theoretically impose an additional cognitive load. In the words of Lee & al. (2013: 414), "subtitled films likely tax the attention and memory systems because there is visual information (the scene), as well as verbal information in the form of written, rather than audio, dialog". In this article, we are interested in determining whether this additional processing results in a decrease in immersion in the story world of the film.

In a previous study (Kruger et al., forthcoming), we reported on the first stage of an experiment designed to determine the impact of subtitles on immersion. The material was one episode of an American medical drama (House MD) with English dialogue and same-language English subtitles. English, Korean and Chinese participants saw the drama either with or without subtitles. This stage was conducted as a pilot to test the validity and reliability

of different scales (presence, transportation, character identification, and perceived realism) to determine the impact of the two conditions (subtitled and unsubtitled). Findings from this pilot show no negative impact on immersion caused by same-language subtitles in the above groups.

In this article, we report on a second stage of the experiment in which we expand the sample size, but in which we also investigate the impact of language on immersion. Using an English control group, we aim to determine whether the first language of the audience has an impact on immersion, or whether there is an interaction between language and condition on the different immersion scales. We are also interested in determining whether the dimensions of presence, transportation, character identification and perceived realism are related and similar to Wissmath & al. (2009) and Soto-Sanfiel (2015), and how these dimensions are related to enjoyment.

1.1. Subtitling and immersion

Subtitles compete for visual attention, and therefore draw upon finite cognitive attentional resources to process their visual information. Nevertheless, viewers seem to be able to process subtitles efficiently (d'Ydewalle & al., 1991; Perego & al., 2010; Perego & al., 2014). In their study, Lee & al. (2013) investigate the impact of subtitles on local and global coherence, finding lower global coherence, but higher local coherence in the presence of subtitles. Essentially this means that participants who watched a film in their first language could make more inferences to assist in global coherence which made it possible to comprehend the narrative as a whole and keep track of events and characters. However, participants who watched the same film in a foreign language with standard subtitles in their first language, could make fewer such inferences, but could make more inferences at the local level allowing them to have a better sense of the local coherence of scenes, but at the expense of global coherence. They conclude that viewers who have to switch between reading the written dialogue in the subtitles and the scene have a decreased ability to make global inferences due to the fact that their cognitive resources (including attention, working, long-term, and long-term working memories) are taxed more than in the unsubtitled condition. However this may suggest that there would be a knock-on effect on immersion, with immersion also being affected negatively by the subtitled condition. Building upon this, the context of our study is same language subtitling, where the audience is not reliant on the subtitles for access to the dialogue, but the subtitles merely confirm the dialogue in written form.

> English subtitles resulted in increased immersion. This was the case particularly in the key dimensions of identification and transportation, which dispels concerns about subtitles distracting the audience. In this context, subtitles seem to focus attention, making it possible for the audience to confirm complicated auditory dialogue visually.

In this regard, Lavaur and Bairstow's (2011) investigation of the impact of subtitles on film comprehension in relation to the viewers fluency level is particularly interesting to our study. In their study, they compared the visual processing and dialogue comprehension of French viewers with beginner, intermediate and advanced English proficiency levels when watching a film clip in original English without subtitles, and with English or French subtitles. They found that for beginners, the visual processing decreased from unsubtitled to English subtitles, to French subtitles (i.e. becoming worse the higher their reliance was on the subtitles), whereas the dialogue comprehension had the opposite trend. In other words, for this group, visual data were extremely important for their comprehension. The advanced group had higher visual processing and dialogue comprehension in the unsubtitled version where there was no distraction by subtitles, indicating that subtitles were unnecessary for their comprehension. The advanced group's visual processing and dialogue comprehension were hampered. In the intermediate group, subtitles did not have any impact on either source. Their study did not, however, investigate either immersion or enjoyment, although the interaction between comprehension and immersion and enjoyment is an interesting theoretical question that we will later revisit.

Further to this, Wissmath & al. (2009) established that a subtitled version of a film does not result in less immersion than a dubbed version of the same film when measured by means of self-reported spatial presence, transportation, flow and enjoyment. In that study, it was found that foreign language subtitles (i.e. audio dubbed into the language of the audience with subtitles in a foreign language) did reduce the immersion, presumably as a result of the distraction the incomprehensible subtitles cause. Perego & al. (2014) similarly established that a dubbed version of a film does not hold any cognitive or evaluative advantages over a subtitled version of the film in either young or older adult viewers.

These findings by Wissmath & al. (2009) and Perego & al. (2014) only focus on the difference between subtitled and dubbed versions of a film. In this study, we investigate the impact of the presence or absence of same-language subtitles (original English soundtrack and English subtitles) on psychological immersion and enjoyment. Furthermore, in addition to the two conditions of subtitled and unsubtitled film, we investigate the influence of language on immersion by testing groups of English native speakers and Chinese, Korean and Spanish-Catalan speakers who have English as a foreign language. Unlike the previous studies, in which the audience did not understand the language of either the subtitles or the audio, this study focuses on the impact of the visual interference of subtitles on psychological immersion and enjoyment, rather than the impact of translation-related variables such as equivalence at some level or translation shifts.

> The fact that subtitles resulted in increased identification with characters as well as transportation indicates that subtitles fulfil a focusing effect that, rather than distancing the audience from the fictional reality and the characters, allows them to gain a stronger connection with the story.

1.2. Measuring immersion

Media immersion, or immersion in mediated environments like film, television, fiction, and virtual reality is typically measured through subjective self-report scales on dimensions including presence, transportation, identification and perceived realism. In this study we used the dimensions of presence, transportation, character identification, and perceived realism thus removing the confound of interlingual translation, which is a rich and complex psycholinguistic and sociocultural process.

Originally termed "telepresence" in reference to the feeling that users of technical devices have of being located in physically remote places, presence is used to describe the feeling experienced by media users that that they are spatially located in a mediated environment (Wissmath & al., 2009). As such, it involves the sense of "being there", having departed or faded from the proximal environment and having arrived or self-located in the mediated environment. The perception of presence in a mediated environment can refer to a spatial sense of being located in a fictional reality, or to a social sense of being located in the presence of fictional characters.

According to Wissmath & al. (2009), technological aspects have been overemphasized in presence research, resulting in a shift of emphasis to the inclusion of user characteristics in transportation theory. Transportation denotes that the reader is plunged into the fictional world by suspending real-world facts (Green & Brock, 2000). It can also be defined as "the experience of cognitive, affective and imagery involvement in a narrative" (Green & al., 2004: 11), with the viewer forgetting about their immediate surroundings. Green and Brock's (2000) focus was mainly on testing transportation in the reading of fiction, although they also extend this to film viewing. In the opinion of Wissmath & al., (2009), transportation overlaps conceptually with the willing suspension of disbelief (i.e. the viewer or reader allowing themselves to suppress the awareness that what they are reading or watching is not real).

Tal-Or and Cohen (2010) adapted the items used by Green and Brock to measure the self-reported transportation of film viewers in particular. They also added items to measure character identification. We use these scales in the current study as measures of transportation and character identification. Character identification is important in that it makes it possible for viewers to experience the fictional reality from the perspective of a character in that

reality. According to Cohen (2001), character identification is a key aspect in the understanding of media entertainment and its effects, particularly due to its influence on narrative enjoyment (Igartua, 2010; Soto-Sanfiel & al., 2010).

The phenomenon of identification relates to the affinity with characters experienced by viewers (Cohen, 2001), making it possible for viewers to put themselves in the shoes of a character. Character identification is measured by means of a number of scales such as that developed by Igartua & Páez (1998) and refined by subsequent works (Igartua, 2010; Soto-Sanfiel & al., 2010). The other scale was proposed by Cohen (2001). All of these works characterize identification as a multidimensional concept formed by a cognitive empathy, an emotional empathy, and the ability to fantasize, imagine or merge.

Both presence and transportation concern the degree to which an audience becomes less aware of its immediate surroundings. Another dimension that is relevant to media immersion is the extent to which the audience believes the mediated environment or film is realistic. This has been termed "perceived realism" (Cho & al., 2014) and establishes the impact of a narrative in relation to persuasion, looking at dimensions of audience involvement. Cho & al. (2014) identify five sub-dimensions of perceived realism, namely:

1) Plausibility (could the presented behavior and events occur in the real world?).

2) Typicality (are narrative portrayals within the parameters of the audience's past and present experiences?).

3) Factuality (does the narrative seem to portray a specific individual or event in the real world?).

4) Narrative consistency (are the story and its elements congruent and coherent, without contradictions?).

5) Perceptual quality (do audio, visual and other manufactured elements comprise a convincing and compelling portrayal of reality?).

In using the dimensions of presence, transportation, character identification and the subsets of perceived realism as different but related dimensions of psychological immersion, we believe that we can achieve a nuanced description of the impact of subtitles on the audience's immersion in the fictional world.

1.3. Hypothesis

Based on the review of literature and the study's overarching research questions, we propose the following hypotheses:

- H1. There are significant positive correlations between all of the immersion scales: transportation; character identification; presence; and perceived realism.
- H2. The Subtitled condition does not result in significantly lower scores on any of the immersion scales than the Unsubtitled.
- H3. The English group does not result in significantly higher scores on any of the immersion scales than do the other language groups: Chinese; Korean; and Spanish.
- H4. There are no significant interactions between condition and language on any of the immersion scales.
- H5. A significant predictor of enjoyment can be identified from the immersion scales.

2. Method

2.1. Participants

A convenience, self-selecting sampling method was chosen to gather data for English native speakers and those with English as a foreign language all of whom were university students at the institutions mentioned below. This method was mirrored at each institution to include a variety of languages: two universities in Sydney, Australia (Macquarie University and The University of New South Wales), and one in Barcelona, Spain (Universitat Autònoma de Barcelona). We did not put an initial restriction on language and obtained sufficient numbers to include them all. The total sample contained 173 valid responses, aged between 18 and 49 (M=25.79, SD=5.84) and distributed across 101 females and 74 males. Participants were assigned randomly to the Subtitled or Unsubtitled condition. The Subtitled (n=81) contained: 23 English; 19 Chinese; 13 Korean; and 26 Spanish, and the Unsubtitled (n=92) contained 24 English; 22 Chinese; 13 Korean: and 33 Spanish. Subjects in the Subtitled condition saw the episode in English with English same-language subtitles, and participants in the Unsubtitled saw the episode without any subtitles.

Ethics clearance for research involving human participants was approved at each of the author's institutions. All of them were recruited via anonymous course e-mail lists and printed posters at the author's home institutions. Participation was voluntary and not remunerated in any way. The data collection was performed between January and March of 2015.

2.2. Materials

As stimulus, we used a video from the eighth season of the American investigative medical drama series, House, MD (2011). In order to preserve cohesion and authenticity, we used the full-length fourth episode (Risky Business, 44 minutes). It has fast-paced editing, a high volume of dialogue that contains some specialized terminology, and a strong narrative structure, thus making it an ideal test-bed for subtitles and immersion. Participants watched the episode in groups in a small lecture theatre on a large screen with excellent sound quality and high-definition video quality. The lights were dimmed and participants were asked to refrain from using mobile devices and from interacting with other participants. The experiment took approximately 90 minutes.

After watching the film, participants completed three sets of questionnaires: biographical, language, and immersion. Biographical data were obtained through a biographical questionnaire. The Language Experience and Proficiency Questionnaire (LEAP-Q) proposed by Marian, Blumenfeld, & Kaushanskaya (2007) captured language data. A 44-item immersion questionnaire measured immersion using 7-point Likert scales (see Appendix for questionnaires). For transportation, 10 items were used scaled from "not at all" to "very much" and for character identification 4 items were scaled similarly, both adapted from Tal-Or & Cohen (2010), who, in turn, adapted the transportation scales from Green & Brock (2000). Presence was measured by means of 8 items (adapted from Kim & Biocca, 1997), scaled from "never" to "always". Perceived realism (adapted from Cho & al., 2014) was measured with 21 items scaled from "not at all" to "very much", including subscales: plausibility (5), typicality (3), factuality (3), narrative consistency (5), and perceptual quality (5). A number of items were reverse-scored. Finally, enjoyment was measured with a single item following studies relating presence and transportation with enjoyment (Green & Brock, 2000; Tal-Or & Cohen, 2010; Wissmath & al., 2009).

2.3. Procedure

A 2x4 factorial design was used wherein condition (Subtitled, Unsubtitled) and language (English, Chinese, Korean, Spanish) were tested against each of the individual immersion scales (Transportation, Character identification, Presence, Perceived realism, Enjoyment) using ANCOVAs. In all cases, included covariates were: months spent in an English-speaking country in the last ten years, average TV viewing per day, and subtitle usage in English and other languages.

All continuous variables were tested using Shapiro-Wilk's test and visual inspection to verify normal distribution. Months in an English speaking-country, average TV viewing per day, and both subtitle usage variables were not normally distributed ($p>.05$) and were logarithmically transformed to meet this criterion. Reliability of all scales ranged from acceptable to good: transportation ($\alpha=.69$), character identification ($\alpha=.77$), presence ($\alpha=.71$), and perceived realism ($\alpha=.89$).

3. Results

3.1. Correlational Analysis

Significant positive correlations were found between all scales with insufficient evidence to assume multicollinearity. As each of the immersion scales shows a significant positive correlation with all of the others, H1 is supported. However, some of these correlations are weak, especially between presence and the other scales (table 1).

Table 1. Correlation coefficients for immersion scales (r)

	Transportation	Character identification	Presence	Perceived realism	Enjoyment
Transportation	-	.518**	.454**	.421**	.339**
Character identification	.518**	-	.209**	.457**	.157*
Presence	.454**	.209**	-	.260**	.286**
Perceived realism	.421**	.457**	.260**	-	.177**
Enjoyment	.339*	.157**	.286**	.177**	-

* p < .05, ** p < .01.

3.2. Transportation

The scale has a possible range of 10-70 in total. A two-way ANCOVA found no significant interaction between condition and language on transportation [$F(3, 160)=.654$, $p=.582$, $\eta p2=.012$]. A significant main effect was found for condition [$F(1, 160)=8.550$, $p=.004$, $\eta p2=.051$], where the Subtitled condition was higher, but not for language [$F(3, 160)=2.431$, $p=.065$, $\eta p2=.044$] as shown in table 2.

3.3. Character identification

The scale has a possible range of 4-28 in total. A two-way ANCOVA found no significant interaction between condition and language on character identification [F(3, 160)=.299, p=.826, ηp2=.006]. However, main effects for condition [F(1, 160)=11.896, p=.001, ηp2=.069] and language [F(3, 160)=4.065, p=.008, ηp2=.071] were both found to be significant, where the Subtitled condition was higher (table 2). For language, a post-hoc Tukey test with Bonferroni adjustments for multiple comparisons shows the English group's character identification was significantly higher than the Korean (p=.008), and Spanish (p=.013).

Table 2. Character identification and Transportation by condition and language

Language	Character identification						Transportation					
	Subtitled		Unsubtitled		Total		Subtitled		Unsubtitled		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
English	19.52	2.54	17.42	3.11	18.45	3.01	42.65	4.03	41.50	5.19	42.06	4.65
Chinese	16.79	4.06	14.32	2.66	15.46	3.56	40.63	5.62	35.73	5.09	38.00	5.83
Korean	14.46	2.37	14.50	2.02	14.48	2.16	36.69	5.04	33.75	5.29	35.28	5.27
Spanish	14.96	4.33	12.69	4.02	13.69	4.28	37.88	5.14	35.39	9.52	36.49	7.94
Total	16.60	4.03	14.57	3.72	15.53	3.99	39.69	5.37	36.87	7.53	38.19	6.74

3.4. Presence

The scale has a possible range of 8-56 in total. A two-way ANCOVA found no significant interaction between condition and language on presence [F(3, 160)=1.532, p=.208, ηp2=.028] (table 3). This was also the case for main effects of condition [F(1, 160)=1.330, p=250, ηp2=.008] and language [F(3, 160)=2.699, p=.051, ηp2=.048].

3.5. Perceived realism

The scale has a possible range of 21-147 in total. A two-way ANCOVA found a significant interaction between condition and language on perceived realism [F(3, 160)=3.782, p=.012, ηp2=.066], where the Subtitled condition scored higher (table 3). Significant main effects were also found for average TV viewing per day [F(1,160)=4.003, p=.047, ηp2=.024] and subtitle usage in other languages [F(1, 160)=6.361, p=.013, ηp2=.038]. For language, a post-hoc Tukey test with Bonferroni adjustments for multiple comparisons shows significance with: English greater than Chinese (p=.009), Korean (p<.001), and Spanish (p<.001), as well as Chinese greater than Korean (p=.007), and Spanish (p=.02).

3.6. Enjoyment

The scale ranges from 1-7 in total as it is just one item. A two-way ANCOVA found no significant interaction between condition and language on perceived realism [F(3, 160)=.654, p=.582, ηp2=.012 (table 3]. Main effects for condition [F(1, 160)=2.086, p=.151, ηp2 =.013] and language were also not significant [F(3, 160)=2.214, p=.458, ηp2=.016].

In conclusion, we find sufficient evidence to show that the Subtitled condition does not result in lower levels of immersion, thus supporting Hypothesis II. Contrary to expectation, the Subtitled condition results in higher levels of transportation and character identification. We also find differences in immersion between language groups which reject Hypothesis III in that the English group reported significantly higher levels of character identification and perceived realism than the other languages. We note however that transportation, presence, and enjoyment were similar for all language groups. Lastly, we also reject Hypothesis IV given that that the English and Chinese groups reported significantly higher levels of perceived realism while all other immersion scales were similar.

Table 3. Enjoyment by condition and language

Language	Subtitled		Unsubtitled		Total	
	Mean	SD	Mean	SD	Mean	SD
English	6.43	0.58	5.90	0.99	6.27	0.76
Chinese	5.52	1.12	5.11	1.38	5.25	1.38
Korean	4.53	1.61	4.07	1.11	4.30	1.37
Spanish	4.80	1.81	4.84	1.76	4.83	1.77
Total	5.39	1.53	4.95	1.52	5.16	1.53

3.7. Predicting enjoyment

Finally, a multiple regression analysis using the Enter method was run in order to identify significant predictors of enjoyment taking into account the previously identified

covariates of: months in an English-speaking country, average TV viewing per day, and subtitle usage in English and other languages. There was independence of residuals, as assessed by a Durbin-Watson value of 1.623. Assumptions of linearity, homoscedasticity, and normality were met, and no evidence of multicollinearity, high leverage or influence points was identified.

The model [$F(8, 163)=4.772$, $p<.000$, adj. $R2=.15$] found transportation to be the only significant predictor of enjoyment (table 4), accounting for a greater amount of the variance in enjoyment than any of the other scales of immersion. As the multiple regression analysis identified only transportation as being a significant predictor of enjoyment, this provides sufficient evidence to support Hypothesis V, but raises questions about the relationship between enjoyment and the other measures of immersion.

Table 4. Summary of multiple regression analysis

Immersion variable	B	SE_B	β
Intercept	-.870	1.086	
Transportation	.065	.022	.278*
Character identification	.015	.037	.037
Presence	.037	.020	.147
Perceived realism	.016	.010	.155

Note. * p<.05, B=unstandardized regression coefficient; SE_B=standard error of the coefficient; β=standardized coefficient.

4. Discussion and conclusions

This study contributes to the understanding of the role that subtitles play in the processes related to psychological immersion in film narratives. In particular, this study adds information about the relationship between the language of the subtitles and the receiver in predicting immersion and enjoyment, which had not been observed before.

Our results show that the subtitled condition did not result in significantly lower immersion on any of the scales either for the group as a whole or for any of the languages. This provides evidence for the argument that subtitles do not act as a distraction to viewers, even when in the same language. Adding subtitles therefore does not make it more difficult for the audience to become immersed in fictional reality. Viewers could be said to process subtitles as part of the story world as dialogue in a way similar to the processing of the auditory dialogue rather than as an extra-diegetic element.

On examination of the immersion scales, it is interesting to note that subtitles resulted in significantly higher transportation, character identification and perceived realism. This provides evidence that subtitles facilitate the audience's ability to feel involved in the story world and to put themselves in the position of characters.

We were also interested in the role of the language of the audience in the impact of subtitles on immersion. We found no interaction between condition and language on the scales of transportation, character identification or presence, although in the case of character identification, the English group did perceive a significantly higher degree of identification than the Korean and Spanish groups. This difference will have to be investigated further with the aid of language history data. There was, however, a significant interaction between language and condition in the perceived realism scale.

We were further interested in the relation between the different scales in the measurement of immersion. Transportation had the highest correlation with all the other scales, which seems to suggest that this set could be of particular value in the measurement of immersion in the context of audiovisual translation. The strongest correlation was found between transportation and character identification.

Although there was no interaction between language and condition in terms of enjoyment, transportation was found to be the only predictor of enjoyment.

All of these findings would seem to suggest that the combination of transportation and character identification provides the most insightful post-hoc measurement of immersion in the context of AVT. Tal-Or & Cohen (2010) defined identification and transportation as two of the major concepts used to describe viewer involvement in entertainment, and establish that they are distinct processes. As such, the fact that subtitles resulted in increased identification with characters as well as transportation indicates that subtitles fulfil a focusing effect that, rather than distancing the audience from the fictional reality and the characters, allows them to gain a stronger connection with the story.

Additionally, we expected the identified covariates to play a more marked role in the process of immersion. Only in perceived realism did average TV viewing and usage of subtitles have a significant impact, although the presence of covariates, especially the number of months in English speaking countries, was necessary in order to avoid confounds in the above analyses.

To conclude, in the context of this particular dialogue-driven medical drama characterized by fast speech, medical terminology and a strong, contained narrative, same-language English subtitles resulted in increased immersion. This was the case particularly in the key dimensions of identification and transportation, which dispels concerns about subtitles distracting the audience. In this context, subtitles seem to focus attention, making it possible for the audience to confirm complicated auditory dialogue visually.

4.1. Limitations

The study is limited by the number of languages covered and by the rather superficial measurements of language proficiency available. Testing on additional language groups and using more in-depth linguistic information on competency and the nature of language and cultural distance could provide further insight. Additionally, testing across genres is also required to make our findings more generalizable. It might very well be that the strong effects found in the case of transportation and character identification will be less marked in genres that rely more on visual effects and action and where the division of attention between the dialogue and fast-moving visuals may come with some costs in terms of immersion.

Finally, it is necessary to take into account participants' own individual interaction with immersion. The use of the Immersive Tendencies Questionnaire would effectively account for this. In the current study, however, it would have added a further 13 items and as the focus was on the various scales of immersion, these were prioritized. Future studies could make use of the Immersive Tendencies Questionnaire in tandem with scales of, based on our findings, transportation and enjoyment depending of course on the research questions and context.

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Teachers' Use of ICTs in Public Language Education: Evidence from Second Language Secondary-school Classrooms

La enseñanza de lenguas extranjeras y el empleo de las TIC en las escuelas secundarias públicas

Dr. Jesús Izquierdo is Full Professor at Juarez Autonomous University of Tabasco (Mexico) (jesus.izquierdo@mail.mcgill.ca) (http://orcid.org/0000-0002-1647-2833)
Dr. Verónika de-la-Cruz-Villegas is Associate Professor at Juarez Autonomous University of Tabasco (Mexico) (veronika.delacruz@hotmail.com) (http://orcid.org/0000-0003-3570-2021)
Dr. Silvia-Patricia Aquino-Zúñiga is Full Professor at Juarez Autonomous University of Tabasco (Mexico) (saquinozuniga@gmail.com) (http://orcid.org/0000-0002-7223-8582)
Dr. María-del-Carmen Sandoval-Caraveo is Full Professor at Juarez Autonomous University of Tabasco (Mexico) (sandovalcaraveo29@hotmail.com) (http://orcid.org/orcid.org/0000-0002-5482-3032)
Dr. Verónica García-Martínez is Full Professor at Juarez Autonomous University of Tabasco (Mexico) (vero1066@hotmail.com) (http://orcid.org/0000-0001-5299-3540)

ABSTRACT

Worldwide, curricular changes and financial investments are currently underway to promote the integration of technology in public education and English language learning at a young age. This study examines the ICTs that have become part of the daily instructional practices and educational settings of teachers of English who work with young learners in public schools. To this end, this mixed-methods study draws on a quantitative descriptive-exploratory design and a qualitative multiple-case study. The quantitative data were collected through a Likert questionnaire administered to 28 secondary school teachers of English across 17 municipalities in five regions of Southeast Mexico and 2,944 learners. The qualitative data were gathered from a subsample of six teachers through longitudinal classroom observations, teacher and administrator interviews, and school visits. The non-parametric analyses of the quantitative data and the categorical aggregation analyses of the qualitative data reveal that the use of some multimedia and mobile-assisted communication resources is emerging in the L2 public classrooms. In line with findings from other international contexts, variables that seem particular to public education for young learners and their school setting, however, led teachers to prefer using their own technological devices that included laptops, multimedia material, and cellphones, rather than those in the schools.

RESUMEN

La educación pública está experimentando en diversos países una serie de reformas que favorecen la integración de la tecnología en la educación pública y el aprendizaje del inglés a una temprana edad. El presente estudio mixto examinó el empleo de la tecnología en las prácticas pedagógicas cotidianas de los profesores de inglés en la educación secundaria pública y los recursos tecnológicos de los que disponen normalmente en sus escuelas. Para la fase cuantitativa se empleó un diseño descriptivo-exploratorio, a través de un cuestionario tipo Likert aplicado a 28 profesores y 2.944 alumnos en 17 municipios del sureste mexicano. Para la cualitativa, se empleó un estudio de múltiples casos con un sub-grupo de seis profesores del cual se recolectó información a través de observaciones de clases, entrevistas con docentes y directivos, y visitas a las instalaciones de las escuelas. El empleo de análisis no-paramétrico con los datos cuantitativos y de agregación categórica con los datos cualitativos permitió identificar algunos recursos multimedia y de comunicación móvil que los profesores tienden a emplear de manera cotidiana en el aula. No obstante, diversos factores relacionados con aspectos propios de la educación pública y el contexto escolar influyeron para que los profesores prefirieran sus propios medios tecnológicos tales como ordenadores portátiles, teléfonos inteligentes y materiales multimedia a los disponibles en su institución.

KEYWORDS | PALABRAS CLAVE

Public education, technology, language learning, English teaching, secondary school education, multimedia resources, mobile assisted communication.
Educación pública, tecnología, aprendizaje de lenguas, enseñanza del inglés, educación secundaria, recursos multimedia, comunicación móvil.

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1. Introduction

The development of Information and Communication Technologies (ICTs) has created new opportunities for learning and teaching (Felix, 2008; Johnson, Adams Becker, Estrada, & Freeman, 2015). In second/foreign language (L2) education, ICTs can be used, for instance, to expose learners to extensive comprehension and production opportunities in the new language (Izquierdo, 2014; Plass & Jones, 2005), to create learning conditions that are unique to technology-based instruction (Chapelle, 2002; Hulstijn, 2000), and to enhance learner motivation (Izquierdo, Simard & Garza, 2015; Lan, Sung, Cheng, & Chang, 2015). In light of these arguments, in higher education, some initiatives have aimed to blend L2 classroom instruction with complementary ICT-based materials (Leakey & Ranchoux, 2006; Sagarra & Zapata, 2008). Others have explored ICTs for distance L2 learning (Compton, 2009; Harker & Koutsantoni, 2005) or autonomous L2 learning (Figura & Jarvis, 2007; Raby, 2007). Furthermore, in public education for younger learners, local and international agencies have made major financial investments and curricular changes in order to promote the use of ICTs in public sector schools (Johnson & al., 2015; Macaro, Handley, & Walters, 2011; World Bank, 2007).

Technological applications and ICT choices for L2 learning and teaching are growing in number, evolving from "traditional" to "intelligent", and becoming more available to researchers, teachers and learners (Cerezo, Baralt, Suh, & Leow, 2014). Golonka, Bowles, Frank, Richardson and Freynik (2014) reviewed several empirical studies and identified 18 broad types of ICT categories that could be used for L2 instruction, excluding technologies such as laptops, CDs, DVDs, etc. Due to the growing number of studies and technologies, meta-analyses have been conducted to examine the benefits and limitations of particular forms of technologies such as computer-mediated communication (Lin, 2015), glosses (Yun, 2011), management systems (Cerezo & al., 2014), mobile-assisted language learning (Burston, 2015), and virtual reality (Schwienhorst, 2002), among others.

Despite this growth, Felix (2008:146) notes that "investigations in tertiary settings still dominate the field". Due to the ongoing efforts to incorporate ICTs in public sector education, Macaro & al. (2011) argue that the kinds of technologies used in primary and secondary schools for L2 teaching and learning deserve investigation. To date, from the L2 literature, two trends for research into the use of ICTs with young learners can be identified. One explores the effects of technology-enhanced instruction on L2 learning in contexts where the regular instructional practices are altered to accommodate for the use of existing ICTs (Guénette & Lyster, 2013; Lan & al., 2015) or ICT systems that were specifically developed for experimentation (Allen, Crossley, Snow, & McNamara, 2014; Edwards, Pemberton, Knight, & Monoghan, 2002). In a review of 117 studies that examined the effects of ICTs in these contexts between 1991 and 2010, Macaro and his colleagues found that multimedia, computer-mediated communication, and the internet constituted the most frequently targeted ICTs in experimental research with young learners. Overall, these studies provide evidence of the L2 cognitive, psychological, and socio-affective language learning dimensions that could be enhanced among young learners through the use of ICTs (Macaro & al., 2011). Other studies examine attitudes towards the potential integration of ICTs in L2 teaching in schools (Felix, 2004). In the survey data, young learners show a preference for the use of ICTs to expand the classroom L2 learning experience (Felix, 2004). In a similar fashion, the survey data reveal that teachers exhibit positive attitudes for the use of technology in public education and consider that the use of technology in public L2 education could enhance learning among young learners (Durán-Fernández, & Barrio-Barrio, 2007).

The extent to which the observed willingness and openness towards ICTs translate into their actual integration in L2 teaching on a daily basis has yet to receive attention, however. Durán-Fernández and Barrio-Barrio (2007), for instance, showed that public sector teachers from approximately 100 educational settings in Spain expressed interest and had experience using ICTs in elementary classrooms, but 73% of them did not report exploiting them. Bax (2003; Chambers & Bax, 2006) argues that ICTs could constitute valuable L2 instructional resources, but teachers have yet to overcome the novelty and unfamiliarity phase to normalize technology in regular instructional practices. In contexts with young L2 learners, the pedagogical and contextual needs that are particular to their educational settings could have an impact on the classroom use of technology (He, Puakpong, & Lian, 2015). Macaro & al. (2011) highlight the need of process-oriented research to document the ICTs that characterize L2 instruction in public contexts. Moreover, further research is needed to examine the ICTs that L2 teachers can access in contexts with limited technological resources, as well as how ICT use is being maximized in these settings (Egbert & Yang, 2004; Jeon-Ellis, Debski, & Wigglesworth, 2005; Taylor & Gitsaki 2003). In light of these issues, the objective of this study was to examine the "current," rather than the "potential" use of ICTs in public L2 education for young learners. The study was conducted in Mexico, an emerging economy, where major investments and curricular

changes are underway in order to foster both the integration of ICTs in education and the learning of English at a young age in public sector classrooms (Izquierdo, Aquino, García, Garza, Minami, & Adame, 2014; Izquierdo, García, Garza, & Aquino, 2016). In this context, the study addresses this research question: Which ICTs have become normalized in the regular instructional practices and settings of secondary school teachers of English in public schools?

2. Material and methods

To achieve our objective and answer the research question, a concurrent triangulation mixed-methods study was conducted. This approach "uses separate quantitative and qualitative methods as a means to offset the weakness inherent within one method with the strengths of the other" (Cresswell, 2009: 213). The quantitative data were collected through a descriptive-exploratory design for the examination of a phenomenon within a group of participants using survey data (Mackey & Gass, 2005). Specifically, Likert questionnaires were administered to the teachers and their learners in Grade 3, in order to identify ICTs in regular L2 instruction. The qualitative data were collected using a multiple-case study (Cresswell, 2013), with a subsample of teachers. This design allows for an in-depth exploration of a phenomenon within a specific population in a real-life setting (Cresswell, 2013; Thouin, 2014). As this design requires extensive data collection through different instruments, for each teacher, information about ICTs in their instructional practices and contexts was gathered through longitudinal classroom observations, a school visit, and teacher and principal interviews.

> L2 research shows that in other international educational settings with limited technology, teachers have been able to circumscribe their contextual limitations by exploiting the available institutional resources in combination with their own personal devices and those of their learners. Nevertheless, teachers require assistance in the form of training and teaching literature on the use of technology in L2 instruction, as well as research initiatives that account for their diverse contextual realities and help them maximize the resources to which they have access on a daily basis.

2.1. Context and participants

Approximately 100 teachers from general, state and technical public secondary schools in Southeast Mexico were contacted for the study. Across the three types of public secondary schools, the teaching of English ascribes to the same curriculum, number of instructional hours, and language attainment goals. The study was conducted in Grade 3, as learners had completed the largest number of English instructional hours in the secondary education, and teachers were expected to be consolidating learners' English language competencies through a variety of instructional practices and resources (Izquierdo & al., 2014).

Table 1 shows the demographics of the 28 Grade 3 teachers of English who consented to participate in the quantitative phase along with their learners. All teachers were native speakers of Mexican Spanish and had learnt English in Mexico. They held undergraduate studies in English teaching, they were familiar with the national curriculum and policies for the integration of ICTs in public education, and they had taught English in Grade 3 for a minimum of two years. Their schools were located across 17 municipalities in five geographical areas with different social and economic profiles. The learners were all native speakers of Mexican Spanish and had completed their previous education in the public system.

For the case-study phase of the study, only six teachers consented to participate. Table 1 displays their demographics. In addition to the teaching and educational background described previously, these teachers demonstrated positive attitudes towards ICTs during the interviews. Furthermore, the school principals had identified them as

being highly motivated teachers and committed to language teaching, professional development and educational innovation in their schools.

2.2. Questionnaires

In order to quantitatively examine the integration of ICTs in L2 teaching practices, a four-point scale (i.e., never, rarely, sometimes, often) questionnaire was designed. The methodological principles for its conceptualization emerged from a review of empirical studies that examined L2 instructional practices using Likert-scale questionnaires (Fabila, Minami, & Izquierdo, 2012). First, a set of items was developed to explore the three kinds of ICTs that Macaro and others (2011) identified in L2 research with young learners: multimedia (items 2, 4, 12), computer-mediated communication (item 7, 13, 16), and the internet (item 3, 9, 10, 11), in addition to the generic use of computers (item 1, 5, 6, 8, 14, 15). The items were divided in two sections. Items 1 through 8 were included in Section A, and items 9-16 in Section B. Moreover, in order to validate the questionnaire, two versions of each section were developed. Both versions included the same items, but in reverse order.

Table 1. Participant demographics

					Region				School type			
Population	n	Age mean	Male	Fem.	1	2	3	4	5	Gen.	State	Tec
Teachers Quantitative	28	42.6	13	15	12	5	2	4	5	17	6	5
Qualitative	6	38	3	3	2		2	1	1	4	1	1
Students	2,944	14	1,354	1,590	548	1,362	344	324	366	1,053	1,152	739

In order to triangulate the quantitative data, both a teacher and a learner questionnaire were developed. Teachers' and learners' questionnaires included the same items and conformed to the principles outlined previously; but the items were adapted semantically for each respondent type. For instance, in the Teacher Questionnaire, Item 2 stated "I combine the use of textbooks with computer-based video, audio, or other type of computer materials". In the Learner Questionnaire, the same item stated "My teacher uses the textbook with computer-based videos, audio, or other types of computer materials". All teachers and students completed Sections A and B within a week interval in class.

2.3. Classroom observations

In order to qualitatively examine the use of ICTs during instruction, longitudinal classroom observations were conducted. "[O]bservations are useful means for gathering in-depth information" (Mackey & Gass, 2005: 186) about L2 classrooms and instruction; thus, the teachers were observed five times in the same Grade 3 class during the two months when they were covering the same curricular unit: Food and eating habits. This shared criterion allowed us to observe comparable lessons across teachers. Observations took place every second week. As a result, our observations covered 30 video-recorded lessons. The length of each lesson was approximately 50 minutes. Five members of the team with extensive research experience in public sector English language education in the Southeast of Mexico watched all the video recordings and completed a checklist, based on the questionnaire items. Then, in focus groups, they discussed their answers for each teacher in regards to the four ICT categories. Discussions were audio-recorded and transcribed.

2.4. Interviews

A 30-minute semi-structured interview was conducted with the six teachers and their school principals. According to Mackey and Gass (2005: 173), this instrument allows for the investigation of "phenomena that are not directly observable". Its design revolves around a set of initial questions, while researchers have the freedom to elicit additional information as the interview unfolds. Moreover, "the outcomes are not limited by the researcher's preconceived ideas about the area of interest" (Mackey & Gass, 2005: 173). Following these principles, the interviews explored five areas of interest: first, the language curriculum and ongoing educational reforms; second, the relevance of English language education for young learners; third, the potential of ICTs for language teaching and learning; fourth, technological infrastructure and facilities in the school; and finally, teachers' continuing education and professional development. By the request of the participants, the interviews were not audio-recorded. Two of the authors conducted each interview, and teachers and principals were interviewed separately. Upon completion of the interview, the researchers wrote notes on issues the interviewees had addressed for each central question.

2.5. School visits

The researchers arranged one-hour visits to the school facilities where some technology could be found. These facilities included libraries, computer labs, or classrooms with a TV set, a projector, or a computer. Two of the researchers visited the facilities guided by the language teacher. During the visits, the researchers asked questions about regulations for accessing these facilities, training for the use of the equipment, technology/non-technology-based L2 materials available, and access to internet and computer peripherals (printers, scanners, etc.). Field notes were made upon completion of the school visits.

3. Quantitative results

In this section, the statistical validation of the questionnaires is presented first. Then, the answers given by the teachers and learners are discussed for the ICT categories. Tables 2 and 3 present the percentage distribution of the 28 teachers and 2944 learners across the questionnaire scale points for each item. In the discussion of the results, the percentages of the "sometimes/often" categories are added up, as they reflect sustained use of technology. Similarly, the percentages in the categories "never/rarely" are merged and interpreted as infrequent use of technology.

In order to test the differences in the answers between questionnaire versions, Mann-Whitney analyses were run. These analyses were selected due to the ordinal nature of the item scales (Fields, 2005). They revealed similar answers for all items in both teacher questionnaire versions, with a probability value above .05. They also revealed that the learners provided similar between-version answers for the items in table 3. Thus, the data from both versions were pooled for the analyses of each respondent type. Cronbach analyses indicated that teachers provided reliable answers in both questionnaire sections, and confirmed a satisfactory reliability level for learners' answers in Section A and moderate reliability for Section B.

In the questionnaires, multimedia use was examined through items 2, 4, and 12. Item 2 explored the combined use of multimedia with the textbook. In the teacher questionnaire, this item (46.4%) out weighted the other items that explored teacher knowledge of L2 multimedia programs (32.2%) or the use of multimedia to teach a particular aspect of the L2 (10.7%). In the learner questionnaire, only this item (18.4%) yielded reliable results. These findings suggest that teachers use multimedia resources to complement traditional classroom materials, without exploring new instructional initiatives.

Internet/computer-mediated communication (CMC) was analyzed by items 7, 13, and 16 considering that teachers and learners could interact through emails, instant messaging, social networks, etc. In item 7, approximately 46% of the teachers reported using telephone text messages with learners. In the learner questionnaire, 14.4% of the participants confirmed this. The results further revealed that only a few teachers recommended the use of social networks for L2 practice (28.5%) or L2 communication (25%).

Teachers' use and promotion of the internet encompassed items 3, 9, 10, and 11. From the outset of the study, the researchers knew that

Table 2. Teacher questionnaire

Section A (α= .875)	No answer	Never	Rarely	Some times	Often
1. Teachers' assistance during technological problems.		42.9%	35.7%	14.3%	7.1%
2. Teachers' combined use of the textbook with computer-based video, audio files.		21.4%	32.1%	35.7%	10.7%
3. Teachers' promotion of internet for language practice at home.		32.1%	32.1%	25.0%	10.7%
4. Teachers' knowledge of language learning programs.		35.7%	32.1%	17.9%	14.3%
5. Use of computers in the class.		35.7%	17.9%	17.9%	28.6%
6. Use of computers for grading and record tracking.	3.6%	28.6%	42.9%	10.7%	14.3%
7. Teachers' use of texting.		35.7%	17.9%	25.0%	21.4%
8. Teachers' promotion of the use of computers in class.	7.1%	35.7%	28.6%	17.9%	10.7%
Section B (α= .858)					
9. Teachers' use of internet materials.		35.7%	35.7%	21.4%	7.1%
10. Teachers' promotion of websites for language learning.		14.3%	28.6%	35.7%	21.4%
11. Teachers' promotion of internet for language learning.		17.9%	25.0%	35.7%	21.4%
12. Use of computer images/videos for vocabulary teaching.		46.4%	42.9%	7.1%	3.6%
13. Teachers' promotion of social networks for language learning.		28.6%	42.9%	21.4%	7.1%
14. Teachers' requests for in-class technology use (cell phone, tablets, etc.).	3.6%		46.4%	28.6%	21.4%
15. Teachers' request for computer-produced assignments.		28.6%	35.7%	21.4%	14.3%
16. Teachers' use of internet-based communication with learners		64.3%	10.7%	21.4%	3.6%

the schools had no access to internet. Thus, only item 9 focused on its use in class, considering that teachers could produce printouts or download materials from the internet for instruction (Egbert & Yang, 2004). Nonetheless, this item had the lowest response rate in the teacher (28.5%) and learner (11.4%) questionnaires. The questionnaire items with the largest numbers of often/sometimes responses from teachers and students (57.1% and 23.3% respectively) were items 10 and 11. These results suggest that, although teachers do not use Internet-based materials in class, they recommend its use for L2 learning outside of class.

Teachers' "generic" use of computers/laptops in class (items 1, 5, 6, 8, 14, 15) was examined, as learners may be better able to identify this in comparison to the other specific types of ICTs. This was assumed, since many public-school learners have received computers/laptops in the southeast of Mexico through different government initiatives in recent years. In line with this assumption, this category obtained the largest number of reliable items through the statistical analyses in the learner questionnaire. Regarding teacher assistance when learners experience computer issues, similar percentages of learners (21.4%) and teachers (19.1%) selected the often/sometimes choices. As for teacher use of computers/laptops in class, different percentages of teachers (46.5%) and learners (14.4%) confirmed this (item 5), while teachers (25%) and learners (18.2%) acknowledged that teachers used computers for grading and record tracking. Moreover, the results reveal that the teachers ask their learners to use their computer/laptop/tablets in class, but only a few (35.7%) promote their use for completing assignments.

4. Qualitative results

Table 3. Learner questionnaire

Section A (α= .724)	No answer	Never	Rarely	Sometimes	Often
1. Teachers' assistance during technological problems.	7.5%	61.8%	11.6%	9.8%	9.3%
2. Teachers' combined use of the textbook with computer-based video, audio files.	5.1%	63.2%	13.3%	9.2%	9.2%
5. Teachers' use of computers in the class.	6.7%	68.5%	10.5%	7.9%	6.5%
6. Teachers' use of computers for grading and record tracking.	5.7%	65.3%	10.8%	6.8%	11.4%
7. Teachers' use of texting.	4.6%	72.0%	9.0%	6.3%	8.1%
8. Teachers' promotion of the use of computers in class.	5.6%	78.8%	7.0%	4.4%	4.2%
Section B (α= .544)					
9. Teachers' use of internet materials.	2.4%	74.6%	11.7%	7.2%	4.2%
11. Teachers' promotion of internet for language learning.	1.3%	59.3%	18.2%	12.6%	8.7%
15. Teachers' request for computer-produced assignments.	1.6%	54.6%	19.0%	17.7%	7.1%

In order to describe ICTs in the English class and the schools, the qualitative data are holistically presented using categorical aggregations (Cresswell, 2013). This analysis type is relevant for a multiple-case study, as it facilitates the identification of the categories of a phenomenon through communalities across cases, and the integration of extensive data from different instruments (Cresswell, 2013). Using this type of analysis, the data from the classroom observations, school visits, and interviews are combined into two categories that were set from the onset of the study in line with the research objective. The first category targets the ICTs that are available to teachers in their educational settings. The second category covers the ICTs that are used in the English class. In the reports that follow, the quotation marks indicate words that were used by the participants.

In regards to ICTs in the public schools, the interviewees acknowledged that they were aware of the curricular policies that favour the use of ICTs for educational purposes. Moreover, they felt that the use of ICTs in the language class "could motivate kids to learn English". But, they indicated the school settings lacked ICT infrastructure. During the school visits, it was observed that a few schools had an improvised computer lab in a classroom or a library corner; other facilities consisted of a classroom with one computer or a display. In some schools, L2 learning multimedia CDs, a multimedia projector or laptop could be borrowed from the main office. However, some factors constrained access to these technologies, including one concern related to school regulations. Computer rooms were available only for "subjects in which learners need to develop technological knowledge, which is not the case for the English class". The lack of knowledge of how to operate school equipment also hinders teachers' use of school technologies. Most teachers were concerned about operating "expensive" equipment or dealing with technology malfunctioning. Another reason for avoiding school facilities or equipment was that their use "requires time that could be used more effectively". Some teachers felt that using technology "wasted time", as the learners needed

in-class time to get to school facilities with technology and then return to their classrooms; they also needed time to start the equipment and "the students get easily distracted".

As for the ICTs in the English class, the qualitative findings substantiate the quantitative reports in that multimedia and CMC are finding their place in the observed classrooms. Moreover, they point to a remarkable divide in ICT classroom use between the younger and older teachers. Regarding multimedia, the younger teachers had personal laptops, portable speakers, or tablets. These teachers were observed asking learners to work on a textbook passage as they were getting their media files, laptops and speakers ready for the lesson. They were also observed to use media files already available on their laptops. The older teachers were observed using CD players only. Both types of teachers relied on these different technologies to implement listening comprehension exercises, and have students listen and repeat dialogues. In one class, one of the younger teachers distributed a printout with images and a language task from an L2 website. He also referred his students to the website on a few occasions.

Regarding CMC, the teachers were observed using text messages for teacher-learner communication, or to communicate with the parents. Moreover, one of the younger teachers indicated that CMC constituted a valuable technology for L2 practice. She reported having tried an information exchange task through a cellphone instant message application with some learners in one of her classes, as a requirement of a continuing L2 education program in which she was participating. She reported that her students liked the activity; she felt it was a "real kind of thing" for learners to use English, since they have this application on their phones and use it for real-life communication. Another young teacher acknowledged having an internet social network account, and learners would sometimes send him postings with messages in "Spanglish". He thought it was an alternative for students to use "some English in real communication".

5. Discussion and conclusion

This study examined the ICTs that have become part of the regular instructional practices and educational settings of L2 teachers in public secondary school education. In the observed contexts, the percentage of the educators who reported using ICTs with young learners is in line with reports from other international public education contexts (Durán-Fernández & Barrio-Barrio, 2007). The qualitative data support previous research findings that highlight teachers' willingness and interest in ICTs for L2 education (Durán-Fernández & Barrio-Barrio, 2007; Felix, 2004). Although our findings suggest that L2 teachers are making efforts and finding ways to overcome the technological constraints in their public education settings (Egbert & Yang, 2004; Taylor & Gitsaki, 2003), both the quantitative and qualitative evidence of our study converge in that the integration of technology in L2 education in the observed public classrooms is still in its early stages.

Specifically, our results indicate that Multimedia and CMC tools are making their way into the public classrooms (Johnson & al., 2015; Macaro & al., 2011). In our context, Multimedia use seems to be emerging in public L2 instruction to complement the textbook, or to replace normalized technologies for L2 listening or oral practice. This use constitutes an initial move towards ICT-enhanced instructional practices, but underrepresents the potential of ICTs for L2 education (Plass & Jones, 2005), particularly among young L2 learners (Edwards & al., 2002). Regarding CMC, the use of cell phone text messages constituted a normalized communication technology in the L2 class. Nonetheless, CMC use is far from creating meaningful input and output L2 learning opportunities (Lin, 2015). The L2 teachers used text messages in Spanish to accomplish managerial tasks with parents and learners. Moreover, L2 use in text messages was limited to "throwing in a couple of words in English" for learners to realize that English can be used for real communication outside the class; thus, the use of CMC serves a L2 motivational purpose only.

Although methodological aspects of the mixed-methods design of the study could influence the ecological and face validity of our results (Cresswell, 2009; 2013), the diversity of school contexts represented in the study, the convergence in the data collected from various sources and through different data collection instruments, and the number of participants provide a high level of representativeness with regard to instructional conditions across public sector education settings. In this regard, our data clearly indicate that the normalization of ICTs for L2 education in these classrooms is hindered by some factors that are particular to the contexts of public sector education with young learners (He, Puakponk, & Lian, 2015; Johnson & al., 2015). In the study, a striking finding was that teachers do not use the available institutional technologies; and thus, these technologies do not constitute a valuable resource for L2 teaching. Principals often acknowledged the efforts of the school to have some technology available, and pinpointed that the L2 teachers "do not like using them to enhance their teaching". Instead, teachers bring their own

technology into the L2 class. Explanations for this teacher behaviour related to overwhelming regulations and limited access to the facilities, technical support, time investment, and training, to mention but a few. This evidence and that from other international settings (Chambers & Bax, 2006; He, Puakponk, & Lian, 2015) raise concerns about the effectiveness of public school policies for encouraging teachers to benefit from the (limited) ICTs in their educational settings. Moreover, they raise questions about the extent to which current educational policies and curricular guidelines need to be reconceptualized in order to help teachers maximize the resources available in their school settings (Johnson & al., 2015; World Bank, 2007).

While the generalizability of our findings for other educational settings in other emerging economies deserves further exploration in future research (Johnson & al., 2015; Izquierdo & al., 2014), our findings substantiate the argument that "[t]eachers do not often have the adequate support systems to transition their good ideas beyond their own classrooms" (Johnson & al., 2015: 1). L2 research shows that in other international educational settings with limited technology, teachers have been able to circumscribe their contextual limitations by exploiting the available institutional resources in combination with their own personal devices and those of their learners (Egbert & Yang, 2004; Jeon-Ellis & al., 2005). Nevertheless, teachers require assistance in the form of training and teaching literature on the use of technology in L2 instruction (Compton, 2009; Johnson & al., 2015), as well as research initiatives that account for their diverse contextual realities and help them maximize the resources to which they have access on a daily basis (Taylor & Gitsaki, 2003; Guénette & Lyster, 2013).

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Mobile Instant Messaging: Whatsapp and its Potential to Develop Oral Skills

Mensajería instantánea móvil: Whatsapp y su potencial para desarrollar las destrezas orales

Alberto Andújar-Vaca is Research Assistant and PhD Student in the Department of Linguistics of the University of Almería (Spain) (aav447@ual.es) (http://orcid.org/0000-0002-8865-9509)

Dr. Maria-Soledad Cruz-Martínez is Senior Lecturer in the Department of Linguistics of the University of Almería (Spain) (mcruz@ual.es) (http://orcid.org/0000-0003-2422-8694)

ABSTRACT

This study investigates the benefits of Mobile Mediated Communication (MMC) to develop oral skills in second-language learners. A total of 80 Spanish students taking a B1 English course at the University of Almería were studied in this research. According to treatment type, subjects were divided in two groups, experimental and control. A "Whatsapp" group was created where 40 of these students participated in a daily interaction during six months. The samples collected in the application as well as a speaking were used to measure the students' degree of oral development and the type and triggers of the language related episodes (LRE) given rise to mobile chat-based oral interaction. This study focuses on such interaction and seeks to measure the students' degree of oral development through a mixed analysis approach. A temporal axis is used to measure the differences between the groups studied. Significant improvements in term of oral proficiency were observed in the experimental group and negotiations were the LRE most common throughout the activity. It is worth mention that Mobile learning offers an environment where learners can ubiquitously negotiate meaning, reflect and evaluate on their own performance through authentic interaction and feedback, constituting a powerful tool for developing second language proficiency.

RESUMEN

La presente investigación analiza los beneficios de la comunicación mediante teléfonos móviles para desarrollar las destrezas orales de los estudiantes en la segunda lengua. Un total de 80 estudiantes españoles que realizaban un curso de inglés nivel B1 en la Universidad de Almería participaron en el estudio. De acuerdo con el tipo de tratamiento, los sujetos fueron divididos en dos grupos, experimental y control. Mediante la creación de un grupo de «Whatsapp», 40 de dichos sujetos participaron en una interacción oral diaria durante 6 meses. Las muestras recogidas en la aplicación, así como un examen oral, fueron utilizados para analizar el grado en que los estudiantes desarrollan la destreza oral y los tipos y desencadenantes que dan lugar a episodios relacionados con el lenguaje en los chats orales. Este estudio se centra en la interacción utilizando un análisis mixto y un eje temporal con el fin de medir las diferencias entre los grupos analizados. Los resultados demuestran mejoras significativas en cuanto a la competencia oral en los alumnos del grupo en el que se implementó la actividad, siendo las negociaciones de significado el episodio relacionado con el lenguaje más común durante la interacción. Cabe destacar la accesibilidad que la mensajería móvil confiere a los alumnos, pues son capaces de negociar el significado, reflexionar y evaluar sus propias actuaciones mediante interacción real y feed-back.

KEYWORDS | PALABRAS CLAVE

Mobile-mediated communication, BYOD, mobile chat, interaction, educational technology, Whatsapp, mobile learning, virtual environments, virtual learning.

Comunicación móvil, BYOD, chat, interacción, tecnología educativa, Whatsapp, aprendizaje móvil, entornos virtuales, aprendizaje virtual.

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1. Introduction and statement of the question

Mobile phones and, consequently, wireless computing devices have changed the e-learning landscape in many different ways due to widespread access to such inexpensive and sophisticated devices (Miangah & Nezarat, 2012). Kukulska-Hulme & Shield (2008) and Trifonova & Ronchetti (2004) place emphasis on the characteristics of mobile devices as small, autonomous and unobtrusive qualities that provide learners with easy access to all resources. Advances in mobile technologies give the chance to owners of mobile devices to access not just educational resources, but the possibility of engaging in many forms of social interaction and participation through mobile phones (Comas-Quinn, De-los-Arcos, & Mardomingo, 2012). This mobile social interaction and participation is becoming a powerful tool in L2 (second language) development and constitutes an educational resource yet to be exploited by L2 teachers. Many researchers agree on the effectiveness of language learning materials based on real-life interaction, therefore it is vital to take into consideration not only materials, but real-life interaction itself. Additionally, mobile phones provide an opportunity to escape from the traditional constraints of time and place that determine existing curricula and allow different skills to be practised "on the go", giving the chance to orientate the foreign language curriculum towards more spoken communication (Demouy & Kukulska-Hulme, 2010; Kukulska-Hulme, 2012).

Narrowing the scope of this research, there will be a focus on the use of instant messaging applications to improve L2 oral skills. With regard to this field, it is defined as mobile instant messaging (MIM), an asynchronous, and in some occasions synchronous communication tool that operates through wireless connections and handhelds via the Internet, allowing students to hold a conversation in real time (Dourando, Parker, & De-la-Harpe, 2007; Rambe & Bere, 2013). Thanks to the growing number of applications providing Voice over Internet (VoiP), teacher-learner and learner-learner interaction is rapidly increasing. Some of these applications for language learning include voice search, voice email, and audio recording, audio capabilities which, as supported by other researchers in the field (Godwin-Jones, 2011), will play a crucial role in second language use and learning. Among the assets of these applications are: promoting contact between students and teachers; fostering interaction amongst students and promoting academic cooperation; encouraging active learning; providing instant feedback; and developing high communicative expectations (Desai & Graves, 2006; Farmer, 2003; Rambe & Bere, 2013).

Several applications providing conversation in real time have appeared recently and have spread worldwide within just a few years, as can be seen with the case of "Whatsapp" and its competitors "Line", "Kik Messenger", "Telegram", "Wechat", "Tango", "Text free", all which provide free text, voice, and image messaging via the Internet. This tremendous growth needs to be taken into consideration by L2 teachers who now have access to a new field in which second language learning may take place.

Many studies (Andujar, 2016; Bouhnik & Deshen, 2014; Vazquez-Cano & al., 2015; Parejo, 2016) have focused on the possibilities that mobile devices offer, and in particular "Whatsapp", to improve the vocabulary and writing skills of the learners. Nevertheless, it is necessary to overcome this tendency in order to explore other aspects of language learning such as oral interaction (Kukulska-Hulme, 2009), which in many cases is a problematic area for L2 students. Several exceptions to text-based learning patterns can be found in studies such as in the case of audioblogs (Hsu, Wang, & Comac, 2008), in which answers were recorded thanks to mobile phones used to manage and store oral assignments. Further examples are Tai (2012) where multimedia capabilities of smartphones are exploited in different ways, using either calls, SMS or MSN. In this task-based learning approach, participants need to read several tasks and cooperate in order to formulate responses in spoken or written form.

In addition, software developments in voice recognition systems are leading to studies such as Stewart & File's (2007) system called "Let's Chat", where students can chat with a human partner which comprises pre-stored phrases or "Candle Talk" (Chiu, Liuo, & Yeh, 2007) where a conversational environment is provided and speech interactions are enhanced thanks to speech recognition. As claimed by Levy (2009) these developments are also leading to the use of "chatterbots", although psychological studies such as Atkinson, Mayer, & Merrill (2005) and Mayer & al. (2003) regarding the use of a social agent in multimedia learning showed that students participating in human voice groups significantly outscored those groups in which the "chatterbot" was used on learning performance tests. Thus, interaction and learning are fostered by the use of visual and social cues.

It is also worth noting that several researchers in mobile-assisted language learning (MALL) have made notable observations regarding the speech aspect of mobile learning. Jolliet (2007) pointed out the fact that these devices allowed students to record and listen to their own utterances, which helped them to compare and repair mispronunciations and mistakes in their speeches. In terms of assessment, proonunciation could be easily evaluated as lan-

guage performance was recorded in the device, thus teachers could focus on particular aspects of speech (Miangah & Nezarat, 2012). Similarly, Kukulska-Hulme, & Shield (2008) emphasized the need for developing learning activities regarding voice discussions to take advantage of this mobile technology in second language learning.

2. Method

2.1. Study

In order to accomplish its aims, this study used four groups, each consisting of 20 participants. According to experiment type, learners were divided into two main groups with 40 students each. The study involved Spanish students from the University of Almeria who were taking a B1 English course at the UAL Language School. The materials and contents provided in the course met the parameters established by CEFR for a B1 level. The expected entry level was A2+ a placement test which was administered to the students at the beginning of the course in order to ensure they were able to take it. Ages ranging from 18 to 31 were found in both groups. 32 participants were male and 48 female. The length of the course was six months from November to April where learners met for 3 hours per week. The researcher participated actively in the process, as he was the teacher of the groups studied, following concerns of researchers in the field regarding the need for guidance when using mobile devices (Kukulska-Hulme, 2009). Nevertheless, the researcher did not take part in the evaluation of the subjects studied in order to avoid compromising the results. Students in the experimental group join a "Whatsapp" group consisting of 40 students where the interactions took place.

> MMC becomes an available resource where dynamic interactions between learner, task, and virtual environment, together with the inherent ubiquitous, spontaneous and personalized characteristics of these devices constitute a solid framework for second language acquisition.

The study focuses on determining the potential of mobile instant messaging services like "WhatsApp" in order to develop ESL speaking. The "WhatsApp" application is proposed as a tool to encourage participation and interaction during the course through the creation of groups in which different users can interact through text, voice, images and video-sharing. Exchanges between users can be produced in a synchronous or asynchronous manner, thanks to the voice recording system provided by the application and are received on phones as alerts. The application did not substitute educational explanations but was used as tool to improve speaking skills and keep communication active outside the classroom on a daily basis, becoming a constant support for language use. All the students participated in the activity, as they all had smartphones as well as the previously downloaded "WhatsApp" application. After the creation of the "WhatsApp" group, the activity was carried out taking into account a series of premises established by the teacher: writing was forbidden in order to force learners to speak; English language use was compulsory; a different question had to be formulated by a different student every day, 7 days per week; the choice of topic for the question was open; each student had to provide at least one answer per question; image-sharing was allowed; the teacher also participated as a student, responding to the questions. The teacher participated actively in the activity and errors were not corrected in an explicit manner during interaction. If necessary, students' answers were reformulated, and following Hanaoka and Izumi's (2012) recommendation for lower proficiency learners, reformulated parts were emphasized helping participants to notice them.

Two groups, a control and an experimental one, were set up and although the control group did not receive any treatment apart from the traditional instruction, it was used for studying the differences between the groups after implementation. In this manner, we were able to perceive the effect of the action on the experimental group subjects. Regarding tuition, students in both groups attended the same number of classes where the same teaching materials were used. A lesson plan was set up in order to guarantee the same tuition in both groups. After implementation of the programme for the experimental group, we verified its effect through the comparison of the results obtained. The identities of the participants have been changed so they remain disguised in this investigation, meeting ethical guidelines set by the American Psychological Association (2002).

Regarding participants in the activity, initial differences were determined by the tests given at the beginning of the course to both groups. Internal threats to validity (Campbell & Stanley, 1963: 55) and effects such as the Hawthorne effect (Mayo, 1933), the halo effect (Thorndike, 1911) and participant expectancy were minimized as the students were not aware that they were being observed and the teacher did not participate in the correction of the tests given. An external examiner was used in this process. Other threats to validity such as socio-economic and educational metadata were tackled at the beginning of the activity in order to guarantee students' participation, no matter what background they came from. Furthermore, the timetable of the groups was different, the experimental group had classes in the morning and the control in the evening, therefore students could not talk about the activities carried out in both groups as they did not know each other.

2.2. Research method

The aim of this study is to investigate speaking development in ESL learners, through analysing interactions in a mobile voice-based teacher-led chat and seeks to answer the following questions: 1) Has the implementation of MMC in the experimental group brought about important changes in speaking skills of the subjects?; 2) What are the main triggers and types of LREs in MMC?; 3) Is the use of mobile chat applications useful for this development? Regarding the last question, the study tries to answer aspects related to the potential value of the applications in ESL speaking, as well as how this MMC provides opportunities for interaction and consequently, second language development.

Alpha level was set at .05 under a non-directional (two-tailed) hypothesis. Regarding the research design, Creswell (2003) fixed mixed methods were followed as the use of qualitative and quantitative methods was predetermined and planned at the start of the research process, hence contrasting with the experimental paradigm. Null and alternative hypotheses were posed and tested in order to reveal significant differences between two pre-existing groups (control and experimental group):

Alternative hypothesis: At the end of the study, the speaking proficiency level of the students in the voice-based chat will be higher than those in the control group.

Null hypothesis: No significant differences will be found between the speaking proficiency of both groups.

Ex post facto criterion groups are observed in the design (Hatch & Lazaraton, 1991; Shavelson, 1981) as descriptive measures (central tendency and variability) are analysed. With regard to data collection, which was categorized in the tradition of discourse analysis, a naturalistic inquiry was used (Nunan, 1992). In terms of design, a sequential quantitative-qualitative approach was used, first conducting the quantitative phase and then the subsequent qualitative phase. More specifically, a qualitative follow-up interaction analysis was carried out where an analysis of variance and later qualitative analysis of the data pertaining to the participants is studied (Onwuegbuzie & Teddlie, 2003).

2.3. Data collection instruments

2.3.1. Speaking test

A spoken English test at the beginning and end of the course was administered in class. Both tests were conducted using two students at a time and interaction was recorded for later scoring. The length of each test was 15-20 minutes for each pair. Regarding the design of the test, it was conceived to provide participants with enough opportunities to speak, following Hughes (2003) study regarding test creation. It consisted of 1) Students being asked about personal information such as their name, origin, family, work and studies. This first part lasted 5 minutes serving as a way for learners to adapt to the examiner's voice and accent as well as to reduce their anxiety; 2) Two pictures were given to each student who had to describe and compare the elements appearing in both for 1-2 minutes; 3) A question surrounded by different images was given to each pair. Students needed to interact and talk about all the different elements while answering the question, asking for opinions and expressing agreement and disagreement. The activity lasted 5 minutes and students were asked to reach a conclusion by the end of the exercise, and 4) Students were given two cards, one per person, and a role-play was performed by each participant following the ideas in each card. The time of the activity was 5 minutes and students got involved in a debate regarding the different cards.

Practical considerations included arranging a specific room for the test in order to guarantee clarity of the recordings, recording all students' oral productions in order to later check their performance, and allowing students to choose their partner, reducing anxiety (Norton, 2005; Satar & Özdener, 2008).

Assessment was carried out using Hughes' (2003) general proficiency speaking scale which consisted of comprehension, grammar, vocabulary, fluency and pronunciation. A marking guide 1 to 6 in each of the parts is also presented in the scale. Students of both the control and experimental groups were given this exam.

2.3.2. Samples in the application

The language samples obtained in the mobile voice chat were used to measure the quantity and type of LRE elicited from participants. Following Bueno-Alastuey's (2013) division, LREs were divided into negotiation and negative feedback. The first one was operationalized by instances where participants showed misunderstanding by using questions or by repeating a previous question with rising intonation (Bueno-Alastuey, 2011; Lai & Zhao, 2006; Williams, 1999). Negative feedback was operationalized as an interlocutor's move where a non-target-like feature was indicated whether explicitly or implicitly (Iwashita, 2003). This last LRE was further subdivided into: 1) Recasts: restatement of a non-target-like in a more target-like way (Long, 1996); 2) Elicitation: a response to a previous utterance aiming at a more target-like form without providing any metalinguistic information. Explicit correction was not considered necessary in this study, as the aim of the activity was to build a synthetic environment where interaction could play a fundamental part. Furthermore the kind of triggers −whether lexical, morphosyntactic or phonetic− leading to these LREs were analysed. (Nakahama & al., 2001).

3. Analysis and results

3.1. Quantitative procedures

The ANOVA related samples repeated measures test was conducted to confirm that these differences were statistically significant and the Bonferroni adjustment was used to counteract multiple comparisons. The pre-test results of the speaking test only yielded major differences between the experimental and control group in vocabulary ($X=2.1$; $p<.05$), the mean points for pronunciation ($X=.12$; $p>.05$), grammar ($X=0.7$; $p>.05$), fluency ($X=.17$; $p>.05$) and comprehension ($X=.25$; $p>.05$) showed no statistical significance as presented in table 1.

Table 1: Pre-test speaking measures in the control and experimental groups

	Pronunciation			Grammar			Vocabulary			Fluency			Comprehension		
	Total	Mean	SD	Total	Mean	SD	Total	Mean	SD	Total	Mean	SD	Total	Mean	SD
CG	40	1.23	.86	40	14.25	5.02	40	7.70	3.05	40	4.70	1.53	40	10.65	2.77
EG	40	1.10	1.77	40	21	4.5	40	9.85	3.66	40	4.88	1.58	40	13.9	2.24

Statistically significant differences were found between groups in the post-test, as presented in table 2. The ratios within the subjects for pronunciation ($F(1,78)=16.70$; $p=.00$), grammar ($F(1,78)=4.21$; $p=.04$), vocabulary ($F(1,78)=24.35$; $p=.00$), fluency ($F(1,78)=221.4$; $p=.00$) and comprehension ($F(1,78) = 37.46$; $p=.00$) showed a greater improvement in the experimental group students, thus confirming the hypothesis that through the use of the mobile voice-based chat, the speaking proficiency of experimental group students is higher than those in the control group.

Post hoc tests were used to measure these differences between pre-test and post-test in both groups and the Bonferroni adjustment showed statistically significant differences in the speaking skills of the experimental group, with a greater improvement in the mean points for pronunciation ($X=.45$; $p<.05$), grammar ($X=2.4$; $p<.05$), vocabulary ($X=4.4$; $p=<.05$), fluency ($X=3.2$; $p=<.05$) and comprehension ($X=2.57$; $p=<.05$).

These findings confirm a strong correlation between the use of mobile voice-based chat and speaking proficiency development, suggesting some speaking abilities which have undergone a greater improvement than others, as can be seen in the case of fluency, pronunciation and vocabulary. Notwithstanding that grammar and comprehension also showed statistically significant differences, considerably greater effects are observed in the skills previously mentioned.

Table 2: Post-test speaking measures in the control and experimental group

	Pronunciation			Grammar			Vocabulary			Fluency			Comprehension		
	Total	Mean	SD	Total	Mean	SD	Total	Mean	SD	Total	Mean	SD	Total	Mean	SD
CG	40	1.80	.51	40	15	4.7	40	12.4	2.9	40	5.45	1.35	40	10.4	2.69
EG	40	2.25	.43	40	23.40	4.25	40	16.8	2.74	40	8.65	1.31	40	16.47	2.5

Regarding the type of LREs found in the mobile voice chat, as shown in table 3, the number of negotiations made by participants was considerably higher than the number of recasts and elicitations. Similarly, studies such as Bueno-Alastuey (2013) and Jepson (2005) in synchronous voice-based computer-mediated communication (SVCMC) also found a higher number of negotiations and tried to explain that the student may simply feel uncomfortable giving negative feedback or may not see the need for accuracy. Nevertheless, the number of recasts was also significant and could be explained by the conditions established by the teacher at the beginning of the activity and the interactive approach used throughout the process. Furthermore, as shown in figure 1, the data collected show a decrease in the number of negotiations, recasts and elicitations over time which could mean that the proficiency of the students was significantly higher at the end of the course and therefore, the number of LREs was diminished. Such increase in proficiency was later corroborated by the pre and post-test.

Table 3: Average number and types of LREs signals in the experimental group per month

Month	Negotiation	Negative Feedback	
		Recasts	Elicitation
1	362 (60%)	154 (25.5%)	87 (14%)
2	331 (62.2%)	130 (24.7%)	69 (13%)
3	278 (58.5%)	145 (30.5%)	52 (10.9%)
4	260 (57.5%)	115 (25.4%)	77 (17%)
5	273 (67.2%)	96 (23.6%)	37 (9.1%)
6	224 (67.4%)	78(23.4%)	30 (9%)

Negotiations were the most abundant with percentages per month ranging from 58% to 67% of the total LREs, which highlights the use of the application as a rich environment for negotiations. Regarding negative feedback, recasts were more frequent than elicitations with percentages from 23% to 30%, which indicates that students collaborate on constructing learning and helping their partners in oral production.

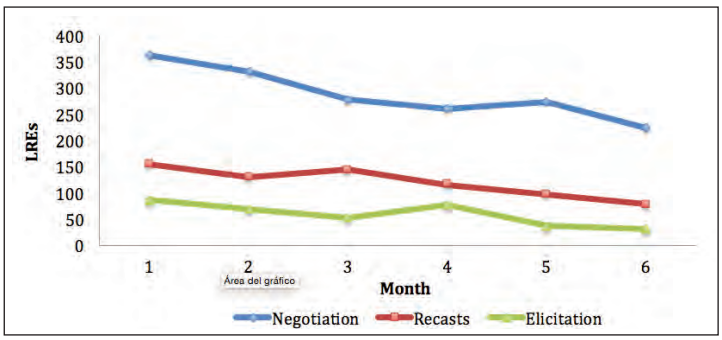

Figure 1. Trend of LREs per month.

Regarding the type of LRE depending on the trigger, as shown in table 4, phonetic triggers were the most abundant, which may be due to the fact that students sometimes struggle to understand their partners because of mispronunciation of certain words. In line with previous studies such as Bueno-Alastuey (2013) or Williams (1999), the number of negotiations due to phonetic triggers was remarkable. Nevertheless and as opposed to the studies previously mentioned, the amount of negative feedback was of considerable significance.

Lexical triggers were also found in a high proportion as can be seen in both LREs: negotiation (30% to 37% of the total negotiations) and negative feedback (35% to 40% of the total negative feedback). Possible explanations for these figures could be the higher level of proficiency of the teacher who, due to wider lexical variety, pushed the students towards unknown vocabulary. Furthermore, the varied lexical richness of the participants also caused a high number of LREs. Global triggers (13% to 21% of the negotiations and 9% to17% of the negative feedback) and morphosyntactic triggers (12% to 23% of the negotiations and 14% to 24% of the negative feedback) were found in a lower proportion, although the latter show an increase in both LREs during the last month which may be due to the proximity of the end-of-course exam where a Use of English part was included.

Table 4. Type of LREs signals depending on the trigger per month

Month	Global		Lexical		Morphosyntactic		Phonetic	
	Ne.	NF	Ne.	NF	Ne.	NF	Ne.	NF
1	74 (20.4%)	42 (174%)	89 (24.5%)	70 (29%)	64 (17.6%)	33 (13.7%)	135 (37.2%)	96 (39.8%)
2	46 (13.8%)	31 (15.5%)	103 (31.1%)	59 (29.6%)	77 (23.2%)	29 (14.5%)	105 (31.7%)	80 (40.2%)
3	58 (21%)	24 (12.1%)	71 (25.8%)	63 (32%)	53 (19.2%)	38 (19.2%)	93 (33.8%)	72 (36.5%)
4	51 (19.6%)	17 (8.8%)	89 (34.2%)	71 (37%)	42 (16.1%)	28 (14.5%)	78 (30%)	76 (39.5%)
5	58 (21.2%)	20 (15%)	94 (34.4%)	41 (30.8%)	32 (11.7%)	19 (14.2%)	89 (32.6%)	53 (39.8%)
6	42 (18.7%)	12 (11.1%)	79 (35.2%)	32 (29.6%)	36 (16%)	26 (24%)	67 (29.9%)	38 (35.1%)

3.2. Qualitative procedures

Negotiations and negative feedback utterances taking place in the application can be also observed from a qualitative perspective. Thus, some examples can be examined in order to exemplify the different LREs and how such processes led to modified output.

3.2.1 Negotiations

• Example 1: Student A: "I went to the /dinin/ room"; Student B: "To the /dinin/ room?"; Student A: "mm…to the /ˈdaɪnɪŋ/ room"; Student B: "Oh! Did you eat something special?".

• Example 2: Student A: "Yesterday the football match was /grit/"; Student B: "I don´t understand you, can you repeat it again please?"; Student A: "The match was /greɪt/"; Student B: "Ok, I thought you mean it was bad".

Examples 1 and 2 show how students negotiate the meaning of certain words. In these cases due to mispronunciation of particular words that made it difficult for the listeners to understand the utterance, negotiations were required. In both cases, without an explicit correction or a recast, students repair communication that may be due to the fact that: "Student A" played the recording another time and noticed the mistake; "Student B" forced "Student A" to check his/her oral production which leaded to the repair. In both cases modified output was brought about as students were able to determine the source of the error as well as the solution to achieve understanding. This phonetic trigger that led to the LRE was observed by the end of the activity in order to see if such student kept mispronouncing the word. Positive results were found in most of the words tracked and this correlates with a decrease in the number of LREs during the last months of the activity as shown in figure 1. Consequently, and in line with previous studies regarding SVCMC (Bueno-Alastuey, 2013; Satar & Özdener, 2008; Jepson, 2005; Volle, 2005), this medium provides learners with a higher number of occasions to notice non-target items. Thus, the awareness of the difficulties and "gaps" in students' interlanguage also increased. That said, it is necessary to take into consideration that the possibilities of noticing such difficulties are considerably higher in asynchronous voice-based mobile-mediated communication (AVMMC) than SVMMC because of the inherent characteristics of these devices, although further studies regarding differences between both environments are needed.

3.2.2. Negative feedback

• Recasts:

– Example 3: Student A: "There are many place in Spain where you can go to the beach?"; Student B: "Many places in Spain to go to the beach?"; Student A: "Yes, places sorry".

– Example 4: Student A: "I like drinking /dʒuis/ in the morning"; Student B: "Drinking /dʒuːs/ is the best!"; Student A: "I love /dʒuːs/ with toasts and tomato".

• Elicitations:

– Example 5: Student A: "I meet with my friends twice a week"; Student B: "Meet with your friends?".

In examples 3 and 4 students provided recasts to their partner when a mispronunciation was noticed. In some cases, in order not to generalize mispronunciation when participants were unaware of the correction or simply di not want to repair communication because the message was understood, the teacher took part in the conversation as another participant, acting as a source of target language input. Providing corrections to the utterances was not only a role of the teacher but of the rest of participants that were encouraged to help their partners to improve. Example 5 shows elicitations that took place when non-target-like items appeared where "Student B", simply by repeating the previous utterance with rising intonation, made "Student A" aware of the error. In this type of negative feedback, "gaps" were not as salient as in recasts and students needed a minimum of one extra correction apart from the elicitation in order to acquire the appropriate form. This was due to the fact that students in this last case emphasized reformulated parts. Several examples of recasts were observed and tracked throughout the conversation in order to see students' L2 development by the end of the activity. In this case, those examples which were more salient showed positive results in utterances observed later in the interaction. Notwithstanding that acquisition in LRE was higher than in negative feedback, as shown in the statistical figures, the work done by the rest of the participants was outstanding, becoming a source of L2 input even when the teacher was not participating in the conversation.

4. Discussion and conclusions

Mobile learning offers an environment where learners can ubiquitously negotiate meaning, reflect and evaluate

on their own performance through authentic interaction and feedback. Voice-based MMC constitutes a powerful tool for developing second language speaking proficiency as shown throughout this investigation where the treatment group outperformed the control in every aspect of the speaking proficiency scale. Furthermore, as found in the MALL Research Project Report (2009), teachers can listen to the recordings several times in order to identify student's difficulties and computerized recordings provide the possibility of creating a media board for subsequent evaluation of the participants. Students make use of their spare time for language practice and together with the considerable use of this type of application, teachers are able to avoid the time restrictions of traditional classroom environments.

Apart from the findings in terms of proficiency, very positive results can be seen, as NSs-NSs conversations form a source of LREs, phonetic ones being the most common throughout the interactions in line with Bueno-Alastuey (2013) and Jepson's (2005) findings in SVCMC. In a similar vein, negotiations were the most abundant LRE observed in this research. Nevertheless, remarkable results have been found in terms of recasts, which contrasts with the traditional pattern in computer-mediated communication (CMC). As explained earlier in this query, this might be due to the previous considerations stated by the teacher, but further studies regarding the differences between CMC and MMC are required.

Fundamental factors in the language learning process are observed thanks to the use of MMC. It is widely agreed that autonomy and authenticity play a relevant role in second language acquisition and thus, need to be taken into consideration (Farmer & Nucamendi, 2012). However, in studies such Al-Jarf (2012), regarding mobile technology and learners' autonomy in oral skill acquisition, learners struggle to recognize the value of MP3 audios as a step towards real communication. Throughout this investigation, students were involved in real interaction and thus could notice the advantages of the chat conversation from the beginning. In addition, mobile phones seem to have a positive influence on learners' attributes such as motivation, (Al-Jarf, 2012; Kessler, 2010; Satar & Özdener, 2008) and confidence (Shih, Chu, Hwang, & Kinshuk, 2011).

Previous limitations regarding mobile learning such as those in relation to screen size and audio-visual quality (Chinnery, 2006; Jones, 2012) are being minimized as mobile technology is fast-evolving, as is evident in the race amongst top mobile companies, competing to release the most technologically advanced devices. MMC becomes an available resource where dynamic interactions between learner, task, and virtual environment, together with the inherent ubiquitous, spontaneous and personalized characteristics of these devices constitute a solid framework for second language acquisition.

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The tablet for Second Language Vocabulary Learning: Keyboard, Stylus or Multiple Choice

La tablet para el aprendizaje de vocabulario en segundas lenguas: teclado, lápiz digital u opción múltiple

Stephanie Van Hove is PhD Candidate in the iMinds Research Group for Media & ICT at the Department of Communication Studies at Ghent University (Belgium) (Stephanie.VanHove@UGent.be) (http://orcid.org/0000-0001-8652-9236)

Dr. Ellen Vanderhoven is Senior Researcher in the iMinds Research Group for Media & ICT at the Department of Communication Studies at the Ghent University (Belgium) (Ellen.Vanderhoven@UGent.be) (http://orcid.org/0000-0002-85)

Dr. Frederik Cornillie is Senior Researcher in Applied lLnguistics in the Interdisciplinary Research Group ITEC at iMinds and KU Leuven (Belgium) (frederik.cornillie@kuleuven.be) (http://orcid.org/0000-0002-4820-7970)

ABSTRACT

Mobile technologies are increasingly finding their way into classroom practice. While these technologies can create opportunities that may facilitate learning, including the learning of a second or foreign language (L2), the full potential of these new media often remains underexploited. A case in point concerns tablet applications for language practice: while tablets allow writing, as in pen-and-paper exercises, current applications typically offer multiple-choice exercises or fill-in-the-blank exercises that require typing and tapping. This change in medium and practice modality might have an impact on the actual second language learning. Based on the embodied cognition perspective, this study hypothesizes that, for the learning of French L2 vocabulary, writing leads to better memorization, spelling, and use of diacritics in comparison with typing and completing multiple choice exercises. This hypothesis is tested in a quasi-experimental classroom-based study in which learners (N=282) practiced French vocabulary on a tablet in one of three modalities: multiple choice, typing, and writing by means of a stylus. Whereas all three practice modalities aided learning, results show that pupils who had practiced vocabulary by writing or typing obtained higher scores on spelling and use of diacritics than the pupils who had practiced by means of multiple choice. Spending more time on learning vocabulary at a higher processing level leads thus to greater vocabulary gains.

RESUMEN

Las tecnologías móviles están aumentando su presencia en las aulas. Mientras estas tecnologías ofrecen oportunidades para facilitar el aprendizaje, entre ellas la adquisición de una segunda lengua (L2), su potencial sigue sin aprovecharse plenamente. Aunque las aplicaciones de las tablets permiten la escritura y tareas similares a las que pueden hacerse en papel, siguen ofreciendo mayoritariamente ejercicios de selección múltiple o de relleno de huecos. Este cambio en medio y modalidad de práctica podría significar un impacto en el aprendizaje de una segunda lengua. Basada en la perspectiva de la cognición incorporada, nuestra hipótesis predice que el hecho de escribir se traduce en un mejor proceso de memorización y una mejor ortografía frente a la mecanografía o al uso de ejercicios de opción múltiple. Esta hipótesis ha sido comprobada en un estudio cuasi-experimental basado en el aula: alumnos (N=282) que practicaron vocabulario de francés a través de tres modalidades de práctica: ejercicios de opción múltiple, escritura con un teclado y escritura a mano alzada. Aunque se haya encontrado que las tres modalidades de práctica apoyaron al proceso de aprendizaje, los resultados demostraron que los alumnos que practicaron el vocabulario escribiendo con lápiz o con la tablet obtuvieron puntuaciones más altas en ortografía y dominio de signos diacríticos comparados con los alumnos que realizaron ejercicios de selección múltiple. Pasar más tiempo aprendiendo vocabulario a un nivel más alto de procesamiento conduce a una mayor adquisición de vocabulario.

KEYWORDS | PALABRAS CLAVE

Tablet, second language learning, handwriting, typing, multiple choice, vocabulary, memorization, spelling.
Tablet, aprendizaje de segunda lengua, escritura, mecanografía, opción múltiple, vocabulario, memorización, ortografía.

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1. Introduction

1.1. Mobile-assisted learning

From a pedagogical perspective, tablets hold the opportunity to support various aspects of the learning process, from activating prior knowledge and enhancing instruction, through enabling the processing of subject material in complex learning tasks as well as allowing part-task practice, to evaluating student knowledge and skills (Simon, Anderson, Hoyer, & Su, 2004). Therefore, several schools have decided to implement tablets in their classroom practice as a means for more active and personalized education to promote the individual strengths of pupils. In May 2014 the annual Tablets and Connectivity study from the British Educational Suppliers Association revealed that 76% of British secondary schools had adopted tablet computers in their classrooms (Paddick, 2015). In 2016, a Flemish study among 110 school principals and ICT coordinators showed that four out of ten secondary schools have at least ten tablets (Vanderhoven, Van Hove, & Anrijs, 2016). Some Flemish schools even decided to opt for one tablet device per pupil in the classrooms.

1.2. Practicing modality in L2 learning: tapping, typing and handwriting

Whereas the role of technology is studied most intensively in the field of computer-assisted language learning (CALL), most research in this field relies on second language acquisition theories, which ignore the crucial role that technology may play in the learning process (Stockwell, 2016). However, technology is increasingly being normalized in learning environments, which means that mobile technologies will be an integral part of the learning environment as much as pen and paper are (Bax, 2003). Therefore the presence of technology and its relation to the learning environment is at least as important as the learning outcome.

With regard to supporting part-task practice in language learning, tablets often rely on limited practice and test formats in contrast with pen-and-paper exercises, such as multiple-choice exercises in which correct answers need to be selected (Ducate & Lomicka, 2013). Although multiple-choice might lead to higher performance on tests, because recall is not required, it is often discouraged in part-task practice since it only facilitates recognition and may only be used as a learning tool if competitive alternative answers are provided to stimulate high-level processing (Little & Bjork, 2015; Nicol, 2007). In addition, with regard to one's ability to remember particular French words, Sturm (2006) argues that the duration of information processing in working memory plays a critical role, but in contrast, multiple-choice formats stimulate learners to process subject material rapidly. In an empirical study, Heift (2003) investigated the effect of exercise type on learning outcomes in German learners and found that students who completed multiple-choice exercises performed worse than those using drag-and-drop or fill-in-the-blanks on a computer. Further, Webb (2005) compared receptive with productive vocabulary learning, and found that productive tasks (involving recall) resulted in significantly greater vocabulary gains. Because the productive task in his study required students to spend more time on learning than the multiple-choice exercises, he argued – in line with Sturm's (2006) claim – that task duration plays an important role in vocabulary learning.

In order to overcome these problems while still benefiting from the opportunities of mobile devices, multiple-choice exercises can be substituted by other closed-ended question types, such as fill-in-the-blank exercises, in which learners need to type down simple answers. However, although handwriting and typewriting involve the same brain regions (Higashiyama, Takeda, Someya, Kuroiwa, & Tanaka, 2015), there are still important differences. Handwriting entails a slower process using only one hand, strongly concentrating visual attention on the motor space where the words are written, furthermore each letter needs to be individually formed (Mangen & Velay, 2010). In contrast, typewriting requires (in theory) ten fingers to tap the keys, whereas each keystroke is not different from one another, but is significantly faster than handwriting (Mueller & Oppenheimer, 2014). The space where the letters are 'written' is different from the space where the letters appear (Mangen & Velay, 2010).

Several scholars hypothesize that handwriting movements are crucial in (language) learning and therefore suggest that the shift to keyboards is detrimental to learning (Longcamp & al., 2008; Longcamp, Boucard, Gilhodes, & Velay, 2006; Mangen & Velay, 2010; Sturm, 2006). The importance of handwriting in memorizing vocabulary has been proven by several empirical studies. Cunningham and Stanovich (1990b) found that words were better spelled if they were written out by hand than when they were typed or formed by dragging and dropping letter tiles. More recently, Longcamp and al. (2006) stated that the visual and sensorimotor imagery that people have of letters and words interact with one another. Seeing visual representations of letter shapes activates the corresponding sensorimotor component, such as handwriting movements, in memory. Kiefer and al. (2015) replicated the study of Cunningham and Stanovich (1990b) in preschoolers (3 months – 6 years) and found that word reading and writing

performance increased in the handwriting training group compared to the group who practiced the letters by means of a keyboard. With regard to taking notes, longhand note-taking is found to result in deeper processing, due to the limited timeframe that forces learners to select and reframe the message in their own words (Mueller & Oppenheimer, 2014). Another study has shown that even preschoolers from four years on remembered and visually recognized significantly more letters if they copied the letters by hand instead of typing them (Longcamp, Zerbato-Poudou, & Velay, 2005).

Next to vocabulary and letter memorization, in several languages, such as Spanish and French, diacritical marks (including accents) are as important as the letters (Sturm, 2012). However, there has been little research that investigates what aids the recall of accent marks or diacritics. In French, six diacritics act as the keystone of orthography (accent aigu [´], accent grave [`], accent circonflexe [ˆ], tréma [¨], cédille [ç], apostrophe [']), which modifies the pronunciation of the vowels and the meaning of words (e.g. a / à (have / to), mur / mûr (wall / ripe), tache / tâche (dirty spot / task)...) ("Les accents et autres signes orthographiques," 2015; Sturm, 2012). Handwriting and typewriting involve making additional movements to add the appropriate accent to a word. Gascoigne-Lally (2000; 2006) found that the additional keystrokes that are needed to put an accent on a letter strengthen the application of diacritics. Similar to input enhancement, such as underlining words, using color codes or different fonts, the diacritical aspect of French words is rendered more salient through additional psychomotor steps (Gascoigne, 2006). Sturm (2006) replicated the aforementioned experiment, but did not find significant differences between handwriting and two typing groups using preprogrammed function keys or ALT+ numeric codes. In contrast with the findings on memorization of second language vocabulary, these studies show that typing leads to a more correct use of diacritics than handwriting.

> From a pedagogical perspective, tablets hold the opportunity to support various aspects of the learning process, from activating prior knowledge and enhancing instruction, through enabling the processing of subject material in complex learning tasks as well as allowing part-task practice, to evaluating student knowledge and skills. Therefore, several schools have decided to implement tablets in their classroom practice as a means for more active and personalized education to promote the individual strengths of pupils.

1.3. The embodied cognition

The embodied cognition perspective (Clark, 1998) might offer an explanation for the empirical findings described above. This theory sheds light on the embodied and action-oriented nature of learning activities, such as writing (Smith & Gasser, 2005; Thelen, Schöner, Scheier, & Smith, 2001). Similar to Piaget's constructivist theory (1952), which perceives children as active explorers of their environment, embodied cognition theory presumes that cognition results from sensorimotor interactions with the physical environment (Smith & Gasser, 2005; Thelen & al., 2001). If "cognition is the internalization of externalized action in the environment" (Wartella, Richert, & Robb, 2010: 123), then we might argue that handwriting fundamentally influences the way knowledge is acquired. Mangen and Velay (2010) put forth three theories from adjacent fields to indicate the reciprocity of the relation between body and thought. 'Motor theories of perception' (neuropsychology) state that external movements are mentally simulated, but 'the enactive approach' adds that sensorimotor patterns supply structure to cognition. While the first set of theories stresses the importance of cognitive processes and the second approach emphasizes the added value of perception, the 'theory of sensorimotor contingency' states that the relation between perception and cognition is mediated by knowledge of sensorimotor contingencies. Cognition induces the perceptual act of writing, in its turn providing structure to the learning process. However, knowledge of the sensory effects of writing will rein-

force the learning-writing relationship. This implies that writing words down while perceiving them being formed on paper may facilitate the learning process.

It should be noted that previous studies most often focused on the comparison between handwriting on paper and typing on a technological device, thereby confounding the use of technology with the act of typing. However, the introduction of tablet devices in education offers new opportunities with regard to text input, such as the use of the stylus. The stylus can be used to write on a tablet device, making it possible to make a distinction between the impact of the use of a new technology and the impact of typing instead of writing. The current quasi-experimental study therefore explores the importance of handwriting by means of a stylus on a tablet, in contrast with typing and completing multiple-choice exercises in learning French L2 vocabulary in a tablet-assisted classroom setting. Based on the embodied cognition perspective and the results found in previous studies, the following hypotheses were put forth:

• Hypothesis 1: Multiple-choice as a testing modality leads to better grades than tests that require typing or handwriting.

• Hypothesis 2: On the basis of the embodied cognition perspective, learning French vocabulary by writing words down by means of a stylus leads to better memorization of the lemmas than typing the words on the on-screen keyboard or making multiple-choice exercises.

• Hypothesis 3: On the basis of the embodied cognition perspective, learning French vocabulary by writing words down by means of a stylus leads to better spelling than typing the words on the on-screen keyboard or making multiple-choice exercises.

• Hypothesis 4: Based on input enhancement literature, learning words using an on-screen keyboard in exercises denotes a more correct use of diacritics in French words when compared with handwriting using a stylus or making multiple-choice exercises.

To test these hypotheses, a quasi-experimental study was conducted in which the effects of three practicing modalities (stylus, keyboard and multiple-choice) on the memorization of the lemmas of the vocabulary and their spelling and diacritical marks are investigated.

2. Material and methods

2.1. Participants & design

In total, 282 pupils (129 boys and 153 girls) between 11 and 18 years old took part in the study. Classes were recruited from three Flemish schools that offer general secondary education, since French is part of the formal Flemish curriculum in general secondary education. Eventually 14 classes of nine teachers participated in the study and were randomly assigned, counterbalancing for age, to one of the three conditions. The stylus condition comprised 94 participants, the keyboard condition 93 and the remaining 95 pupils were assigned to the multiple-choice condition. 98.9% of the sample spoke Dutch as their primary language, while 5.8% also spoke French at home. Most pupils were in their fourth year (15-16 years old) and pupils were taught on average 5.72 years of French at school (SD=1.72).

Table 1: Cross table per condition and cycle (N=282)

Pupils	Stylus	Keyboard	Multiple-choice	Total
First cycle (11-14 years)	24	48	21	93
Second cycle (14-16 years)	47	14	53	114
Third cycle (16-18 years)	23	31	21	75
Total pupils	94	93	95	282

2.2. Procedure

The intervention took place during three French courses (figure 1), of which the first and second lessons took place in the same week. 25 iPads were prepared for the study: interactive PDFs (course materials) were downloaded via the PDF Office app, the primary keyboard language was set to French and auto-correction and spell-check features were disabled. Once in the classroom the first author introduced the pupils to the study and explained to them how to use the interactive PDFs. The pupils and teachers were told that they would participate in a study that

aimed to investigate how French vocabulary is learned. The underlying goals of the study (recognition of words and recall of words, spelling and diacritical marks) were not shared with the participants. During the remaining 40 minutes the pupils filled out an online survey and pretest.

In the second lesson the first author introduced the course theme with a presentation and a short movie, then the pupils got 10 minutes to memorize the vocabulary list of 36 words (hard copy). They were instructed to learn the words one-directionally: from Dutch to French. Moreover the researchers asked the pupils explicitly not to write any words down when they had to learn the 36-words vocabulary list. After having memorized the words the pupils filled out fill-in-the-blanks exercises individually and independently. Depending on the condition they were assigned to, they were instructed to complete these exercises using one of three modalities: multiple choice, typing, or writing by means of a stylus. At the end of the second lesson the pupils filled out a posttest, similar to the pretest, with the words in randomized order.

In the third and final lesson, the pupils took the posttest again, which served as a delayed posttest in our experimental design. A minimum of 10 days between the second and the third lesson was needed to be able to investigate retention effects in a proper way (Sturm, 2010) (figure 1).

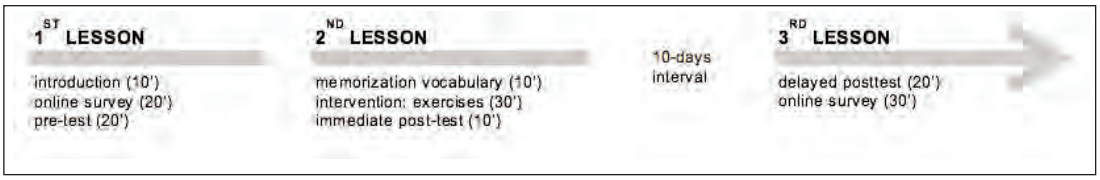

Figure 1. Study procedure

2.3. Instruments

Three tests were conducted: a pre-test was filled out before the intervention, a post-test right after the exercises at the end of the second lesson and a delayed post-test after a minimum of 10 days. In all tests, learning outcomes were measured. 175 pupils completed all three tests, 254 completed the pre-test, 238 pupils filled out the post-test and only 232 pupils completed the third delayed posttest. Due to technical issues, some tests were not properly saved and, accordingly, account for the missing tests. In addition, each of the teachers (except the class with internet difficulties) filled out an evaluation survey (N=9).

Test items. Sturm (2006) recommended in her study on the acquisition of accent marks in second language learners that infrequent and non-cognate words are imperative, because pupils achieved high results on the pre-test with common French words as garçon and déjeuner. To that end, each of the three tests consisted of 15 difficult non-commonly used French words with diacritics (target words) that were masked with 21 topic-related words (table 2). Thus, each pupil learned a total of 36 French words, with a minimum of 20 diacritical marks. The older the participants, the more diacritics they had to memorize. By creating a different course for each of the three cycles, the difficulty of the vocabulary was adapted to their skills and knowledge, except for the target words, which remained the same across three cycles.

• Learning outcomes. Knowledge about each of the 36 words was assessed using a fill-in-the-blanks format (e.g. La texte n'est pas difficile, elle ne comporte aucune [...]. [uncertainty]). The test comprised three sections that differed in terms of the testing format, which corresponded to the three conditions: 12 words are handwritten with a stylus and 12 words are typed using the on-screen keyboard. The other 12 words needed to be ticked off out of four possible answers (of which one was 'I don't know' to

Table 2: 15 French target words with diacritical marks

French word	Translation	French word	Translation
présage	sign	ambiguïté	ambiguity
poêle	frying pan	boëtte	fish-bait
mûr(e) (adj.)	full-grown	mœurs	habits
mâtin(e)	guard dog	aigu(ë) (adj.)	acute, pointed
capharnaüm	shambles	douçâtre (adj.)	sweetish
jeûne	fast (period of abstinence)	râteau	rake
abîme	chasm	trèfle	clover
exiguïté	smallness		

discourage guessing). To avoid order-confounding effects, words and testing parts were randomized for each participating class. This implies that words varied per testing format (e.g., the exercises of the testing part that had to be filled out by hand of the pretest were not the same as the exercises in the handwriting part of the post-test). Every word is scored on three different aspects: general memorization (0/1/2), spelling (0/1) and diacritical marks (0/1/2). Based on these word scores four aggregated scores were calculated for every 12 words per testing format (handwriting, typing and multiple-choice), resulting in a minimum score of 0 and a maximum score of 1:

• Total score: The total score is similar to a teacher's scoring method in a real school context and is calculated for the three testing methods, each consisting of 12 words. The word scores range from 0 to 3 with 0: no answer or completely incorrect answer, 1: the word is similar to the right answer, but it does not sound the same (e.g. trefflé instead of trèfle), 2: the same lemma, but it is spelled incorrectly (including incorrect use of diacritic marks), 3: the word is correctly spelled (including correct use of diacritic marks). Multiple-choice exercises are only graded using 0 (incorrect answer) or 3 (correct answer) (e.g., "Les pommes sont [...], mais les prunes pas encore. [ripe]. Jeûne / aigu(ë) / mûres / je ne sais pas"). The sum of these 12 word scores is divided by 36, which is the maximum score if all 12 handwritten or typed words are spelled correctly.

• Memorization score: For each testing method, the sum of the 12 word scores on memorization (0: wrong, 1: similar to the answer, but does not sound the same, 2: sounds the same as the right answer) is calculated and divided by 24. The value of this denominator is the maximum score if all 12 words are correctly memorized. Multiple-choice exercises are only graded using 0 (wrong answer) or 2 (right answer).

Furthermore, the other two scores were computed independently of the number of correctly memorized words. The multiple-choice part of the tests was omitted, since writing accuracy (such as spelling and use of diacritics) cannot be tested using multiple-choice exercises. Only the correctly memorized (diacritical) words (memorization score=2) are taken into account to calculate the following scores per testing method (handwriting and typing):

• Spelling score / memorization: The 12 word scores on spelling (0: wrong, 1: right) are added up and divided by the number of correctly memorized words.

• Diacritical score / memorization: The word scores on accent marks (0: an accent mark is put if there wasn't one or reversed, 1: an accent mark is put on the wrong letter or the wrong accent mark is chosen, 2: right) are added up and divided by the number of correctly memorized words.

2.4. Analyses

In order to investigate the effects of practice modality (3 conditions: stylus, keyboard and multiple-choice) and time (3 tests: pre-test, post-test and delayed post-test), a series of repeated-measures ANOVAs were conducted. The within-subjects factor was time, while the between-subjects factor was practicing modality (condition). Different analyses were performed to investigate the effects on the total mean score of the tests and the total score, the memorization, the spelling and the diacritics score per testing method.

3. Results

3.1. Memorization outcomes

3.1.1. Total mean score

The total scores of the three testing methods were averaged, resulting in one total mean score (%) per test (pre-test, post-test and delayed post-test). Mauchly's test indicated that the assumption of sphericity had been violated by time ($\chi^2(2)=55.429$, $p=.000$, $\varepsilon=.72$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon=.78$). A two-way ANOVA with the total mean scores of the tests as repeated measures factor showed a significant effect of time ($F(1.56, 265.70)=1024.94$; $p=.00$). Although pupils gained lower scores on the delayed post-test compared to the post-test, Pairwise Comparisons showed that the scores on the post-test ($M=67.35\%$, $SD=20.01\%$) and delayed post-test ($M=56.55\%$, $SD=19.18\%$) are significantly higher than those of the pre-test ($M=19.67\%$, $SD=10.60\%$) ($p=.00$). On the contrary, there was no significant effect on how pupils practiced the vocabulary during the intervention ($F(2, 170)=1.38$; $p=.25$), nor was a significant interaction found between time and condition ($F(3.13, 265.70)=1.81$; $p=.14$).

Each test consisted of three testing methods (handwriting, typing and multiple-choice), which enabled us to compare the separate testing method scores. There was a main effect of the testing method on the partial scores of each testing method ($F(2,340)=1057.81$, $p=.000$), as well as a significant interaction between testing method and time ($F(2.35, 399.27)=8.71$, $p=.000$). The scores of the multiple-choice part of the tests ($M=75.28$, $SD=14.00$)

were on average 41 percentage points higher than the scores of the testing methods that needed to be filled out by stylus (M=34.50, SD=18.91) or keyboard (M=33.79, SD=18.61) (see Figure 2). Consistent with hypothesis 1 it was found that multiple-choice assessments yielded higher scores than fill-in-the blank assessments.

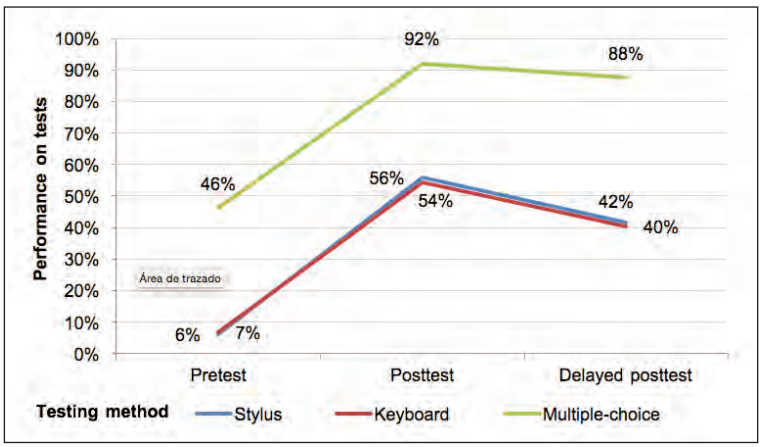

Figure 2. Total score per testing method (stylus, keyboard and multiple-choice) on each of the three tests (pretest, posttest an delayed posttest) (N=183).

Regarding socio-demographics, a t-test of the total mean scores showed that girls (M=72.14%; SD=19.27%) achieved higher results than boys (M=63.65%; SD=21.28%) on the post-test (t(245)=-2.406; p=.017). This significant effect disappeared when taking the delayed post-test into account (t(220)=-4.797; p=.074). Furthermore, it was found that the school cycle had a significant effect (F(2,232)=60.493; p=.000). Pupils in the first cycle (M=47.15%; SD=16.84%) achieved a significant lower score on the post-test than the second (M=73.24%; SD=16.18%) and third cycle (M=77.44%; SD=17.62%).

3.1.2. Vocabulary memorization

The total memorization score for each of the three tests (pre-test, post-test and delayed post-test) was calculated by averaging the scores of the three testing methods, resulting in one memorization score (%) per test (pre-test, post-test and delayed post-test). Thus, in this analysis, the testing method was not taken into account. Similar to the analyses with total mean score, only a main effect of time F(1.58, 268.62)=1041.72, p=.00) was found. Pupils succeeded in gaining significant more knowledge of the provided vocabulary when the pre-test is compared to the two following posttests (p=.00). Scores on the pretest were the lowest (M=20.41%, SD=11.09%), whereas scores on the posttest were the highest (M=71.85%; SD=21.05%) and in between were the scores of the delayed posttest (M=60.29%, SD=20.65%). There was no significant main effect of practicing modality (F(1,170)=.80, p=.45), nor an interaction of time × practicing modality (F(3.16, 268.62)=1.60, p=.188).

As stated above, it was expected that handwriting with a stylus is more efficient in terms of memorization than the other practicing modalities (H2). However, this hypothesis could not be confirmed in analyses with total mean score, nor with memorization score.

3.2. Writing accuracy: spelling & diacritics

In this section the multiple-choice testing parts are dropped from consideration, since writing accuracy, such as spelling and diacritics, cannot be tested using multiple-choice exercises. Hence only the handwriting and typewriting parts of the tests are taken into account. In addition, analyses were conducted using the spelling and diacritics scores for the correctly memorized words.

Spelling and diacritics were separately subjected to a two practicing modality (handwriting or typewriting) by three (time: pre-test, post-test, delayed post-test) ANOVA. Since a repeated measures ANOVA was used, the tests were adjusted for non-sphericity using the Greenhouse-Geisser estimates of sphericity with spelling (ε time=.77, ε time*testing=.75) and Huynh-Feldt estimates of sphericity with diacritics (ε time=.91, ε time*testing=.89). In line with earlier findings pupils wrote the learned vocabulary significantly more accurately and put the correct diacritics on the right letters in the post-test and delayed posttest when compared to the pretest (spelling: F(1.54, 277.24)=260.38, p=.00; diacritics: F(1.81, 326.47)=159.91, p=.00).

3.2.1. Spelling

Regarding spelling the practicing modality is a decisive factor. A main effect of practicing modality was found (F(2,180)=9.99, p=.000), as well as an interaction of time × practicing modality (F(3.08, 277.24)=4.57,

p=.004). Although the test items were completed by means of a stylus or keyboard, learning new French vocabulary by handwriting or typewriting led to higher spelling scores based on post-hoc pairwise comparisons on the post-test (p≤.005) and on the delayed posttest (p≤.015) in comparison with completing multiple-choice exercises during the intervention. While the scores of the pupils in the handwriting and typewriting conditions are respectively 76.51% (SD=14.69%) and 81.04% (SD=17.46%) in the post-test and 73.66% (SD=16.91%) and 75.74% (SD=20.82%) in the delayed post-test, the multiple-choice condition got no higher scores than on average 67.43% (SD=21.00%) in the post-test and 64.10% (SD=27.14%) in the delayed post-test (figure 3).

The third hypothesis can be partially confirmed. Learning vocabulary by writing the words down leads to higher spelling scores in comparison with completing multiple-choice exercises. Specifically, the handwriting practitioners along with the typewriting condition were more able to write the words correctly than those who completed multiple-choice exercises.

3.2.2. Diacritics

The practicing modality seemed of crucial importance with regard to the increasing score on diacritics (significant interaction time × practicing modality, F(3.63, 326.47)=4.83, p=.00). With regard to making correct use of diacritics, learning French L2 words and their typical diacritics by typewriting pays off in comparison with making multiple-choice exercises. Pairwise comparisons showed significant differences between the typewriting and multiple-choice conditions in both the post-test (p=.00) and delayed post-test (p=.035), whereas the handwriting condition did not differ significantly from the other conditions. While the typewriting condition scored on average 66.68% (SD=25.09%) on the post-test and delayed post-test, the multiple-choice condition hardly got half of the points (M=50.24%; SD=31.82%) (figure 4).

These findings partially support hypothesis 4. Typewriting was found to be a better alternative for practicing French vocabulary with regard to the memorization of diacritics in comparison with multiple-choice exercises.

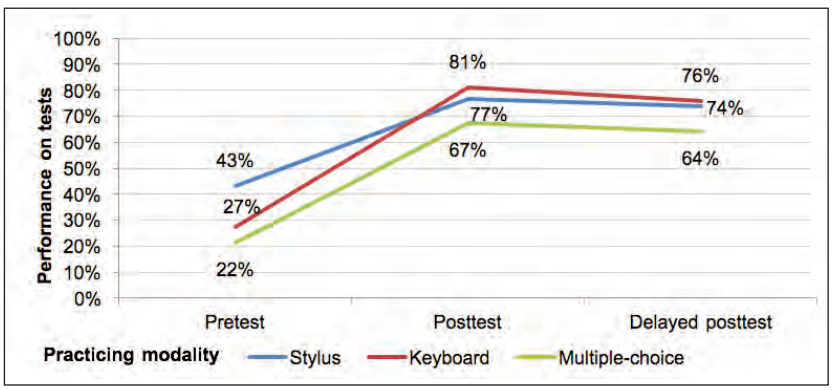

Figure 3. Spelling score per practicing method (stylus, keyboard and multiple-choice) on each of the three tests (pre-test, post-test and delayed post-test) (N=183).

4. Discussion and conclusion

The study shows that each of the three practicing groups made vocabulary gains. Whether the pupils practiced the vocabulary by writing down the words with a stylus, typed the words using the on-screen keyboard of the iPads or ticked the appropriate word out of three possible answers, the learning effect is shown and lasted minimum 10 days. As an alternative to writing with pen on paper, some pupils were making writing movements on their desk when memorizing the words. Similar to Mangen and Velay (2010), who stated that writing movements involve letter memorization, this could imply that memorization and the psychomotor act of writing are part of the same representation process.

In contrast, with regard to the productive spelling and diacritics measures it was found that pupils who spent more time learning the vocabulary by writing or typing, obtained higher scores over time than the multiple-choice group. None of the groups knew in advance how their vocabulary knowledge would be assessed, therefore we assume that the writing and typing groups practiced the vocabulary on a higher processing level than the multiple-choice group did. This is in line with previous L2 acquisition studies, which found that clicking is less efficient than typing (Heift, 2003). Furthermore the vague contribution of writing movements in memorization that was confirmed in literacy studies and in particular in writing studies (Cunningham & Stanovich, 1990a; Mangen & Velay, 2010),

was not found in this study. Practicing vocabulary through handwriting and typing thus did not differ significantly from one another.

Regarding the testing method, pupils got higher scores on the multiple-choice part of the tests, which reflects the less demanding nature of this method when compared to handwriting or typewriting. Despite the effort of the researchers to discourage guessing, it is possible that pupils still were guessing to increase their chance to get after all the right answers, because there were no negative consequences attached if the answer was wrong.

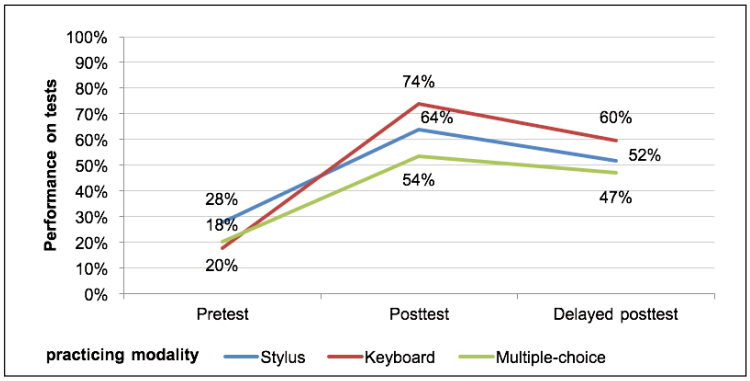

Figure 4. Diacritics score per practicing method (stylus, keyboard and multiple-choice) on each of the three tests (pre-test, post-test and delayed post-test) (N=183).

Although we found that the practicing modality matters, some limitations of this research should be considered. The sample did not consist of novice learners of French as a foreign language. In the Flemish school system pupils get their first French courses at the age of 10, the youngest participants in the sample learned already about 2.5 years French at school. Nevertheless, the difficulty of the vocabulary and the fill-in-the-blanks exercises and assessments were adapted to their level. In contrast to the samples of Sturm's (2006, 2010, 2012) and Gascoigne Lallly's (2000) studies, the French and Dutch languages do not differ as much as French and English do. Dutch is enriched with a lot of French loan words, for this reason Flemish people and, by extension, the whole Dutch speaking population is already used to the usage of the following accent marks: ´ (café), ` (scène), ¨ (reünie) and ^ (gêne).

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Adolescents' TV Viewing Patterns in the Digital Era: a Cross-cultural Study

Pautas de consumo televisivo en adolescentes de la era digital: un estudio transcultural

Dr. Leire Ugalde is Assistant Lecturer in the Faculty of Education, Philosophy and Anthropology at the University of the Basque Country in San Sebastián (Spain) (leire.ugalde@ehu.eus) (http://orcid.org/0000-0001-5769-7759)

Dr. Juan-Ignacio Martínez-de-Morentin is Associate Lecturer in the Faculty of Psychology at the University of the Basque Country in San Sebastián (Spain) (juanignacio.demorentin@ehu.eus) (http://orcid.org/0000-0002-9268-6470)

Dr. María-Concepción Medrano is Professor in the Faculty of Education, Philosophy and Anthropology at the University of the Basque Country in San Sebastián (Spain) (mariaconcepcion.medrano@ehu.eus) (http://orcid.org/0000-0001-7980-843X)

ABSTRACT

The deep-rooted changes that have taken place in the media world over recent years have brought about changes in both television itself and in the relationships established with this medium. Consequently, it is important to understand how young people watch television today, in order to design strategies to help them develop the capacities they require to ensure responsible use. With this aim, the present study analyzes the television viewing habits of 553 adolescents (267 boys and 286 girls), aged between 14 and 19, from Ireland, Spain and Mexico. Through the implementation of two questionnaires (CH-TV 0.2 and VAL-TV 0.2), four viewing patterns were detected that can be generalized to all the contexts studied. Two of these patterns clearly distinguish between boys (critical-cultural) and girls (social-conversational), with boys viewing more cultural and information-oriented programs, and girls tending to watch shows with a view to talking about them later with their friends. Two of the variables which best distinguish between the other two patterns identified are the perception of a conflictive climate (conflictive-passive viewing) and the perception of responsible parental mediation (committed-positive viewing). Moreover, preferred television genre was found to be the factor with the greatest discriminatory power in relation to these patterns, while time spent watching television, perceived realism and cultural context were not found to be significant.

RESUMEN

Los profundos cambios acaecidos en la configuración del contexto mediático en los últimos tiempos han generado cambios tanto en el medio televisivo como en las relaciones establecidas con él. Es por ello que resulta necesario conocer cómo consumen la televisión los jóvenes actuales en aras de crear estrategias que ayuden a capacitarlos en la utilización de este medio. Con este fin, en esta investigación se han estudiado las pautas de consumo televisivo de 553 adolescentes (267 chicos y 286 chicas) de Irlanda, España y México, de edades comprendidas entre 14 y 19 años. Mediante la aplicación de dos cuestionarios (CH-TV 0.2 y VAL-TV 0.2) se han podido detectar cuatro pautas de consumo generalizables a todos los contextos estudiados. Dos de estas pautas, diferencian el consumo entre hombres (Crítico-Cultural) y mujeres (Social-Conversacional), siendo ellos los que realizan un consumo más cultural e informativo y ellas, más dirigido a entablar conversación con sus amistades. En lo que a las otras dos pautas se refiere, la percepción de un clima conflictivo (consumo Conflictivo-Pasivo) o la de una mediación responsable (consumo Comprometido-Positivo) son algunas de las variables que marcan las diferencias. Además, se han detectado aquellos factores que presentan mayor poder discriminativo en la configuración de estas pautas, siendo la preferencia mostrada hacia los géneros televisivos el factor más discriminante entre los estudiados. Sin embargo, la permanencia, el realismo percibido y el contexto cultural no han resultado ser determinantes.

KEYWORDS | PALABRAS CLAVE

Television, adolescents, viewing habits, television genre, values, parental mediation, family climate, cultural context.
Televisión, adolescentes, consumo televisivo, géneros televisivos, valores, mediación parental, clima familiar, contexto cultural.

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1. Introduction and current context

Television was the subject of much research during the 20th century. The development and gradual spread of this type of screen-based entertainment device to most homes aroused a great deal of curiosity regarding its possible influence, especially on minors. Nevertheless, over the course of the century the media context underwent considerable change. Advances in new technologies and the convergence of different screens have generated a context in which constant interaction with the digital media forms an integral part of young people's lives (Buckingham & Martínez-Rodríguez, 2013). These young people are "digital natives" as Prenksy calls them (2001); they are the "net-generation" (Tapscott, 1998). But the fact that television now has to share the limelight with other screen-based media does not mean that it is no longer watched. In the studies conducted by Carlsson (2010) and Bucht and Harrie (2013) on media use by young people in Nordic countries, the authors found that, even though young people did use the Internet a lot, television viewing was still one of the most popular media pursuits. Similarly, in a study carried out in Aragón (Spain) on parents' perception of their children's use of various different screens at home, Marta and Gabelas (2008:11) concluded that "television continues to be the most popular screen among minors during their leisure time". Thus, even in this new media context, television continues to form part of young people's lives. They watch it mainly for entertainment (Medrano, Palacios, & Aierbe, 2007), although, to a lesser extent, as a source of information also. In two pieces of research which aimed to analyze to what extent today's youngsters watched the news, the authors found that although the social media are the most popular choice, television is the second most common type of screen (Casero-Ripollés, 2012; Condeza, Bachmann, & Mujica, 2014).

Nevertheless, it is important to bear in mind that the change undergone by the media context is in turn triggering changes in the relationship established between young people and the television screen. As stated in the Green Paper (European Commission, 2013), the familiar consumption models of the 20th century are changing. This is important because family context (Medrano, Aierbe, & Palacios, 2010; Tonantzin & Alonso, 2012; Torrecillas, 2013), family climate (Aierbe, Orozco, & Medrano, 2014), and parental mediation (Radanielina, 2014; Cánovas & Sahuquillo, 2010; Bjelland & al., 2015; Uribe & Santos, 2008) are elements that influence the way in which children and adolescents view and process television messages. Moreover, the development of new technologies is modifying young people's television viewing habits (López-Vidales, González-Aldea, & Medina de-la-Viña, 2011) and triggering changes in the medium itself (Marta & Gabelas, 2008). Digital television is a clear example of this, since it offers viewers access to programs from countries far removed from their own. In a study carried out in Nigeria, Oyero and Oyesomi (2014) found that 90% of children claimed to watch foreign cartoons via satellite, thus exposing themselves constantly to contents from other cultures. Guarinos (2009) found that North American models were more widespread than Spanish ones in the prototypes of adolescents represented in series and television films broadcast in Spain. These results become even more relevant if we take into account the well-reported socializing effect of the media and television (Medrano, Martínez-de-Morentin, & Apodaca, 2015; Pallarés, 2014; Pindado, 2010; Sihvonen, 2015), an effect that is hardly surprising given that there are very few households without at least one television set (Ackermann & al., 2014; Bittman & Sipthorp, 2012; INE, 2014), and that the TV is one of the main devices used in homes and daily life (Torrecillas, 2012).

This media context which characterizes the digital era in which adolescents live has given rise to a certain degree of concern about whether or not young people are sufficiently trained and educated to interact properly with the media (Aguaded & Pérez-Rodríguez, 2012). Thus, digital literacy should occupy a priority place in the education we provide our children in the 21st century (Aguaded, 2013). With this in mind, on 22 May 2008, the Council of the European Union issued a call (Council of the European Union, 2008) for all member states to work towards improving media literacy by including this subject in lifelong learning programs and providing citizens with the tools necessary for developing the competences required to use the media in a critical and responsible manner. There is no doubt that in light of the increasingly changing environment in which we live, it is vital to ensure that the population acquires an adequate level of media literacy (Aguaded, 2013). And we should not forget that television forms part of this context. In a recent cross-cultural study which analyzed the television viewing habits of young people from different countries, Medrano et al. concluded that media narratives should be studied at school in order to avoid passive viewing and ensure that students are capable of correctly decoding the messages conveyed.

We can conclude that, today, any piece of research aiming to study television must take into account the new challenges posed by the transformation undergone by viewers' relationship with this medium within the new media context. One of these challenges is the need to define the current television viewing habits of adolescents. As Casero-Ripollés (2012) points out, young people constitute a privileged group to study since they are digital natives,

subjects who have grown up interacting with and using digital media. It is by studying this segment of the population that we will be able to identify the characteristics of the viewing habits of those who have been raised in a digital environment. Moreover, we acknowledge that it is necessary to offer 21st century citizens the tools they required to make optimum use of the media through media literacy (Aguaded, 2013), then we should work together in order to conduct empirical research that will help us understand those aspects that may improve the quality of this literacy.

The contribution made by this study focuses on analyzing the relationships which exist between today's adolescents and the television screen, by exploring the different television viewing variables and the role played by each. Our study is based on the premise that adolescents' viewing habits are influenced by different tastes, which predominate in different age groups (Huertas & França, 2001; Lapuente, 2011; Medrano & Aierbe, 2008), and are fairly similar as regards reception, which is mainly based on imitation (França, 2001). In light of the above, this study had two aims: 1) To identify common patterns among adolescents from three different cultural contexts; and 2) To detect key factors in the configuration of these patterns.

Young people constitute a privileged group to study since they are digital natives, subjects who have grown up interacting with and using digital media. It is by studying this segment of the population that we will be able to identify the characteristics of the viewing habits of those who have been raised in a digital environment. Moreover, we acknowledge that it is necessary to offer 21st century citizens the tools they required to make optimum use of the media through media literacy.

2. Material and methods

Participants were 553 adolescents (267 boys and 286 girls) from 4 different cities: Dublin (Ireland), Guadalajara (Mexico), San Sebastián and Málaga (Spain). All participants were aged between 14 and 19. Due to budgetary restrictions common to projects of this kind, the representativeness of the sample could not rely on random selection systems, and the cities and schools selected were chosen due to the fact that researchers from those countries were participating in this project, thus providing access to the sample group. Thus, the sample group was chosen on the basis of "convenience", with priority being given to ecological validity, over and above random representativeness. Schools were selected on the basis of offering optimum conditions for both access and the administration of the instruments. An effort was also made to ensure the equivalence of the student groups studied, by using similar selection criteria for all of them: type of school, age and school year. This orientation was considered appropriate for the sample selection process since the aim of the study was not to estimate population rates but rather to compare different cultural groups.

As regards to the type of school, the sample group was taken from one or two schools for each sub-sample (city), both public and private, or with different socioeconomic levels (although no extreme cases were included). The sample was therefore drawn from 7 schools and was distributed as follows: Málaga – 2 schools, one private one public, with students from 4th grade of secondary school and 2nd year of the Spanish Baccalaureate (higher education) system; San Sebastián – 2 schools, one public one private, with students from 4th grade of secondary school and 2nd year of the Spanish Baccalaureate (higher education) system; Guadalajara (Mexico) – one private school and students from PREPA (equivalent to 4th grade of secondary school) and years 1 and 3 of the Mexican Baccalaureate system; and Dublin – 2 schools, one private one public, with students from the 3rd year of Junior Cycle and the 2nd level of Senior Cycle.

A descriptive-correlational and cross-cultural ex post-facto research design was used, in which a number of different variables were studied, including: identification, family context and the values perceived in television characters.

Data were collected by means of two questionnaires: the Television Viewing Habits Questionnaire (CH-TV 0.2) and the Television Values Questionnaire (VAL-TV 0.2). The CH-TV 0.2 was created and validated by

Rodríguez, Medrano, Aierbe and Martínez-de-Morentin (2013), and has an internal consistency of 0.84 (Cronbach's Alpha). It consists of seven initial questions which gather socio-demographic data such as: the parent's educational level, profession and current situation, number of siblings, sex and age of siblings, whether they are older or younger than the child, and information about other people living in the household. These questions are followed by 24 items (scored on a five-point Lickert-type scale), which reflect a total of 14 variables. This study focused on 10 of these variables, since they were the ones related to the research objective. They are as follows: reasons for identifying with the character, reason for viewing, identification with the character, perceived realism, time spent watching, alternative activities, television genres, conversation, perceived family climate and parental mediation. The Television Values Questionnaire (VAL-TV 0.2) is a Spanish version of Schwartz and Boehnke's PVQ (2003), adapted to the Spanish context by Medrano, Aierbe and Orejundo (2010). The questionnaire measures the values perceived in TV characters, divided into four dimensions: self-transcendence (α=0.87), openness to change (α=0.80), conservatism (α=0.77) and self-promotion (α=0.72). The scale consists of 21 items, the responses to which are scored on a Lickert-type scale, from one to six.

The Spanish versions of both questionnaires were adapted to create two new versions: a Mexican one and an English one (appropriate examples and language). These new versions were reviewed by four communications experts and four educational experts who, among other aspects, assessed whether or not the questions related to real television viewing habits and whether the value definitions were applicable in their respective cultures. Once both versions had been drafted and approved, the questionnaires were administered on-line to students from all participating schools, with the help of teaching assistants who had received the appropriate training. The teaching assistants completed the survey with students in the schools' IT classrooms, a process which took between 50-60 minutes. In accordance with the capacity of the classroom itself, students completed the questionnaire in either one or two phases.

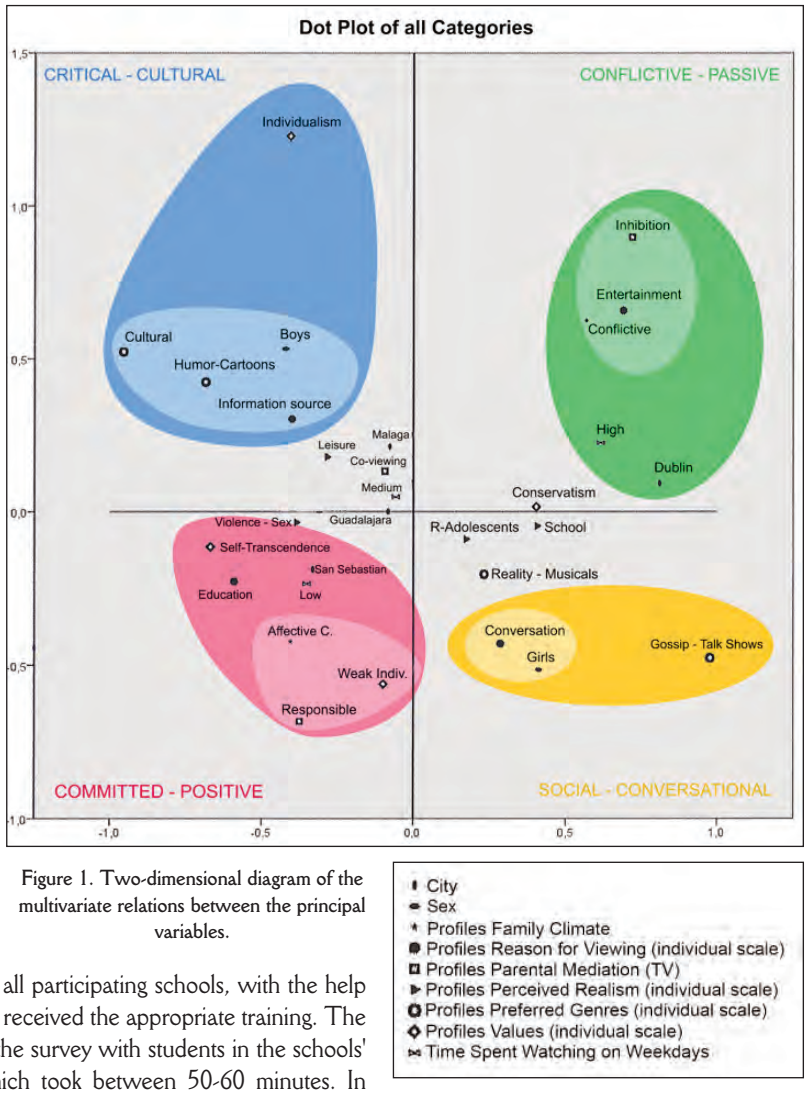

Figure 1. Two-dimensional diagram of the multivariate relations between the principal variables.

3. Analysis and results

In order to respond to the first aim, a multiple correspondence analysis was conducted to determine the relationship between the principal television viewing variables. Based on the results of this analysis, the variables were grouped into viewing patterns or habits. Figure 1 shows the results of the analyses.

Figure 1 shows the location of the different variables studied. In this diagram, physical closeness between variables should be interpreted as attraction or association, while distance represents opposition. Being located in the center of the diagram indicates that the variable in question is subject to neither attraction nor opposition to the others.

Figure 1 indicates the existence of four groups whose location at the edge of the diagram implies a greater degree of association between the constituent elements. One group that can be identified encompasses the following variables: entertainment as the reason for watching television, perception of inhibited parental mediation and a conflictive family climate. This is a multivariate category that describes young people with conflictive families that do not view themselves as capable or qualified to regulate or guide their children's viewing habits. These youngsters also seem to watch television more passively, mainly for entertainment purposes. We could define this type of viewing pattern as "Conflictive-Passive".

Another group worth highlighting is that which reflects a preference for cultural shows, comedy programs and cartoons, and is predominantly male. This group indicates a more critical and reflexive pattern of television viewing. It is also more common among boys. Watching television as a source of information is also associated with this group, although to a lesser extent. Adolescents who watch television in this way could be described as having an active or even proactive attitude to television viewing. The category individualism (as the value perceived in respondents' favorite character) is a satellite element of this group. The distance between this category and the group described above is considerable, which suggests that we should be cautious when estimating the intensity of the association between this category and the other variables. Nevertheless, as shown in the figure, the category individualism is not associated with any other group. We can therefore conclude that individualism is the values category, which best describes the television viewing pattern outlined above. In this sense, it is important to complete the description of this group by noting that it is made up of people whose favorite characters are open to change (as a counterpoint to conformity, security, etc.) and are oriented towards self-promotion. We have termed this second television viewing pattern the "Critical-Cultural" pattern.

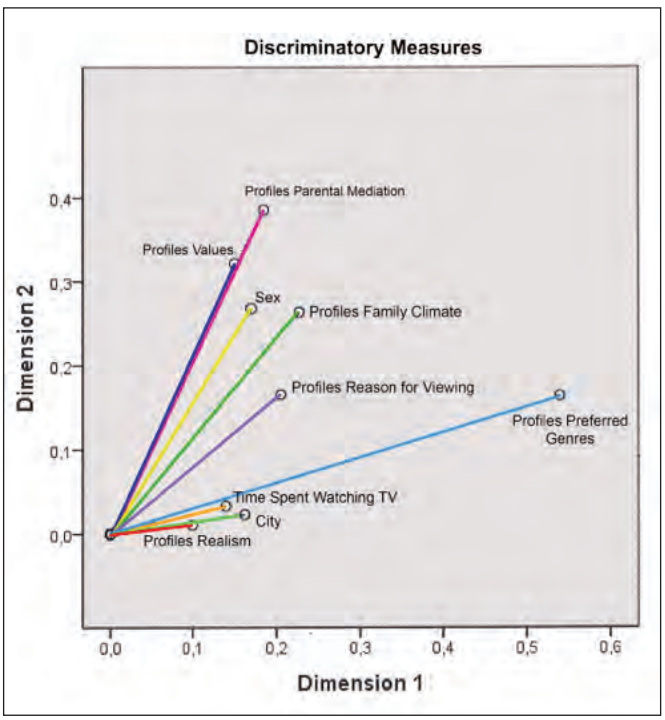

Figure 2. Discrimination coefficients for the different indicators and variables.

There is also a third group which encompasses affective family climate, responsible parental mediation and a weak degree of individualism as the value pattern perceived in respondents' favorite characters. To a lesser and more peripheral extent, other elements of this group also include short viewing times on weekdays, viewing for educational purposes, and self-transcendence as the value perceived in respondents' favorite character. The core elements of the television viewing pattern constituted by this group are a good family climate and committed educational mediation by parents in an effort to regulate and orient their children's viewing habits. Although the values attached to respondents' favorite character are not particularly well-defined, they tend towards self-transcendence and a moderate degree of openness to change, while the values of self-promotion and conservatism are rejected (although only to a moderate extent also). We termed this viewing pattern "Committed-Positive".

Finally, the fourth group identified comprised young people who watch television in order to talk about the content of the shows seen. This viewing pattern is associated with girls and the category "gossip-talk shows" is located on its periphery. It therefore describes a viewing pattern related to the social sphere. As well as evincing an interest in issues inherent to people's social and emotional life, those in this group also tend to share the viewing experience

through an equally social activity, i.e. conversation. Most of the young people in this "Social-Conversational" viewing pattern were girls.

Once the common viewing patterns shared by adolescents from the various different cities studied had been identified, the role played by each of the study variables in their constitution was analyzed. Figure 2 shows the results of this analysis.

Firstly, it is important to mention that sex played a key role in the definition of the different viewing patterns, since one group was found to be comprised almost exclusively of boys, while another was found to be comprised almost exclusively of girls. Nevertheless, city of residence did not seem to be particularly related to the set of viewing patterns detected. It should be remembered that this factor was not involved in the construction of the axes or dimensions, since it was considered "illustrative" in nature. This is because previous analyses carried out in this research project have found that television viewing habits are subject to a gradual process of globalization. We cannot, therefore, talk about viewing habits typical of any one region, and must instead talk about globalized viewing habits that are present to a greater or lesser extent in all regions and cultures studied. Empirical support for this idea is provided both by the presence of all the cities studied in the central area of the diagram shown in figure 1 (which indicates no specific relationship with any of the television viewing patterns identified) and by their low discriminatory power in figure 2.

As regards the other variables, their relevance may be interpreted in accordance with their location (central or peripheral) on the two-dimensional diagram in figure 1. Thus, the variable with the greatest degree of discriminatory power is preferred genre, followed by (in order) perceived parental mediation, values perceived in favorite character, sex and perceived family climate. Reason for viewing was found to have only moderate discriminatory power.

Time spent watching television, on the other hand, along with perceived realism of the content and city of residence, was not found to be discriminating factors in the viewing patterns identified.

4. Discussion and conclusions

In response to the first aim, we have identified and typified four viewing patterns which are applicable to adolescents from all the contexts studied. The first pattern was termed "Conflictive-Passive", and consists of a conflictive perceived family climate, inhibited parental mediation and viewing for entertainment purposes. It encompasses young people who watch television both to entertain themselves and as a means of evading the conflictive climate they perceive in their families, who in turn provide no instruction and impose no restrictions on their viewing. This pattern was most prevalent in Dublin. This may be explained by the characteristics of the schools from which the data was collected, since in Dublin, they were located in districts with high levels of social conflict and economic precariousness.

The second pattern was termed "Committed-Positive", and encompasses young people with families who try to provide training and guidance in relation to screen use. These adolescents are mainly interested in characters that evince a degree of social commitment and value freedom of thought. This indicates the positive influence that responsible mediation may have on the way adolescents process the messages they receive (Radanielina, 2014), as well as the importance of type of mediation and parenting style in the way they interpret said messages (Cánovas & Sahuquillo, 2010; Bjelland & al., 2015; Uribe & Santos, 2008). Furthermore, the relationship observed by Aierbe et al. (2014) between family climate and parental mediation is also reflected in the results, with a positive association being found between the perception of an affective climate and responsible parental mediation.

The third pattern identified was "Critical-Cultural" viewing, a group mainly made up by boys and characterized by a preference for humorous cultural programs and cartoons. This pattern pertains to adolescents who view selectively and actively. They watch television to keep abreast of events (although this is not their only motivation) and have a slight tendency to identify with characters representing the values of self-promotion and openness to change.

The fourth viewing pattern, "Social-Conversational" is mainly represented by girls. This viewing pattern is defined by a tendency to watch gossip and talk shows, and the main motivation is to have something to chat about.

Sex is an important factor in the analysis of television viewing habits. Social stereotypes of masculinity and femininity are clearly reflected in the patterns defined as mainly male or female. However, we should highlight the fact that the indicator most closely associated with girls is conversation, while interest in gossip and talk shows was found to be less intense.

As regards city of residence, unlike in relation to sex, no specific relationship was found between viewing habits and any of the cities studied, with the exception of Dublin. This indicates a possible homogenization of television

viewing habits in the diverse cities studied. The distance between cities (both physically and in relation to television broadcasts) has shrunk over recent years, with adolescents in San Sebastián (Spain) now being able to watch the same programs as those in Guadalajara (Mexico), for example. This in turn means that similar image and behavior patterns have tended to emerge in different parts of the world, something that raises new research questions and issues that should be explored in future work.

When the discriminatory power of the variables studied was explored in response to the second aim of this paper, preferred genre was found to be the indicator with the greatest discriminatory power. Several different studies have found that adolescents' tastes and preferences in relation to television are clearly different from those reported by other age groups (Huertas & França, 2001; Lapuente, 2011; Medrano & Aierbe, 2008). We can therefore conclude that these preferences are a key discriminating factor in adolescents' television viewing habits, with particular differences being found between sexes, as described above.

Other variables with notable discriminatory power were (in order of intensity) perceived parental mediation, perceived values, sex and perceived family climate. All these variables were found to be important predictors of the way the adolescents in question watch television. Not unexpectedly, the perception of a conflictive family climate is associated with inhibited perceived parental mediation, while an affective family climate was related to responsible mediation. The key role played by family context in helping adolescents correctly process the messages conveyed by television, as well as in encouraging them to establish adequate media habits and relationships (Medrano & al., 2010; Tonantzin & Alonso, 2012; Torrecillas, 2013). It highlights the importance of focusing on and intervening in the family environment when attempting to establish parenting patterns conducive to good television use. Moreover, the results indicate that the values perceived by adolescents in television programs depend on the relationship established between diverse variables. The type of values perceived is therefore an indicator of the type of viewing engaged in.

Perceived parental mediation and family climate were also found to be important discriminating variables. It is therefore very important not to overlook this field when designing educational projects aimed at improving media and information literacy. Thus, establishing training courses designed to provide families with guidelines for mediating television use and to increase their awareness of the importance of this task should be a vital component of any program aimed at fostering healthy television viewing habits among adolescents.

Finally, the correspondence analysis revealed that time spent watching television, perceived realism and cultural context were not discriminating factors. This result is as surprising as it is important. It should be remembered that the relevance of these three variables in television viewing has been amply reported by many different studies; however, in our study, these factors were found not to be decisive in the configuration of television viewing patterns. Indeed, Medrano (2005) previously pointed out that, with the exception of certain prejudices, there is in fact no relationship between time spent viewing television and the impact of this medium on the viewer. Now, our data indicate that there also seems to be no direct relationship between time spent watching television and type of viewing, at least not at a general level, with this variable being located on the periphery of the viewing patterns with which it is associated.

For their part, the data provided by the multiple correspondence analysis support the idea of a possible homogenizing trend in adolescents' television viewing habits. Our results confirm the existence of viewing patterns common to all the contexts studied, made up by specific relationships between variables that mediate how messages are received and processed. Knowing which variables may mediate the development of healthier viewing habits provides valuable information for defining which aspects should be included in media education. This study identifies

the following variables as viewing habit predictors: firstly, preferred genre, followed by perceived parental mediation, sex, perceived family climate and values. In this sense, the data reveal that the aforementioned variables, and consequently the type of viewing engaged in, influence the type of values that adolescents perceive when watching television.

Preferred genre was found to be one of the variables that best predicted type of viewing, with the differences that arose within this area being modulated to a large extent by sex. This variable may be an interesting one to consider from a two-way educational perspective. Firstly, it would be interesting to use those television genres that are perceived as attractive by adolescents in the educational field, to work on media literacy and to encourage a critical interpretation of the content conveyed. And secondly, it would be a good idea to foster students' curiosity about and interest in those television genres that educators consider interesting for young people. Another useful exercise would be to encourage students to think about why girls and boys tend to prefer different genres. Resources such as film clubs or the joint viewing of previously-selected television programs and their subsequent analysis through class debate may be good strategies to apply here.

Perceived parental mediation and family climate were also found to be important discriminating variables. It is therefore very important not to overlook this field when designing educational projects aimed at improving media and information literacy. Thus, establishing training courses designed to provide families with guidelines for mediating television use and to increase their awareness of the importance of this task should be a vital component of any program aimed at fostering healthy television viewing habits among adolescents.

Another aspect of educational interest is the social stereotypes observed in some of the variables studied. Girls reported a type of viewing pattern that reveals a marked preference for those television genres whose content is considered to be less appropriate, such as gossip or talk shows. Sex is therefore an important discriminating factor in the configuration of viewing patterns. This should be borne in mind from an educational perspective in order to work with both sexes on those aspects considered to be important during adolescence.

The study has certain limitations that should be taken into consideration when interpreting these conclusions. The fact that the questionnaires used were self-reports implies the risk of respondents being influenced by the social desirability bias. Also, the use of a convenience-based sample group generated a contrast with Dublin, a city that, while not exceptionally different from the other cities studied, does nevertheless have somewhat higher levels of social conflict. Nevertheless, this very circumstance prompts the question of whether or not socioeconomic factors and social conflict levels may themselves be more decisive in determining the composition of standardized viewing patterns than the cultural characteristics of the cities studied. This question remains open for future research. In any case, it should be remembered that, since we used a convenience-based sample group, the results presented in this paper should be viewed as indicators for guiding future research, rather than conclusions applicable to any context.

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From Prosumer to Prodesigner: Participatory News Consumption

Del prosumidor al prodiseñador: el consumo participativo de noticias

Dr. María-José Hernández-Serrano is Lecturer in the Faculty of Education at the University of Salamanca (Spain) (mjhs@usal.es) (http://orcid.org/0000/0003/3818/993X)
Dr. Paula Renés-Arellano is Assistant Lecturer in the Faculty of Education at the University of Cantabria (Spain) (paula.renes@unican.es) (http://orcid.org/0000/0003/0932/7694)
Dr. Gary Graham is Senior Lecturer at Leeds University Business School (United Kingdom) (g.graham@lubs.leeds.ac.uk) (http://orcid.org/0000/0002/9908/4974)
Dr. Anita Greenhill is Senior Lecturer at the University of Manchester (United Kingdom) (a.greenhill@manchester.ac.uk) (http://orcid.org/0000/0002/7417/974X)

ABSTRACT
New democratic participation forms and collaborative productions of diverse audiences have emerged as a result of digital innovations in the online access to and consumption of news. The aim of this paper is to propose a conceptual framework based on the possibilities of Web 2.0. Outlining the construction of a "social logic", which combines computer and communicative logics, the conceptual framework is theoretically built to explore the evolution of news consumption from a pure circulation of designed products towards a global conversation of proactive news designers. Then, the framework was tested using an empirical database built by the Pew Research Centre, which investigates the future of the news industry, through a large-scale survey with adults. Results show significant differences (by age, gender and educational level) in the forms of participation, access and consumption of news. However, whilst immersed in the culture of Web 2.0 there is a low-level of user participation in news production; far from being proactive news designers, findings suggest that citizens are still located in the lower participatory levels of our conceptual framework. Conclusions suggest there is a need for media education providers to carry out training initiatives according to the social logic possibilities through proposed guidelines.

RESUMEN
Nuevas formas de participación democrática y producciones colaborativas de audiencias diversas han surgido como resultado de las innovaciones digitales en el acceso y consumo de noticias. El objetivo de este estudio es proponer un marco conceptual basado en las posibilidades de la Web 2.0. Describiendo la construcción de una «lógica social», que se combina con las lógicas comunicativa y computacional, se construye el marco teórico para explorar la evolución en el consumo de noticias desde una mera circulación de productos diseñados, hacia una conversación global de diseñadores proactivos de noticias. Este marco teórico se ha testeado a través de una base de datos empírica del Instituto de investigación Pew, que mediante una encuesta con adultos a gran escala permite analizar el futuro de la industria de las noticias. Los resultados muestran diferencias significativas (por edad, sexo y nivel educativo) en las formas de participación, acceso y consumo de noticias. Aunque existe una cultura Web 2.0, hay un bajo nivel de participación de usuarios en la producción de noticias; lejos de ser diseñadores proactivos de noticias, los hallazgos sugieren que la mayoría de ciudadanos se sitúan en los niveles de participación más bajos del marco conceptual propuesto. Se concluye sugiriendo la necesidad de que los responsables de la educación en medios desarrollen iniciativas formativas acordes a las posibilidades de la lógica social a través de la propuesta de pautas.

KEYWORDS | PALABRAS CLAVE
Social logic, prosumers, media literacy, news consumption, participation, media skill, Web 2.0, media education.
Lógica social, prosumidores, alfabetización mediática, consumo de noticias, participación, competencia mediática, Web 2.0, educación mediática.

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1. Introduction

The emergence of a digital landscape is increasing the ability of citizens to consume news in many different ways. The use of online media is also changing the way in which news is being produced. It is increasingly being argued that there is blurring of the barriers separating news producers (traditionally, news agencies and journalist) and news users (a diversity of audiences). Thereby, the activities of news production and consumption also merge together. A new set of terms is now emerging such as that of "pro-sumer" (Gillmor, 2006) and "prod-usage" (Bruns, 2014). These imply audiences having a significant role and contribution to make in the production of news content. Furthermore, users will be empowered to participate in the process of news selection, design and distribution. This change adds a democratic role for users, which in turn can be empowered via the collaborative participation means of Web 2.0.

Interestingly, there are two main interpretations of the Web 2.0 phenomenon (Kümpel, Karnowski, & Keyling, 2015; Papacharissi, 2015). On the one hand, Web 2.0 is presented as an interactive platform. O'Reilly (2005) describes the platform as an architecture of participation. Basically, it makes numerous tools and services available to promote social interaction. On the other hand, it is suggested that Web 2.0 is a social enabler, that it is creating greater cultural and societal transformation through changing the way news are being produced and consumed. Jenkins (2009) notes that the participation that characterizes the news mediatoday is cultural. As a result, new practices, norms, values and constructs are evolving into "Culture 2.0". This includes new digital participative behaviours for managing news (Beckett, 2008). One implication is that users become news producers and/or news prosumers (García-Ruiz, 2013; Pérez-Rodríguez & Delgado, 2012; González-Fernández, Gozálvez, & Ramírez-García, 2015).

This paper suggests that participative behaviours may be part of a new logic, which is entitled as: "social logic". This is part of a wider digital landscape movement crucially altering the traditional ways of producing and consuming news. Social logic confronts us with the innovative possibilities of increased connectivity and participation that presupposes a major involvement of the audience in the use of the news media. We investigate the extent to which the social logic is leading citizens to become more involved in the design and production of news content. The aim of this paper therefore is to investigate the influence of this emerging social logic on the news industry production. In meeting this aim, we first develop a conceptual framework of news "prod-design". Then, using the framework as an analytical tool, it was tested with empirical data drawn from different socio-economic cohorts of users. The intention is to theoretically advance categories of the framework and provide more detailed understanding of the social logic paradigm. It is here believed that this will make it possible to discover whether the theory of social logic has been implemented in the news industry. Are citizens actually in practice designing their news content with professional media organisations? If not, are there still barriers erected by the news industry preventing pro-design? Or is it simply a case that different groups (by age or education level) have little motivation or interest in participation? From the analysis and discussion, we conclude with important guidelines to be included in the educational agenda on social logic and media literacy.

2. Social Logic: a conceptual framework

As stated by Jönsson & Örnebring (2011), Web 2.0 offers an unprecedented range of possibilities encouraging much greater levels of user involvement in the news production process. However, if the audience is to change its role from purely a consumer to that of a news producer, then there are still many barriers and challenges to be overcome. In the 2.0 context, it is necessary to find a more sustainable framework that enables users to function as a genuine news producer. They would be central to value adding activity. Furthermore, this would work beyond their current peripheral role as a User Generated Content supplier (Kaplan & Haenlein, 2010; Susarla, Oh, & Tan, 2012). Therefore, a clearer understanding of news sharing and producing needs to be developed if educators are to keep up with their evolving social media ecology (Kümpel, Karnowski, & Keyling, 2015).

There is a constant improvement on the Web 2.0 news channels and innovative interacting tools. This includes the dimensions for understanding the participatory processes in online environments. We have gone beyond the period of media convergence. As stated by Siapera (2011), this period was the result of a convergence between the characteristic of a "computational logic" –the logic of the computers– and the characteristic of the "communicative logic"– the logic of the media.

This study proposes that together with these two logics there is a third logic, the "social logic" (Hernández-Serrano, Greenhill, & Graham, 2015), which is the logic for the Web 2.0. The innovative possibilities offered by

Web 2.0 places the user at the beginning of a new logic. There is a strong emphasis on the social component and how we are connected online with other users. This is a new logic from which some societal practices can be translated while other new practices and interpretations of the practices are being altered. In the context of the treatment of news, the social logic impacts into the everyday experiences of the audience. This is done by introducing innovative ways of interacting with news producers and with other news users. As stated by Nel & Westlund (2013), participation within the social logic is challenging the traditional logics of "professional" journalism and control. Essentially, the social logic creates opportunities for news media plurality and it is paving the way for a much more innovative era in the news media sector.

2.1. What social logic adds to news production?

The social era calls the ownership of news production into question. Considering that journalists and citizens are closer than ever before in being able to report the news, theoretically we now all have the means of production to be newsmakers (Gillmor, 2006). This is contributing to strategic tension between professional control and levels of open participation in news production (Lewis, 2012). The informative authority of new companies is at stake, as it was based on a centralised and hierarchical framework. "We select and we write, you only read"; now shaped by the participatory possibilities of altogether "… we select, we write, we read", and "… we share". Emerging new roles, functions, actors, practices and scenarios are generated in the area of news production in order to approach the democratisation of news production where the social era is an enabler for citizens to publish news online with the aim of benefiting a community (Carpenter, 2010). In this amalgam of cross-connections, newspapers that use stories and videos or photos reported by citizens can create personal blogs to publish their opinions. At the same time, news content is being (re)tweeted through mobile phones. Facebook groups are being generated under the positive or negative judgment about a news story.

> This requires a rethinking to ensure that citizens acquire general and specific skills to support an efficient evolution from being a news user to being a "pro-designer". Active and comprehensive media literacy coupled with involvement in the communication policy; and a revision of how media literacy levels in Europe should be assessed. Literacy programs should be designed to involve citizens of different ages in the active media prosumption and pro-design.

Finally, this new social logic is challenging traditional power and control of news production. It does this through creating user owned distribution mechanisms, and questioning traditional journalistic values. Consumers are increasingly turning to non-mainstream producers for their news supply (Greenhill & Fletcher 2015). This is leading to a new phenomenon, in which credibility is being shared across different news related sources. This in turn may influence the decision of news consumption. In contrast to a "hierarchy of credibility" (Paulussen & Harder, 2014), the term "distributed credibility", as stated by Burbulles (2001), reinforces the social logic. It suggests that like-minded people may collectively evaluate the truthfulness and believability of an information source. Thereby, it is further legitimizing audience leadership in news production.

2.2. What social logic adds to news consumption?

The second modification brought by the social logic emphasises the way in which we relate to the news. With the social logic, it significantly changes the way we think about news consumption and how we are informed by the mass media. In a printed newspaper, it is the sub-editor who controls the lineal organisation and layout of editorial and advertising content. They also control the quality of editorial content. Conversely, the reading of online news is "multi-medial" and "intertextual" (Erdal, 2009). This is because the content is supplied through a network of hyper-connected links. In the online space, there are no restrictions of space, content quantity or production time.

Therefore, online news can now be changed and updated in seconds. Online news sites because of legal pressure have to maintain their product quality. The most frequent changes occurring in the industry are consumer patterns and the participatory possibilities brought about by the social web. News are copied, cut and reframed in order to be shared through multiple networks and platforms. The process of consumption is extended by news sharing and website linking (Costera & Groot, 2014). This type of participation, which is named indirect participation (Splendore, 2013), influences the news making process, with incoming news trends calculated by the total number of re-twitters, hashtags or followers.

The perspective of gratification is modernising news consumption, based on user's selections from an online "supermarket of news" (Schrøder, 2015). This is a major change in news flow, from which content is no longer static but depends on fluctuating trends. These trends determine the longevity of the news. It is important to consider that this movement in online news flow impacts in terms of market reach and readership scale, as online audiences can access the content more easily, either global or local news. With an ever-expanding access to information sources, point of production no longer singularly determines the pattern of consumption. As Hermida & Thurman (2008) argue, the advance of social media is eroding away fixed parameters of news timeliness, relevance and utility. The incessant online searching practices let the users go straight to the news that are leading their interest by simply typing a keyword in a search engine (Olmstead, Mitchell, & Rosenstiel, 2011). Likewise, information aggregator systems enable the user to choose and personalise their news domain (Nel & Westlund, 2013).

2.3. What social logic implies for the news prod-usage?

The proactive role of the audience is at the very heart of the social logic. As stated by Hermida (2012) social media reinforce the value of the audience to the media. New channels and new interacting tools expand the dimensions for understanding the participatory process. The participatory practices of social media have the potential not only to bring stakeholders, journalists and audiences together, but they also facilitate a more extensive version of the news production process. Those users can take part in the redefinition of news production practices and stages. Through the use of diverse participatory formulas, news are evolving into a dyadic service conversation rather than a mass-produced product for transactional consumption (Kunelius, 2001; Gillmor, 2006). The online space is enlarging the spread of news towards a global debate and in so doing is expanding its market reach. While the news content circulates around virtual spaces, with the Web 2.0 this product circulation is being converted into a social process of service conversation.

However, this process of online collaborative participation is a complex phenomenon also, known like an experience in co-creation between people (Pavlíčková & Kleut, 2016). In order to progress from technological interaction with news product to effective participation in a co-designed news service it requires major rethinking. Without forgetting the many barriers associated with personal factors, technological facilities and opportunities, online participation requires a major change in news media agendas and the training of future journalists. The curriculum needs to be designed to take advantage of the Web 2.0.

Several authors (Domingo & al., 2008; Jonsson & Ornebring, 2011; Singer & al., 2011) have already started to differentiate stages regarding their online participatory practices in the news process. These approaches have been reviewed a conceptual framework has been designed. This was tested and advanced with empirical data. Then, there was an assessment with empirical evidence about the extent to which there is prod-usage in the news industry.

Our three-level conceptual framework suggests that participation in the processes of news consumption and production can take many different forms. Depending on user participation and contribution this can be unplanned, solicited or user oriented (figure 1).

The conceptual framework follows a participative continuum, from low to medium and also from medium to high participation. This evolution states the question of: what drives the participation of users in digital enabled social spaces? The first level assumes that users are only entities from whom news producers record and extract data. They do this in order to select and personalise their consumption of news. Some studies (Dennen, 2008) reported that even 'lurkers' are participating and receive benefits from this kind of indirect participation.

The second level implies an expansion of participation to other stages of the news production process, despite this stage is still driven by the news industry and a range of possibilities offered to users for news consumption and/or production. The user as prosumer ensures a possibility that news production is hierarchically organised. It is the news organisation that decides what is newsworthy and what is a mere story from a citizen. Audience participation is high, news users are invited to become active, but journalists control and dominate the stages of production.

The third level refers to more advanced participation with users as pro-designers. Bruns (2014) developed the term "prod-user" to emphasise users as being authentic producers. It is observable that participation goes beyond the stage of prod-user –the user contributing news in the production system– into the user actually news pro-designing. They are related to creating or modifying news content, distribution and circulation. News content is an evolving conversation via social media and the collaborative content generation tools that are available. With pro-designers, they stimulate a more democratic form of news production and curation. The narrative of the news is contingent on social media disruptive capabilities that dislocate the stream and permanence of news. The contributions of a pro-designer therefore are not always to create a new product but also to curate worthy content (Bruns, 2015).

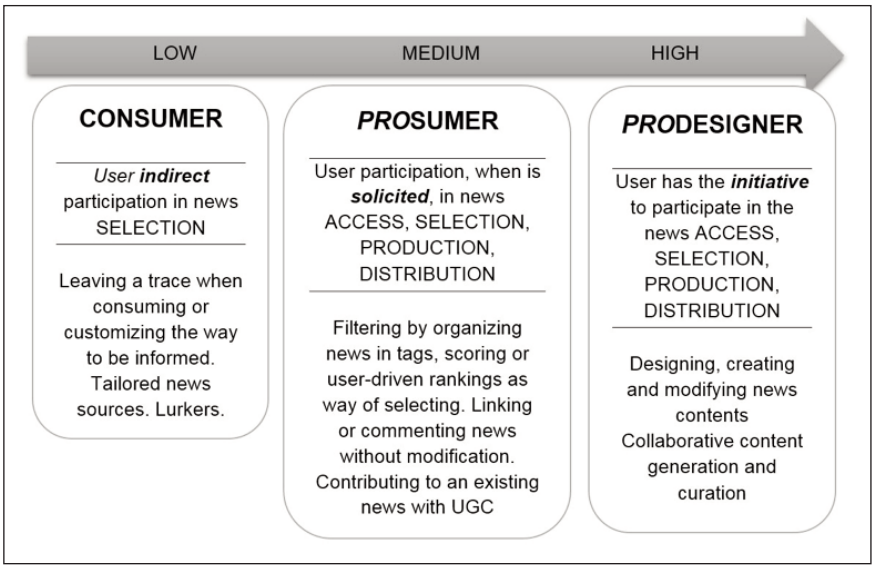

Figure 1. Conceptual framework: Participatory continuum in the news social logic.

This framework and the three levels were tested, as it is explained in the next section, by analysing the differences in user levels of participation at each stage of the production process. Our aim is to provide a theoretical assessment of opportunities and challenges of pro-designing news content.

3. Research method

Since the beginning of the 21st Century, The PEW Internet and American Life project has been conducting extensive, consistent and long-term representative random surveys on general and specific aspects of Internet users. The value for this study in using this wide-ranging data of PEW is that it provides the only comprehensive "neutral" dataset available on news consumption and production patterns. Whilst we were able to access other data sets and studies produced by the news industry, in other countries or contexts, these were not used as they were partially biased towards defending the online strategy of news organisations.

The data we analysed were obtained during the last five years through telephone interviewing. This was collected using stratified regional random sampling and digital dialling conducted by PEW in USA. The survey was administered among a regionally representative sample of 8,248 adults aged eighteen and older on landline and cell phones. The survey had an overall margin of sampling error of plus or minus 2 percentage points and a significant level of 95%. Using the Shapiro Wilk Normality test provided in the KNIME analytics software we found that it did not differ significantly from a normal distribution (W value of 1,595 p =<0.03) (Green & al., 1977). Furthermore, we explored the normal distribution curve of one of the most critical sample characteristics, which is "age". The sample data for this variable is normally distributed with a minimum age of 18 rising to a maximum of 99. The Mean is 51.88, Variance is 392.67, Skewness is 0.21, Excess kurtosis is -0.547.

4. Results

Using this PEW database, we explored patterns of users' news consumption and production by examining the influence of variables such as: age (by six conglomerates of generational age breaks), gender and education level (by four groups of grade completed) as described in table 1. The analysis we conducted consisted of basic descriptive statistics and cross-tabulations.

Table 1. Distribution of the news consumers (by percentages).						
Age (years) Total N=8,248	Male N=4,001	Female N=4,247	LTHS N=1,038	HSGRAD N=2,847	SOMECOLL N=1,926	COLL.GRAD+ N=2,385
Gen Y (18-34)	33	29	32	28	41	27
Gen X (35-46)	20	18	15	18	19	23
Trial Boom (45-56)	19	20	18	21	17	22
Lead Boom (57-65)	12	14	13	13	11	15
Matures (66-74)	7	8	11	9	5	7
After Workers (+75)	6	9	9	9	6	5

Source: Pew Research. (Legend of Education level: LTHS "less than high school, grades 9-11 or no grade", HSGRAD "High school graduate, grade 12 or technical/vocational school", SOMECOLL "some college, no 4-year degree", COLL.GRAD+ "College graduate, a 4-year degree, or a post-graduate training").

4.1. News consumption and production patterns

The results showed significant differences in the ways the audience engages with the news. Figure 2 illustrates the news consumption (news following) patterns of the audience studied based on age, gender and education. The table shows that the Matures (66-74 yr. old) consume the most news with 82% of them consuming local news closely followed by the Lead Boomers (57-65 yr. old) with 80% consuming national news.

Gen Y (18-34 yr. old) consume much less news that their older peers, with only 49% consuming international news as compared to 67% of After Workers (aged 75+) consuming international news. If we look at news consumption in relation to gender both males and females consume much less international news (57 and 56% respectively) when compared to local news; and females consume more local news (75%) than males (67%) with both genders following international news in a similar percentage. Overall, in relation to gender, females consume more news that males do, although a healthy number of females and males still follow the news.

Finally, in relation to education there are also significant differences in news consumption patterns. The largest variation in the consumption of news is the differences between College Graduates who are the largest consumers of national news (78%) and local news (64%). From the collegers (Somecoll: a category describing education beyond High School but not necessarily College graduate) only 48% consume local news (the lowest percentage of news consumption across all categories relating to age, gender and education). However, 72% of collegers consume international news. Therefore, whilst there is some relative consistency in the consumption of international news across the ages and between males and females, there are significant differences in relation to those who are regularly interacting with the news that has been produced.

4.2. Accessing the news

In contrast to how audiences consume news products, we also looked closely into where audience members access their news. Figure

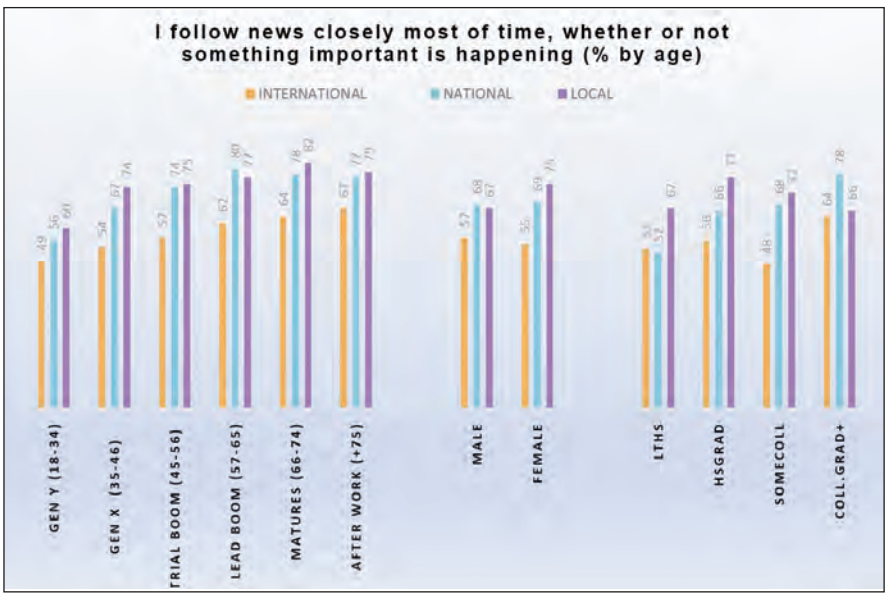

Figure 2. Following of the news (by percentages).

3 further illustrates news consumption. However, these tables illustrate where various age groups are accessing their content, particularly in relation to new media sources such as social media versus traditional media.

All age groups indicated that their main source of content is television news. Gen Y (18-34 yr. old) source a significant amount of news by word of mouth (63%) and After Workers (75+) clearly prefer to read their news from newspapers in comparison to the other age groups. The most interesting finding in relation to new media is the comparison of sourcing news on the Web with Gen Y (18-34 yr. old) leading in searching the web and every other old age group falling away in terms of their use of the web to source news. The lowest user of the Web for news sourcing is the After Workers with only 30% drawing on this.

Similarly, the younger the age group is, the more likely it is to source news via Twitter or Bing with 425 of Gen Y using Twitter and only 17% of After Workers using Twitter as a source. Age seems to have a significant impact on the propensity to source news using social media.

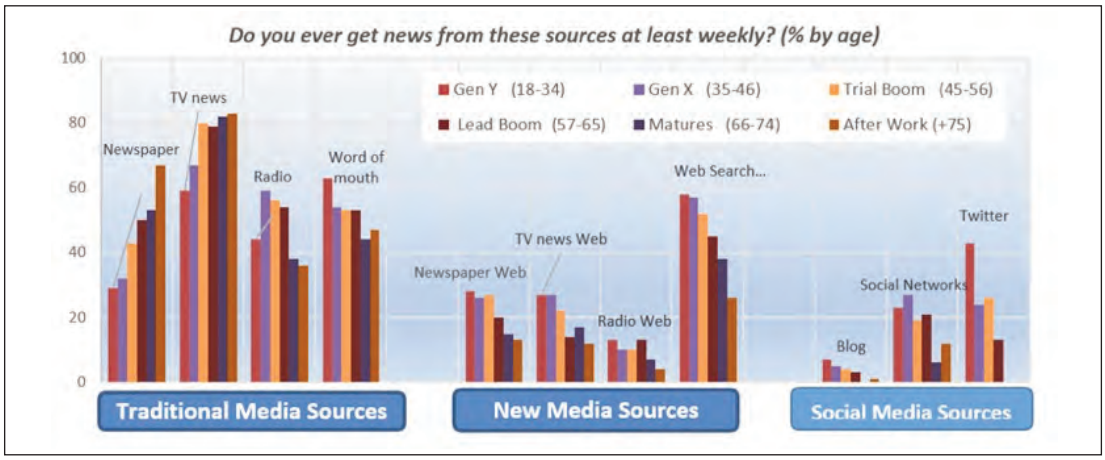

Figure 3. News sources used by audiences according to age (by percentages).

4.3. Participatory continuum in the news social logic

From seven items of the survey we extrapolated data to illustrate low to high levels of interaction and participation with the news. Drawing on three categories of age, gender and education, we explored participatory practices such as customising a home page in order to contribute your own online article, opinion, picture or video. The section of "social media sources" in Figure 3 reveals that Gen Y (18-34 yr. old) are the highest consumers and pro-designers but are not as high as Gen X (35-46 yr. old) in posting a news item to Twitter. Overall Gen Y are the highest news producers and designers and 65+ are the least, they are the group with the lowest rate to be a consumer, producer or pro-designer. No one over 50 yr. old tweeted about the news.

In terms of gender (figure 4), both females and males similarly pro-design and send an email link to a news story or video. Females are much bigger contributors of customising a home page, posting news on a social network, such as on twitter and commenting on a news story or blog. Education reveals the most surprising results in terms of who contributes to news. The higher the level of education is, the more likely the users are to email a link to a news story/video.

College Graduates are sending links double that of LTHS. However, LTHS are the biggest contributors of posting news on Twitter and contributing their own article, opinion, and pictures/ videos. High School Graduates are the largest Tweeters of news and those with some college education are the highest commenter's on a news story or blog. Across all levels of education, pro-designing is minimal. While all levels of education moderately consume and prosume news, the data illustrate that education is associated with highest degrees of variation.

5. Discussion and conclusions. Implications for education

Some existing research on news consumption in adolescents (Casero-Ripollés, 2012; Condeza & al., 2014) and other young groups (Hasebrink & Domeyer, 2012) confirms our data as well as it confirms the opposite relationship between age and use of social media, where the elderly prefer reading printed news. The results from the

Association for Research of Media (AIMC, 2015) indicate that the main activity in news consumption for the young generations is searching, diminishing the location-dependence for the news selection and consumption.

We are increasingly more immersed in a Web 2.0 culture; however, there are low levels of participation as users are predominantly consumers of news (as depicted in figure 4). Previous studies confirm that it is the toll or devices potential for interaction what is important, however our data reveal that there is little indication of change. With little evidence to suggest that citizens are actively co-designing editorial content with news organizations. Despite the myriad of participatory practices, some emerging studies confirm that participation in the processes of news production have been severely circumscribed, as the news organisation still dominates and controls the production of its editorial content (Domingo & al., 2008; Harrison & Barthel, 2009; Hermida & Thurman, 2008; Hermida, 2012; Sienger, & al., 2011).

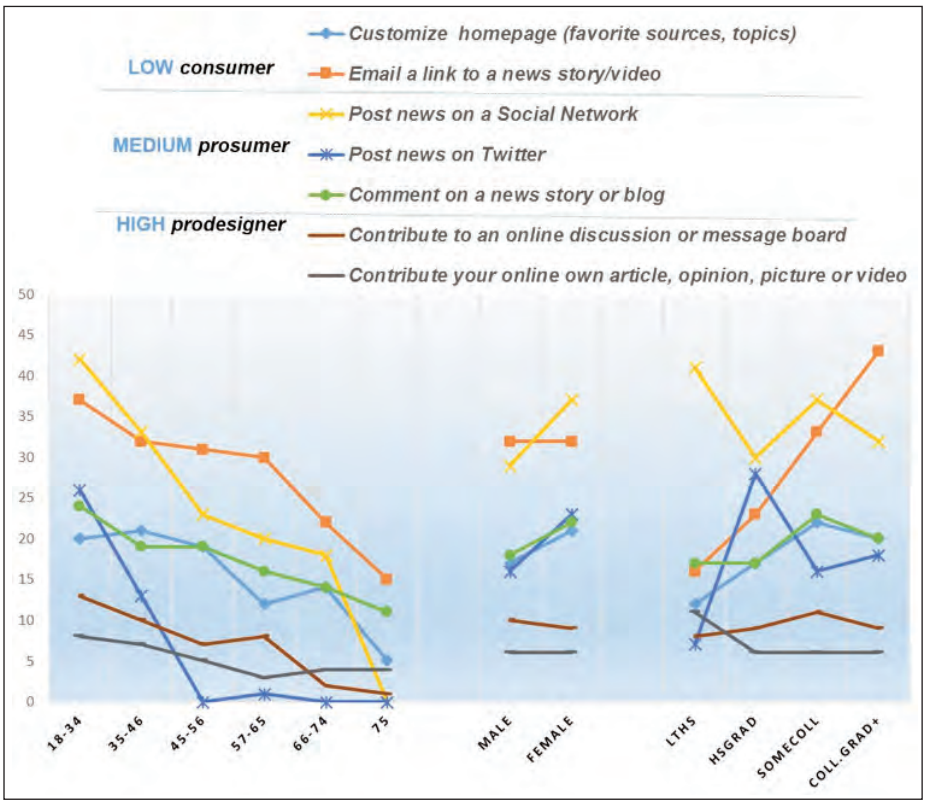

Figure 4. User's contribution to news production and prodesign (by percentages).

Furthermore, the current research examples of participation demonstrate that the involvement of the user is not oriented towards the informational aspects of the news. Rather, the cultural or private stories, which have been widely analysed by Jönsson & Örnerbring (2011). Citizens are mostly empowered to create popular culture-oriented content and personal/everyday life-oriented content rather than news/informational content.

If news consumption is one of the ways and means of connection with reality, the challenge is how to increase the interest in online media and the involvement of different users for a global news conversation. While there is an increase in digital consumption (Katz, 2015) in all countries from USA, Europe and Asia (Diaz-Nosty, 2013), new educational approaches are required. These need to enable a citizen to think, create and produce media messages, and be actively engaged. Furthermore, they need to draw on their critical skills if they are to engage and participate in news consumption (Kuehn, 2011). This requires a rethinking to ensure that citizens acquire general and specific skills to support an efficient evolution from being a news user to being a "pro-designer". Active and comprehensive media literacy coupled with involvement in the communication policy; and a revision of how media literacy levels in Europe should be assessed (Celot & Pérez-Tornero, 2010). Literacy programs should be designed to involve citizens of different ages in the active media prosumption and pro-design.

We suggest the following pro-design development initiatives for a more sustainable news ecosystem. First, the establishment of incentives for the audience to enhance their activating, or extrinsic or intrinsic motivation to participate (ways of rewarding based on explicit recognition, prizes or material). Second, regarding the production of the news, some mechanism of verification needs to be translated from the journalism practices to the community

audience reports. Both with respect to reliability (trust) and readability (style) of the news. Third, another important issue are the regulations in the creation, management, sharing, curation and referencing of User Generated Contents. Certainly, we acknowledge there is a gap in between what technologies allow audience members to do for reporting an event, and what is legally appropriate to turn into public news.

For individuals, the development of the social logic will be based on an educational basis in participatory practices to be critical, active and responsible to, for and by the media. Although evidence of the higher levels of the conceptual framework was not significant to the data provided, with low presence of users in the news prodesign, it is worth to point out a fact that probably see multiplied after and may be present in the course taken by the news production in a near future worldwide. The social logic and the innovative practices described in the conceptual framework serve to make recommendations regarding media literacy. Thus, we finally propose some guidelines for media education aimed at training citizens to build their pro-design capabilities:

• Instead of passive viewing of news content, the evolutions of Web 2.0 towards collaborative formulas are offering a major involvement of the audience in the use of the media. However, individual factors such as demographic characteristic of the users –age, gender, and education– and the type of news content they are permitted to produce are restraining their participatory possibilities. Thus, democratic societies are asked to question the media literacy models, with a commitment for the training of audiences supporting the dignity, democratic values and civic ethics that makes sense in the self-identification and configuration of the social logic of diverse collectives.

• Media literacy training at early stages, from formal educational contexts, must be focused on providing tools and strategies for citizens to enable them to produce, and interpret the news, from a responsible, sustainable and ethical use. In older age groups, from formal and informal education, training programs must be developed for stimulating democratic news production and civic participation in the news production process. This will require in the long run the disrupting of the established design education curricula of schools and universities offers, which are moving away from specific emerging technologies that are in constant evolution, to training on successful participatory practices where citizens can find value and implication.

• If future news product design and production democratization is to occur then the key to its success will be the ability for the news innovators to work across a variety of different disciplines (besides to education including economics, politics, sociology, innovation, and computer science) so that they can build productive news eco-systems. Establishing transdisciplinary partnerships between public and private entities, audio-visual and journalistic professionals and other agents, would favour an effective exchange of how to analyse and what kind of participatory practices are needed across different cohorts in several media.

• With the advance of the social era, the role of citizens is evolving from prosumers into pro-designers. This could be in collaboration with incumbent news producers or through newly emerging organizational forms and citizen-driven production systems. This would facilitate wider democratic participation in news production and decentralised organizational designs. However, how much and when this will happen will of course depend on several factors linked to economics, technological feasibility, social policies and of course politics. Meanwhile, the creation of interconnection systems through virtual communities is necessary. These could emerge in social spaces and be encouraged by local community training initiatives. This includes the construction of a social logic led by principles such as "open participation", "shared evaluation systems", "heterarchy" and "connectivism".

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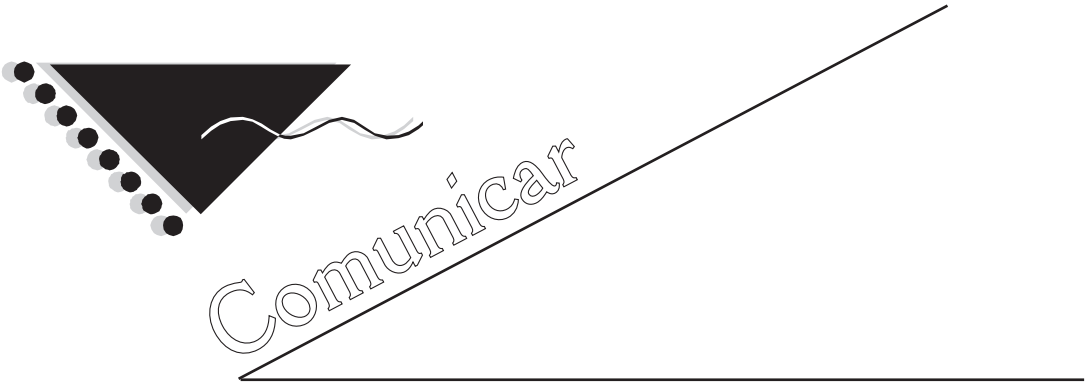

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Cyberaggression among Adolescents: Prevalence and Gender Differences

Ciberagresión entre adolescentes: prevalencia y diferencias de género

Dr. David Álvarez-García is Associate Professor in Developmental and Educational Psychology at the University of Oviedo (Spain) (alvarezgardavid@uniovi.es) (http://orcid.org/0000-0002-7460-497X)
Alejandra Barreiro-Collazo is PhD candidate in Developmental and Educational Psychology at the University of Oviedo (Spain) (sanbc87@hotmail.com) (http://orcid.org/0000-0001-9640-4680)
Dr. José-Carlos Núñez is Professor of Developmental and Educational Psychology at the University of Oviedo (Spain) (jcarlosn@uniovi.es) (http://orcid.org/0000-0002-9187-1201)

ABSTRACT
The objective of the present work is to analyse the prevalence of cyber-aggression and cyber-victimization among adolescents in Asturias (Spain) and to identify possible gender differences. To this end, 3,175 adolescents aged 12 to 18 years were randomly selected from the student population attending compulsory secondary education in Asturias and assessed. They completed three self-reported tests: an ad hoc questionnaire on sociodemographic data and communication technologies management; the "Cyber-aggression Questionnaire for Adolescents" (CYBA), to assess how frequently adolescents acknowledge having exercised various cyber-aggressive behaviours in the previous three months; and the "Cyber-victimization Questionnaire for Adolescents" (CYVIC), to assess how frequently adolescents acknowledge having been a victim of various types of cyber-aggression in the previous three months. The results obtained show a high variation in prevalence based on the type of cyber-aggression or cyber-victimization analysed. Verbal cyber-aggression and online exclusion are more common than impersonation and visual cyber-aggression. There are generally no statistically significant differences between boys and girls. When differences do appear, boys generally tend to be more aggressive than girls, while girls are more likely to be victims. However, these differences are either small or very small. The implications of these results for future research and educational treatment of the problem are discussed.

RESUMEN
El presente trabajo tiene como objetivos analizar la prevalencia de la ciberagresión y la cibervictimización entre adolescentes en Asturias (España) e identificar posibles diferencias de género. Para ello, fueron evaluados 3.175 adolescentes, de 12 a 18 años, seleccionados aleatoriamente de entre la población de estudiantes de Educación Secundaria Obligatoria de Asturias. Se aplicaron tres autoinformes: un cuestionario «ad hoc» sobre datos sociodemográficos y manejo de tecnologías de comunicación; el «Cuestionario de Ciberagresión para Adolescentes» (CYBA), para evaluar con qué frecuencia el adolescente evaluado reconoce haber ejercido diferentes conductas de ciberagresión durante los últimos tres meses; y el «Cuestionario de Cibervictimización para adolescentes» (CYVIC), para evaluar con qué frecuencia el adolescente reconoce haber sido víctima de diferentes tipos de ciberagresión en los últimos tres meses. Los resultados obtenidos muestran una prevalencia muy variable en función del tipo de ciberagresión o cibervictimización analizado. La ciberagresión verbal y la exclusión online son más habituales que la suplantación y la ciberagresión visual. Por lo general, no existen diferencias estadísticamente significativas entre chicos y chicas. En los casos en que existen, la tendencia general es que los chicos son más agresores que las chicas y estas más víctimas que los chicos, si bien las diferencias son pequeñas o muy pequeñas. Se discuten las implicaciones de estos resultados para la investigación futura y el tratamiento educativo del problema.

KEYWORDS | PALABRAS CLAVE
Cyberaggression, cybervictimization, adolescence, secondary school, prevalence, gender, social networks.
Ciberagresión, cibervictimización, adolescencia, educación secundaria, prevalencia, género, redes sociales.

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1. Introduction

Electronic communication devices have become an essential means of adolescent socialization, and appropriate use of these devices is thus a necessary educational goal. These devices offer great advantages in terms of establishing new friendships and keeping in contact with family and friends. However, improper use may involve risks. Electronic communication devices can be used to intentionally damage, disturb or harm (i.e., attack) individuals or groups. Generally, the terms "cyber-aggression" and "cyber-victimization" are used to refer to situations in which a person attacks or is attacked via electronic communication devices (Corcoran, McGuckin, & Prentice, 2015).

Cyber-aggression possesses characteristics and effects that make it particularly problematic and worthy of attention. Compared with traditional forms of violence, aggression via electronic device helps to protect aggressors' anonymity and thus abets disinhibition of conduct. In many cases, the aggressor does not witness the consequences of his or her actions on the victim, which hinders empathizing with him or her. Aggression may occur at any time or place, which complicates monitoring and control on the part of adults. In addition, harmful content can be sent to many people in a very short time, which amplifies harm to victims (Hinduja & Patchin, 2015). Cyber-aggression can have significant negative effects, not only on the victim but also on the aggressor. Cyber-victimization has been associated with an increase in internalised problems, mainly related with depressive symptomatology. In adolescents, such symptoms may adversely affect concentration and academic performance (Kowalski, Giumetti, Schroeder, & Lattanner, 2014). Cyber-aggressors may perceive that their inappropriate behaviour is encouraged, which can favour its generalization to other areas and situations (Yahner, Dank, Zweig, & Lachman, 2015). Detecting cyber-aggression may lead to significant legal consequences for those who exercise or enable it (Paul, Smith, & Blumberg, 2012).

Determining the prevalence of cyber-aggression among adolescents is difficult. The few published studies with Spanish samples differ regarding the indicators that define the construct and the methodology used (mainly, sample characteristics, time period of inquiry, scale values used and result format in means or percentages). However, the results do reveal a trend. The most common types of cyber-aggression and cyber-victimization are "verbal cyber-aggression" (harmful comments online; threatening or insulting text messages; frightening anonymous calls) and "exclusion" (deliberately excluding a person from an online group). Conversely, the least common type is "visual cyber-aggression", including both "sexual cyber-aggression" (recording or photographing and disseminating compromising private images) and "happy slapping" (physically assaulting or forcing a person to perform a humiliating action, recording it and disseminating it). When "impersonation" is included in the analysis, its prevalence levels are higher than for visual aggression and closer to those for verbal aggression and exclusion (Buelga, Cava, Musitu, & Torralba, 2015; Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Díaz-Aguado, Martínez, & Martín, 2013; Garaigordobil, 2015). To the best of our knowledge, no study on cyber-aggression prevalence in Asturias (Spain), in which adolescents report as victims or aggressors and which uses a specific sample that is broad and representative of the region, has yet been published.

A key aspect to understanding the problem, which has educational implications, is to observe whether there are significant differences between boys and girls in the frequency and manner with which they exercise or experience cyber-aggression. Given that boys and girls make differential use of mobile phones and the Internet (Fernández, Peñalva, & Irazabal, 2015) and that there are gender differences in on-site aggression (Card, Stucky, Sawalani, & Little, 2008), it is plausible that there are also differences in cyber-aggression. However, studies on the subject yield inconsistent results. A recent systematic review (Navarro, 2016) displays six patterns of results, which are, in order of frequency: no differences in cyber-aggression or in cyber-victimization based on gender; boys more frequently act as aggressors and girls as victims; boys become aggressors and victims more frequently than girls; boys act as aggressors more frequently than girls, but there are no differences in victimization; there are no differences in aggression, but girls are victims more frequently than boys; and finally, girls act as aggressors and victims more frequently than boys. One possible way to clarify the relationship between gender and cyber-aggression is to precisely delineate the situations that are considered cyber-victimization and cyber-aggression and to analyse possible specific differences in the different types of circumstances that define the construct.

For this reason, the present study has two objectives. First, the study aims to analyse the prevalence of cyber-aggression and cyber-victimization among adolescents in Asturias. A pattern consistent with that reported in the few studies on the topic previously published in Spain is expected to be found. Second, the study intends to identify possible gender differences in the prevalence of cyber-aggression and cyber-victimization. No large differences are anticipated, or if found, boys are expected to become aggressors more commonly than girls and girls to become victims more frequently than boys.

2. Material and methods

2.1. Participants

The sample universe comprises the total number of adolescents in Asturias in compulsory secondary education (CSE) and studying in educational centres supported by public funds (public and state-subsidised) in the region. According to data provided by the statistics service of the Regional Ministry of Education and Culture, during the 2014/15 academic year, 30,758 students (97.6% of the total number of students in CSE in Asturias) were enrolled in these schools.

The sample analysed in this study was selected through random stratified and cluster sampling. To this end, the population of the CSE centres supported by public funds in Asturias was divided into seven geographical areas. In each one of these, a number of centres proportional to the total number of centres in that population area was randomly selected. As a result, 19 centres were ultimately selected. In each selected centre, all CSE students were assessed, yielding a total of 3,175 students aged between 12 and 18 years (M=14.01, DT=1.39) actually assessed.

The proportional allocation of centres to each geographical area ensured sample representativeness in terms of geographic location. The centres are located in both urban and rural environments and receive students from heterogeneous socio-economic levels. The aim of the random selection of centres within each geographical area was to provide a sample that was also representative of the population in terms of other relevant variables such as gender, grade year or centre ownership. As shown in table 1, the sample presents a percentage similar to that of the population in terms of ownership, grade year and gender.

2.2. Assessment tools

"Ad hoc questionnaire on sociodemographic data and management of communication technologies". Composed of 11 items, it gathers information on students' age, gender and grade year as well as the incidence and frequency of use of electronic communication devices. The age and grade year were evaluated via two open questions. The other variables were evaluated using dichotomous or multiple-choice items.

"Cyber-aggression Questionnaire for Adolescents" (CYBA) (Álvarez-García, Barreiro-Collazo, Núñez, & Dobarro, 2016). The CYBA is a self-reported questionnaire that is composed of 19 items with a Likert-type response format in which the adolescent must indicate how frequently he or she has exercised the aggression described in each statement via mobile phone or the Internet in the previous three months (from 1=Never to 4=Always). After exploratory and confirmatory factorial analysis, the test provides a structure composed of three factors ("impersonation", α=.87; "visual-sexual cyber-aggression", α=.79; and "verbal cyber-aggression and exclusion", α=.91) and four additional indicators of "visual cyber-aggression-teasing/happy slapping".

Table 1. Sample and population, in terms of the variables ownership, grade year and gender

			Sample		Population	
			N	%	N	%
Centre	Ownership	Public	11	57.9	85	59.9
		State-subsidised	8	42.1	57	40.1
		Total	19	100	142	100
Students	Grade year	1st CSE	900	28.3	8,144	26.5
		2nd CSE	805	25.4	7,855	25.5
		3rd CSE[a]	772	24.3	7,553	24.6
		4th CSE[a]	698	22	7,206	23.4
		Total	3,175	100	30,758	100
	Gender	Male	1,631	52	16,082	52.3
		Female	1,504	48	14,676	47.7
		Total	3,135[b]	100	30,758	100

[a] Curricular diversification students are included.
[b] Forty students (1.3% of the total) did not provide their gender.

"Cyber-victimization questionnaire for adolescents" (CYVIC). Self-reported, it assesses how frequently the informant has been the victim of attacks via mobile phone or the Internet during the previous three months. It consists of 19 statements, with the same indicators and response format (from 1=Never to 4=Always) as the CYBA. After exploratory and confirmatory factorial analysis, the test provides a structure composed of four factors ("impersonation", α=.81; "visual-sexual cyber-victimization", α=.77; "verbal cyber-victimization", α=.87; and "online exclusion", α=.73) and four additional indicators of "visual cyber-victimization-teasing/happy slapping". The facto-

rial structure of CYVIC is the same as that of the CYBA, except that the items in the "verbal cyber-aggression and exclusion" factor are split into two factors: "verbal cyber-victimization" and "online exclusion".

2.3. Procedure

After selecting the educational centres, authorization to administer the questionnaires was requested from the centres' respective management teams. The latter were informed of the study's objectives and procedures, the anonymous and voluntary participation of students, and the confidential treatment of the results. As participants were underage, permission was requested from their families through passive consent. The teenagers were evaluated during the second or third trimester of the 2014/15 academic year, depending on the availability of each centre. Before answering the questionnaire, teenagers were also informed of the study's objectives and of its anonymous, confidential and voluntary nature. In general, students had 20 minutes to answer, although this period was flexible depending on the age and characteristics of the respondents. The test was administered to all CSE groups in each centre during school hours.

2.4. Data analysis

After the data were obtained, the information was analysed with the statistical package SPSS 21.0 (IBM Corp., 2012). First, the percentage of participants using different electronic communication devices and applications was analysed, as well as the association between use and gender. Then, the prevalence of cyber-aggression and cyber-victimization among the adolescents was analysed in terms of frequency and percentages. Finally, the possible association between prevalence and gender was examined. Due to the low reported frequency of cyber-aggression and cyber-victimization, the responses to the CYBA and CIVIC questionnaires were reclassified into two response options: "Never" and "At least once".

The option "At least once" resulted from grouping the original options "Rarely", "Often" and "Always". The existence of a statistically significant association between the variables studied and gender was analysed using Pearson's chi-squared test. The magnitude of the association was analysed using Cramer's V.

Table 2. Gender differences in the use of electronic communication devices

	N	Total (%)	M/W (%)	$\chi^2_{(df)}$	V
A) I own a cellphone.	3,127	95.1	95.3/94.9	$0.194_{(1)}$	.008
B) In my free time, I participate in social networks (Tuenti, Facebook or other).	3,122	77.8	72.4/83.7	$57.933_{(1)}$***	.136
C) In my free time, I use instant messaging programs (Messenger, WhatsApp or other).	3,121	93.6	91.3/96.0	$28.049_{(1)}$***	.095
D) I have a personal email account.	3,117	92.7	92.3/93.2	$0.985_{(1)}$	.018
E) I play online with other people.	3,120	52.0	75.9/25.9	$779.344_{(1)}$***	.500
F) I surf the Internet in my free time for tasks other than homework.	3,118	84.1	85.2/83.0	$2.671_{(1)}$	.029
G) In general, how many hours per day do you spend using the Internet for tasks other than homework from Monday to Friday?	3,119			$20.629_{(4)}$***	.081
None		4.6	5.2/3.9		
Less than an hour		21.7	22.5/20.9		
Between one and two hours		30.7	32.8/28.5		
Between two and three hours		18.1	17.4/18.8		
More than three hours		24.9	22.1/28.0		
H) In general, how many hours per day do you spend using the Internet for tasks other than homework during the weekends?	3,122			$17.067_{(4)}$**	.074
None		3.5	4.0/3.0		
Less than an hour		14.1	15.4/12.6		
Between one and two hours		22.4	23.7/21.0		
Between two and three hours		18.5	18.5/18.4		
More than three hours		41.5	38.4/44.9		

% = percentage of affirmative answers; M = Men, W = Women.
*p≤.05; **p≤.01; ***p≤.001

3. Results

3.1. Use of mobile phones and the Internet

The use of mobile phones, instant messaging and email is almost universal among the adolescents assessed. Over 90% of them reported having access to these resources (table 2). Browsing the Internet to complete non-school related tasks is also very common, as is using social networks (although the minimum legal age in Spain for its use is 14). Playing online games with others is less common, particularly among girls.

Within its high percentage of general use, the use of social networks ($p<.001$) and of instant messaging programs ($p<.001$) is more common among girls than boys (table 2). Girls also use the Internet to perform non-school related tasks for more hours than boys, both from Monday to Friday ($p<.001$) and during the weekends ($p=.002$). In contrast, boys play online with other people significantly more frequently than girls ($p<.001$). There are no statistically significant differences in the percentage of boys and girls who have a mobile phone or personal email account or who browse the Internet in their free time for non-school related tasks.

3.2. Prevalence of cyber-aggression and cyber-victimization

The percentage of adolescents who reported having exercised or experienced aggression via mobile phone or the Internet during the previous three months is very variable, depending on the kind of aggression analysed (tables 3 and 4). However, for most indicators, the percentage of participants involved is low or very low. Both in the case of cyber-aggression and cyber-victimization, verbal abuse and online exclusion are more common than visual aggression and impersonation. More specifically, the most common types of cyber-aggression and cyber-victimization are phone pranks in which, when the receiver picks up, the caller does not answer (item 5) and insults via text message or instant messaging programs (item 11). The least common are the recording and dissemination of physical aggression (item 10) or humiliating acts performed under threat (item 15).

Table 3. Prevalence of cyber-aggression

		1		2		3		4	
	N	f	%	f	%	f	%	f	%
Impersonation									
1. I have pretended to be someone else on the Internet, posting comments under his or her name as if I were that person.	3,143	2,983	94.9	135	4.3	23	0.7	2	0.1
12. I have pretended to be someone else on Twitter, Tuenti, etc., creating a false user profile (photo, personal data, etc.) through which I insulted or ridiculed others.	3,144	3,091	98.3	44	1.4	6	0.2	3	0.1
18. I have obtained the password of another person and have sent annoying messages to acquaintances as if it had been him or her to get that person into trouble.	3,136	3,052	97.3	74	2.4	7	0.2	3	0.1
Visual - Sexual									
2. I have taken photos or made video recordings without consent involving sexual or suggestive content (e.g., on the beach, in a locker room, etc.) and have disseminated them via mobile phone or the Internet.	3,145	3,082	98.0	53	1.7	8	0.3	2	0.1
9. I have disseminated genuine compromising images or videos belonging to another person of a sexual or suggestive nature without permission via mobile phone or the Internet.	3,143	3,067	97.6	67	2.1	7	0.2	2	0.1
14. I pressed a person to perform actions he or she did not want to perform (regardless of whether he or she finally agreed to perform them), threatening him/her with disseminating intimate conversations or images.	3,143	3,066	97.6	70	2.2	6	0.2	1	0.0
Visual - Teasing / Happy slapping									
3. I have posted fake photos (modified) of other people on the Internet to harm them or laugh at them.	3,139	3,035	96.7	91	2.9	12	0.4	1	0.0
6. I have posted compromising photos or videos of a certain person on the Internet without permission, to harm or laugh at him or her.	3,137	3,078	98.1	51	1.6	8	0.3	0	0.0
10. I have hit a person, recorded the scene and then disseminated it.	3,144	3,108	98.9	25	0.8	9	0.3	2	0.1
15. I have forced a person to perform a humiliating action, recorded it and then disseminated it to make fun of him/her.	3,136	3,108	99.1	21	0.7	6	0.2	1	0.0
Verbal and Online exclusion									
4. I have removed from or not accepted in the contact list of a chat room, social network or instant messaging program another person without a specific reason, just because it was him or her.	3,138	2,460	78.4	568	18.1	97	3.1	13	0.4
5. As a prank, I have called a mobile phone, and when the recipient answered, I refused to answer back.	3,145	2,353	74.8	630	20.0	141	4.5	21	0.7
7. I have made calls to insult or to make fun of a person.	3,145	2,738	87.1	339	10.8	57	1.8	11	0.3
8. I have made fun of a person using offensive or insulting comments on social networks.	3,143	2,755	87.7	345	11.0	35	1.1	8	0.3
11. I have insulted a person via text message (SMS) or instant messaging programs (e.g., WhatsApp).	3,142	2,220	70.7	774	24.6	121	3.9	27	0.9
13. I have falsely complained about a person in forums, social networks or online games to have them removed.	3,146	2,886	91.7	210	6.7	40	1.3	10	0.3
16. I have agreed with other people to ignore a person on social networks.	3,144	2,724	86.6	363	11.5	43	1.4	14	0.4
17. I have made anonymous calls to threaten or intimidate a person.	3,141	3,019	96.1	95	3.0	21	0.7	6	0.2
19. I have posted rumours about a person on a social network.	3,136	2,894	92.3	210	6.7	28	0.9	4	0.1

1=Never; 2=Rarely; 3=Often; 4=Always.

3.3. Gender differences in the prevalence of cyber-aggression and cyber-victimization

As shown in table 5, there are no statistically significant differences in gender for most indicators, and when such differences appear, their magnitude is small or very small.

Regarding cyber-aggression, there are statistically significant differences between boys and girls for 8 of the 19 indicators analysed. In these eight cases, cyber-aggression is more prevalent in boys than in girls. To a greater extent than girls, boys report having obtained a person's password and sent messages to an acquaintance as if they were that person to get him/her into trouble (item 18; p=.001); having taken photos or made video recordings without consent involving sexual or suggestive content and disseminated them via mobile phone or the Internet (item 2; p=.005); having disseminated genuine compromising images or videos of a sexual or suggestive nature belonging to another person without permission via mobile phone or the Internet (item 9; p=.011); having posted fake photos belonging to another person on the Internet to harm or make fun of them (item 3; p<.001); having made calls insulting or mocking another person (item 7; p=.008); having insulted a person via text message or instant messaging programs (item 11; p=.027); having made anonymous calls to threaten or intimidate a person (item 17; p=.001); and having made false complaints about a person in a forum, social network or online game to have that person removed from the site (item 13; p<.001) during the previous three months.

With regard to cyber-victimization, there are statistically significant differences between boys and girls for 4 of the 19 indicators analysed. In three cases, cyber-victimization is more prevalent in girls, and in one case, in boys. A higher percentage of girls compared with boys report having been victims of false rumours on a social network (item 19; p=.002); having received calls to their mobile phones with no response as a prank (item 5; p=.015); or having been pressured into performing actions they did not want to perform because they were threatened with the dissemination of conversations or intimate images (item 14; p=.006) during the previous three months. In contrast, a higher percentage of boys reported having been victims during the previous three months of false complaints in forums, social networks or online games resulting in their removal from the site (item 13; p<.001).

Table 4. Prevalence of cyber-victimization

		1		2		3		4	
	N	f	%	f	%	f	%	f	%
Impersonation									
1. I have been impersonated on the Internet, and comments have been posted in my name, as if coming from me.	3,156	2,935	93.0	201	6.4	15	0.5	5	0.2
12. I have been impersonated on Twitter, Tuenti, etc., and a false user profile has been created (photo, personal data, etc.) through which I have been insulted or ridiculed.	3,156	3,067	97.2	73	2.3	9	0.3	7	0.2
18. My password has been obtained, and annoying messages have been sent to acquaintances as if coming from me, to get me into trouble.	3,150	2,876	91.3	240	7.6	28	0.9	6	0.2
Visual - Sexual									
2. Photos or video recordings of me have been taken without my consent involving sexual or suggestive content (e.g., on the beach, in a locker room, etc.) and disseminated via mobile phone or the Internet.	3,157	3,054	96.7	92	2.9	8	0.3	3	0.1
9. Genuine compromising images or videos (of a sexual or suggestive nature) of me have been disseminated without my permission via mobile phone or the Internet.	3,154	3,102	98.4	44	1.4	5	0.2	3	0.1
14. I have been forced to perform actions I did not want to perform (regardless of whether I finally agreed to perform them) because I was threatened with the dissemination of conversations or intimate images of me.	3,155	2,966	94.0	162	5.1	24	0.8	3	0.1
Visual - Teasing / Happy slapping									
3. Fake photos of me (modified) have been posted on the Internet to hurt me or laugh at me.	3,152	3,032	96.2	107	3.4	11	0.3	2	0.1
6. Genuine compromising photos or videos of me have been posted on the Internet without my permission to hurt me or laugh at me.	3,152	3,063	97.2	77	2.4	9	0.3	3	0.1
10. I have been hit, and this has been recorded and then disseminated.	3,154	3,119	98.9	28	0.9	4	0.1	3	0.1
15. I have been forced to perform a humiliating action, and this has been recorded and then disseminated to make fun of me.	3,158	3,118	98.7	35	1.1	5	0.2	0	0.0
Verbal									
5. I have received calls on my mobile where the caller remains silent, I suppose as a prank.	3,143	1,366	43.5	1,289	41.0	434	13.8	54	1.7
7. I have received calls insulting or mocking me.	3,147	2,672	84.9	406	12.9	59	1.9	10	0.3
8. I have been made fun of using offensive or insulting comments on social networks.	3,148	2,545	80.8	515	16.4	77	2.4	11	0.3
11. I have received insults via text message (SMS) or instant messaging programs (e.g., WhatsApp).	3,151	2,051	65.1	916	29.1	167	5.3	17	0.5
17. I have received anonymous threatening or intimidating calls.	3,152	2,938	93.2	170	5.4	37	1.2	7	0.2
19. False rumours about me have been published on a social network.	3,153	2,605	82.6	423	13.4	101	3.2	24	0.8
Online exclusion									
4. I have been excluded from or not accepted in the contact list of a chat room, social network (e.g., Tuenti) or instant messaging program (e.g., Messenger, WhatsApp), without having done anything wrong, just because it was me.	3,152	2,605	82.6	462	14.7	73	2.3	12	0.4
13. False complaints have been made about me in forums, social networks or online games, which had me expelled from the group.	3,149	2,890	91.8	202	6.4	48	1.5	9	0.3
16. A group of people have agreed to ignore me on social networks.	3,157	2,969	94.0	164	5.2	16	0.5	8	0.3

1=Never; 2=Rarely; 3=Often; 4=Always.

Table 5. Gender differences in the prevalence of cyber-aggression and cyber-victimization

	Cyber-aggression				Cyber-victimization			
	N	M/W (%)	$\chi^2_{(df)}$	V	N	M/W (%)	$\chi^2_{(df)}$	V
Impersonation								
1.	3,110	5.6/4.4	$2.185_{(1)}$	.027	3,117	6.8/7.0	$0.051_{(1)}$	.004
12.	3,106	1.9/1.3	$1.651_{(1)}$	.023	3,117	2.4/3.1	$1.258_{(1)}$	.020
18.	3,098	3.6/1.6	$12.041_{(1)}$***	.062	3,112	8.2/9.1	$0.673_{(1)}$	.015
Visual - Sexual								
2.	3,109	2.6/1.2	$8.017_{(1)}$**	.051	3,118	3.5/2.9	$1.080_{(1)}$	.019
9.	3,105	3.0/1.6	$6.424_{(1)}$*	.045	3,115	1.8/1.3	$1.434_{(1)}$	.021
14.	3,105	2.9/1.8	$3.688_{(1)}$	.034	3,116	4.8/7.1	$7.456_{(1)}$**	.049
Visual - Teasing / Happy slapping								
3.	3,110	4.6/1.9	$16.926_{(1)}$***	.074	3,113	4.3/3.1	$3.078_{(1)}$	.031
6.	3,099	2.3/1.4	$3.338_{(1)}$	.033	3,113	3.1/2.4	$1.374_{(1)}$	.021
10.	3,106	1.4/0.8	$2.247_{(1)}$	.027	3,115	1.3/0.9	$0.935_{(1)}$	.017
15.	3,099	1.1/0.7	$1.346_{(1)}$	.021	3,119	1.4/1.0	$0.863_{(1)}$	.017
Verbal								
5.	3,107	23.9/26.6	$3.085_{(1)}$	.032	3,104	54.4/58.7	$5.959_{(1)}$*	.044
7.	3,107	14.4/11.2	$7.118_{(1)}$**	.048	3,109	14.8/15.1	$0.045_{(1)}$	.004
8.	3,105	13.3/11.2	$3.164_{(1)}$	.032	3,109	18.3/19.7	$0.963_{(1)}$	.018
11.	3,104	31.0/27.4	$4.900_{(1)}$*	.040	3,112	34.7/35.1	$0.066_{(1)}$	.005
17.	3,103	4.9/2.7	$10.332_{(1)}$***	.058	3,114	6.5/7.0	$0.279_{(1)}$	.009
19.	3,098	8.5/6.9	$2.593_{(1)}$	.029	3,114	15.3/19.4	$9.328_{(1)}$**	.055
Online exclusion								
4.	3,100	20.9/22.4	$1.015_{(1)}$	.018	3,113	17.5/16.8	$0.255_{(1)}$	.009
13.	3,108	11.3/4.8	$43.918_{(1)}$***	.119	3,110	12.3/3.9	$72.718_{(1)}$***	.153
16.	3,106	14.0/12.7	$1.104_{(1)}$	.019	3,118	5.8/6.1	$0.145_{(1)}$	.007

%=percentage of students that respond «at least once» (options "Rarely", "Often" or "Always").
M=Man; W=Women.
*ps.05; **ps.01; ***ps.001

4. Discussion and conclusions

The present work started with two objectives: to analyse the prevalence of cyber-aggression and cyber-victimization among adolescents in Asturias and to identify possible gender differences. With regard to the first objective, the trend in results obtained is, as expected, to a large extent consistent with the findings of previous studies in Spain (Buelga & al., 2015; Calvete & al., 2010; Díaz-Aguado & al., 2013; Garaigordobil, 2015). Verbal aggression and online exclusion are more common than visual aggression. However, unlike previous studies, in the present work the prevalence of impersonation is closer to that of visual aggression than that of verbal aggression and exclusion. This may be due to the different indicators used.

The percentage of adolescents who report having exhibited cyber-aggressive behaviours varies from 0.9% who claim at least once to have forced a person to perform a humiliating action, recorded it and then disseminated it to make fun of that person to 29.3% who claim to have insulted a person using text message or instant messaging programs. The percentage of adolescents who report having experienced cyber-victimization varies from 1.1% who claim to have been hit or forced to perform a humiliating action, been recorded and then had the video or picture disseminated to 56.5% who claim to have received prank calls on their mobile phone with no response.

Regarding educational practice, these results show that although the prevalence of most of these behaviours is low, all types of cyber-aggression and cyber-victimization assessed appear to some extent in the analysed sample. It is therefore necessary to devise measures for prevention and treatment, in particular considering that the effects of these behaviours can be very negative (Kowalski & al., 2014). It is important to address and prevent not only the most serious but also those apparently milder instances (verbal cyber-aggression and online exclusion) that are nonetheless the most frequent and may become part of a continued rejection or harassment pattern. Therefore, educating adolescents regarding the ethical and prudent use of communication technologies is essential (Cerezo & al., 2016; Del Rey, Casas, & Ortega, 2012).

With regard to the second objective, the results obtained are in line with expectations and consistent with the most recently published studies (Navarro, 2016). In the present study, there are generally no statistically significant differences between boys and girls. In the few cases in which differences appear, boys are aggressors more frequently than girls, while girls are victims more frequently than boys (these differences are, however, small or very small). The only exception to this trend is that boys report having been victims of false complaints in forums, social networks or online games resulting in their removal from those sites more frequently than girls. A possible explanation for this exception is the significantly greater use that boys make of multiplayer online games compared with girls.

The results obtained lead to several conclusions regarding the interplay between gender and the frequency of use of mobile phones and the Internet as risk factors for cyber-aggression and cyber-victimization in adolescence. Previous studies conclude, as it would be expected intuitively, that the mere use of electronic communication devices constitutes a risk factor (Kowalski & al., 2014). While this is true in general terms, it is notable that in the present

study, while girls make greater use of social networking and instant messaging programs than boys and use the Internet for non-school related tasks for longer periods of time, they do not attack others more frequently than boys via these means. It is also notable that higher usage does not translate into higher probabilities of generalized cyber-victimization via such means. In fact, for two of the three indicators in which girls are more likely to be victims than boys (having received prank calls to their phones without response and having been a victim of false rumours on a social network), the use of these resources in particular did not seem a priori a relevant variable. There are other more powerful risk factors (Álvarez-García, García, & Núñez, 2015; Álvarez-García, Núñez, Dobarro, & Rodríguez, 2015).

Regarding educational practice, the results obtained suggest the importance of taking into account the gender perspective in the prevention of the issue. On the one hand, reproducing the traditional model of masculinity associated with rudeness, insensitivity and aggression should be avoided (Gini & Pozzoli, 2006). In the present study, although differences in prevalence are neither numerous nor large, boys tend to be more aggressive, and girls, victims. Boys also engage in more direct violence (insults, threats), and girls experience indirect violence more frequently (rumours). On the other hand, preventing gender cyber-violence is of paramount importance. In the present study, a greater percentage of boys, compared with girls, acknowledge having disseminated compromising images, involving sexual or suggestive content, without the consent of the victim, and a higher percentage of girls, compared with boys, claim to have been pressured into performing unwanted actions under the threat of having their conversations or intimate images disseminated. In this regard, educating students regarding values, attitudes and skills (respecting the privacy of individuals, being empathetic, etc.) that reduce the possibility of becoming aggressors is important. Teaching basic aspects of cyber-security and avoidance of risky behaviours to students is also essential to reduce the possibility of their becoming victims (Flores, 2014). In recent years, legislative changes have occurred, and various proposals to promote coeducation and to prevent gender-based violence have been published (Edwards & Hinsz, 2014). The present work advocates including the relationship with electronic devices in this training.

For all these reasons, this study constitutes a contribution to the understanding of cyber-aggression and cyber-victimization among adolescents. It adds to the limited number of studies on Spanish samples previously published on prevalence and gender differences, providing updated data and contributing to clarifying certain aspects of the inconsistent evidence available previously. Nevertheless, it has several limitations. First, the data are self-reported, which can generate biased responses due to distortion or social desirability, although minimizing them is attempted by ensuring anonymity and result confidentiality. Second, a large and representative population sample is used, but it is limited to a particular geographical area and specific ages. Any generalization of these results to other populations must be exercised with caution. It would be advisable to replicate this study with other samples in order to analyse the results' external validity.

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Digital Leisure and Perceived Family Functioning in Youth of Upper Secondary Education

Ocio digital y ambiente familiar en estudiantes de Educación Postobligatoria

Dr. M-Angeles Valdemoros-San-Emeterio is Tenured Lecturer of the Department of Science of Education in the University of La Rioja (Spain) (maria-de-los-angeles.valdemoros@unirioja.es) (http://orcid.org/0000-0002-7389-4039)
Dr. Eva Sanz-Arazuri is Associate Professor of the Department of Sciences of Education in the University of La Rioja (Spain) (eva.sanz@unirioja.es) (http://orcid.org/0000-0003-3035-8751)
Dr. Ana Ponce-de-León-Elizondo is Full Professor of the Department of Sciences of Education in the University of La Rioja (Spain) (ana.ponce@unirioja.es) (http://orcid.org/0000-0003-4622-8062)

ABSTRACT

The "Network Society" is identified by accelerated changes that occur between real and virtual worlds. The progress of digital devices has generated a new model of leisure that has conditioned family interactions. The aim of this research was to identify the relationship between digital leisure experiences and perceived family functioning in post-compulsory secondary education Spanish students. The sample was composed of 1,764 Spanish young people 15-18 years old; all of them were post-compulsory secondary education students. Students' digital leisure activities were measured by an opening question by which they indicated the three most important leisure activities for them, and family functioning was measured by the answers from the Spanish adaptation for FACES IV questionnaire (Family Adaptability and Cohesion Scale). A descriptive analysis about digital leisure activities of young people was used. The family functioning coefficient of each subject was determined and, finally, the relationship between students' family functioning perceived and students' digital leisure practices assessed by a factorial analysis of variance (ANOVA). Young people give importance to digital leisure activities, highlighting social network participation, playing videogames and browsing the Internet. Cohesion, flexibility and family functioning are healthier when children do not point to any digital activity into their preferred leisure practices. The results suggest that new research should be conducted to confirm whether this negative association between family functioning and digital leisure is causal or due to other factors.

RESUMEN

La «Sociedad Red» se identifica con acelerados cambios que se suceden entre el mundo real y el virtual. El progreso de dispositivos digitales ha generado un nuevo modelo de ocio que ha condicionado las interacciones familiares. El objetivo de esta investigación fue valorar la relación entre el funcionamiento familiar percibido por estudiantes españoles de educación secundaria postobligatoria y su práctica de ocio digital. La muestra ascendió a 1.764 estudiantes. El ocio digital se midió a partir de una pregunta abierta en la que debían señalar las tres actividades de ocio más importantes, y el funcionamiento familiar se valoró mediante la versión española del FACES IV (Escala de cohesión y adaptación familiar). Se realizó un análisis descriptivo sobre las actividades de ocio digital de los jóvenes, se determinó el coeficiente del funcionamiento familiar de cada sujeto y mediante análisis de varianza (ANOVA) de un factor se valoró la relación entre el funcionamiento familiar percibido por los estudiantes y las actividades de ocio digital practicadas por los mismos. Los jóvenes otorgan importancia a las actividades digitales de ocio, destacando la participación en redes sociales, jugar a videojuegos y navegar por Internet. La cohesión, la flexibilidad y el funcionamiento familiar gozan de mejor salud cuando los hijos no apuntan actividades digitales entre sus prácticas preferentes de ocio. Los resultados sugieren nuevas investigaciones que comprueben si esta asociación negativa entre funcionamiento familiar y ocio digital es causal o se debe a otros factores.

KEYWORDS | PALABRAS CLAVE

Leisure, youth, secondary education, leisure habits, parents, digital society, family.
Ocio, jóvenes, educación secundaria, hábitos de ocio, padres, sociedad digital, familia.

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1. Introduction

The term "Network Society" refers to rapid changes that occur both in the real world and in the virtual world (Valdemoros, Ponce de León, Sanz, & Caride, 2014) and which have become increasingly important for the new forms of leisure. Leisure is a value in itself, related to intention, satisfaction, and freedom (Cuenca & Goytia, 2012). It is also the stronghold of human development (Cuenca, Aguilar, & Ortega, 2010), because leisure time has gone from being an interesting opportunity to becoming established as a right, valued by youth to a greater or lesser extent (Aristegui & Silvestre, 2012). The advance of cheaper digital devices that are also easier to use, along with the generalized use of broadband Internet, have led to a new model of leisure, which has transformed traditional activities and generated new ones, resulting in an experience of leisure that can now be carried out either in the natural or the virtual world (García, López, & Samper, 2012).

Since the beginning of the XXI century, two new concepts have emerged: digital natives – modern youths who were born "connected" to the digital world – and digital immigrants – people who were born in the natural world, but were forced to migrate to the digital world (Prensky, 2001 a, b). The scientific literature shows that digital natives invest a lot of time in polishing their skills (Cox, Clough, & Marlow, 2008); they actively seek information online and are exposed to multiple communication channels regardless of the risk because change does not intimidate them. This leads them to enjoy the technologies in their leisure time (Buse, 2009). However, an intergenerational gap is observed with the digital immigrants, who assign different meanings to the binomial leisure-digital technologies, as well as to their activities (Selwyn, 2004).

Digital leisure consists of all the leisure opportunities involving digital technologies, for instance, consoles, mobile phones, the Internet, computers, and many digital devices from the technological industry (iPad, tablets, MP3, or e-books, among others) that have innovated the experience of leisure by adding connectivity, interactivity, hyper-textuality, anonymity, convenience, ubiquity, etc. (Viñals, Abad, & Aguilar, 2014). The meaning assigned by youth to many digital activities is not only that of entertainment but, also, of the construction of their personal and social identity (Morduchowicz, 2012; Schroeder, 2010) because through such activities, they can pursue in their leisure time some hobbies or quirks that go unnoticed in natural world (Orchard & Fullwood, 2010), they can interact selectively (Johnson, 2009; Patterson, 2012), and increase their cultural competencies and their potential for communication (Lepicnik & Samec, 2013). These issues syntonize with the uses and gratifications theory (Katz, Blumler, & Gurevitch, 1971), given that the consumption of digital leisure is geared to the instrumental use of the media, in which a mediatic emitter interacts with a receptor, which implies gratification linked to fun, interpersonal relations, personal identity, or access to information.

García-Continente, Pérez-Giménez, Espelt, and Nebot (2013) assert that technologies have been established as an essential referent for youth's leisure time, as well as an area for youth consumption. Access to the Information Technologies, and specifically, to the Internet, is generalized in this collective (Gomes-Franco & Sendín-Gutiérrez, 2014; Muñoz, Ortega & al., 2014), just like the use of social networks (Colás, González, & de Pablos, 2013; Zheng & Cheok, 2011) and video games (Muñoz & al., 2014; Gros, 2009; Sánchez, Alfageme, & Serrano, 2010). A report from the "Instituto de la Juventud de España" (Institute of Youth of Spain; INJUVE, 2012) notes that, among young people, computer use is parallel to the increase of Internet connection (93% access the Internet daily and 87% several times a day) and that Internet users highlight seeking information or documentation (82.0%), participating in social networks (79.6%), and using email (76.3%) as their three main activities. García, López de Ayala, and Catalina (2013) confirm that the priority digital leisure habits of Spanish youth are participating in social networks, visiting websites where they share videos, and surfing the Internet.

The rapid progress in the access to and use of technologies in the family has generated an intergenerational digital divide, and parents are concerned to see their children spending hours in front of the computer or connected to their friends by mobile phone, or playing with their console rather than interacting in person with other people. This concern, sometimes caused by parents' lack of information and training in the digital world, may disturb the family dynamics (Fernández-Montalvo, Peñalva, & Irazabal, 2015).

Recent studies have also shown that digital devices have led to qualitative changes in family functioning, the creation of new interaction scenarios, and even the rearrangement of the relational patterns of the contemporary family (Carvalho, Francisco, & Revals, 2015).

In order to understand the family functioning, we propose the Circumplex Model of Marital and Family Systems (Olson, 2000; Olson, Sprenkle, & Russell, 1979), as it has had an enormous academic impact in the last few years because it integrates various recurrent concepts in family therapy. This model emphasizes the need to appraise

family functioning by conjointly examining two essential constructs: cohesion and flexibility (Martínez-Pampliega, Iraurgi, & Sanz, 2011). Cohesion is considered as the emotional reciprocity among family members, linked to family ties, family involvement, mutual respect, or the establishment of "internal boundaries" in intergenerational relationships. Flexibility is the ability to adequately cope with the changes and adjustments required in a particular situation, learning from the different experiences that emerge, and which can lead to consequences in the processes of leadership, negotiation, discipline, roles, or rules (Olson, 2011).

Family functioning will be unhealthy if group dependence is excessive, if there is lack of communication and/or inflexible or too flexible communication, creating an unbalanced system that cannot meet the demands of our changing society (Smith, Freeman, & Zabriskie, 2009).

Examining in depth the binomial of digital leisure-family functioning, some authors (Jago, Edwards, Urbanski, & Sebire, 2013) have noted a relationship between family functioning and children's digital leisure, showing that not only can family functioning affect children's digital leisure, but also that children's digital activity and the associated devices can affect family functioning.

> Recent studies have also shown that digital devices have led to qualitative changes in family functioning, the creation of new interaction scenarios, and even the rearrangement of the relational patterns of the contemporary family

On the one hand, the family can determine how to consume digital devices for the children's benefit (Ballesta & Cerezo, 2011). Studies with non-Spanish populations, like that of Atkin, Corder & al. (2015), reported that, when adolescents perceive a healthy family functioning, they dedicate less time to digital leisure such as playing video games or surfing the Internet. Specifically, Carlson, Fulton & al. (2010) and Sorbring (2014) confirmed that family flexibility protects children from misusing the technologies.

On the other hand, some investigations have found discrepant results about the facilitating or inhibiting power of digital devices and activities on family functioning. Some have confirmed that digital activity, such as the use of video games, mobiles, or surfing the Internet, encourages family cohesion (Oliva, Hidalgo, & al., 2012) by strengthening family boundaries and contributing to the development of a collective identity through shared family projects (Mesch, 2006a). However, Mesch confirmed that frequent Internet use has also been negatively associated with shared family time and positively with family conflicts, which can negatively affect family cohesion.

Discrepant results have also been found concerning communication. Some investigations report that digital activity enables building a channel through which family members communicate and share experiences, allowing them to synchronize their agendas, coordinate their leisure time and social interaction (Kennedy & Wellman, 2007; Fernández-Montalvo & al., 2015; Jupp & Bentlley, 2001; Mesch, 2006a, b). However, other authors claim that the Internet use does not contribute to improving family relations (Lenhart, Raine, & Lewis, 2001) because it reduces the time spent on shared activities and leads to social isolation (Nie, Hillygus, & Erbing, 2002; Subrahmanyam & al., 2000), as well as limiting face-to-face family relationships. It can also lead to the abuse of parental control of their children through the use of mobile phones or to the children's use of mobiles as a tool to escape from parental control. These situations can produce stress in all the members of the family system (Verza & Wagner, 2010). Authors like Gomes-Franco and Sendín-Gutiérrez (2014) or Godinho, Araújo, Barro, and Ramos (2014) even noted that impaired family functioning can cause youth to spend more time connected to the Internet, as a substitute for their family interactions or to protest against them.

More recent studies conclude that, given that digital devices will continue to increase their role in our social time, more research is needed to understand their impact on the health of family functioning (Wang, Chu, Viswanath, Wan, Lam, & Chan, 2015). The lack of national studies and the divergent results of prior research lead us to attempt to answer some questions: What percentage of young Spaniards from the upper educational stage consider digital leisure to be important? What digital leisure activities are the most relevant for students? How do Spanish adolescents between 15 and 18 years of age perceive their family functioning? Is there an association between digital consumption and the perception of their family's functioning as measured through family cohesion and flexibility?

In order to answer these questions, the goal of the present study is to evaluate the relationship between family

functioning as perceived by Spanish students of Upper Secondary Education and their practice of digital leisure, in order to establish whether children's consumption of digital leisure facilitates or hinders family interactions. On the basis of these findings, lines of action could be established for family education in digital leisure.

2. Material and method

2.1. Population and sample

The target population of this study comprised students of Upper Secondary Education in Spain, aged between 15 and 18 years. The sample size, which included 1,764 students, was calculated for a 95% confidence level and a 2.3% margin of error, from the data provided by the Ministry of Education, Culture and Sport of the academic year 2010-2011.

> The conclusions obtained in this research lead us to consider that the new entertainment experiences related to the digital world require an adaptation of the family educational project. Families should receive guidance and education so they can naturally incorporate technology into their daily life. In this regard, it is encouraging to find research that confirms that families express great interest in the use and incorporation of digital media, as well as in receiving training in the use of these devices

Simple random sampling was performed, retaining the proportional affixation in each of the Autonomous Communities and in each instructional cycle of the General Education System (67% high school students, 32.7% students from the middle instructional cycle, and 10.3% students from basic vocational training).

The final sample units were selected through clusters during the academic year 2013-2014, choosing random schools in each Autonomous Community, with two conditions: we selected one rural school from each Autonomous Community and a proportion of one private-concerted center for every three public schools. The questionnaires were applied in a single session in each of the selected schools to the number of students required to cover the sample quota. This field work was carried out during the months of March and June of 2014.

Before applying the instruments, we requested permission from the General Director of Education of each Autonomous Community and from the directors of the schools, and we provided details of the investigation. Two trained researchers went personally to each school to apply the instruments, in order to follow a standardized protocol.

Of the sample, 50.1% were female (n=885) and 49.9% were male (n=879). Their mean age was 17.60 years (SD=1.60), and 89.6% were of Spanish nationality (n=1,581).

2.2. Variables and instruments

We employed two instruments to collect information of the 5 variables that make up this study. The two variables concerning digital leisure were recorded through Item 21 of a much broader and more complex questionnaire that collected data for a piece of coordinated national research of which this work formed a part. That instrument was validated through a pilot test conducted in 8 Autonomous Communities and valued by 14 experts from 7 Spanish universities, who approved the final application. Its reliability was also tested.

These digital leisure variables were:

• "The Importance of Digital Leisure Activities", which aims to identify whether digital activities are a priority in the leisure of Spanish students of Upper Secondary Education. It consists of four categories:

– Digital activities are not among the three main leisure activities.

– One digital activity is one of the three important leisure activities.

– Two digital activities are part of the three important leisure activities.
– Three digital activities are the three main leisure activities.
• "The Type of Digital Leisure Activity", which classifies digital activities into eight topics:
– Seeking specific information on the Internet.
– Surfing the Internet without a specific goal.
– Writing my own blog or Website.
– Sharing information (videos, photos, presentations etc.).
– Participating in chats, discussion forums, or virtual communities.
– Social networks (Facebook, Tuenti, Twitter, etc.).
– Playing video games.
– Online gambling.

Family Functioning was analyzed through three variables defined by Olson (2008). These data were obtained from the students' responses to the Spanish adaptation of the FACES IV questionnaire (Rivero, Martínez-Pampliega, & Olson, 2010), which collects information about the cohesion and flexibility perceived within the family. Participants rated their level of agreement/disagreement with each of the 42 items of the instrument on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The variables of family functioning were:

• "Family Cohesion Ratio", which records the level of balance or imbalance perceived in family cohesion, by means of Items 1, 7, 13, 19, 25, 31, 37; 3, 9, 15, 21 27, 33, 39; 4, 10, 16, 22, 28, 34, and 40.

• "Family Flexibility Ratio", which indicates the level of balance or imbalance perceived in family flexibility by means of Items 2, 8, 14, 20, 26, 32, 38; 5, 11, 17, 23, 29, 35, 41; 6, 12, 18, 24, 30, 36, and 42.

• "Family functioning", assessed through the family functioning coefficient, indicates the level of functionality or dysfunctionality perceived in the family system. It is the result of the mean of the balance/imbalance between family cohesion and flexibility.

These three variables are numerical, with values below 1 indicating imbalance and values greater than 1 indicating balance. Imbalanced cohesion refers to an excess of either attachment or disengagement, whereas balanced family cohesion is considered healthy. Imbalanced flexibility could be due either to excessive rigidity or chaos, whereas balanced family flexibility is considered healthy. The value of the three variables was calculated according to the directions of Olson (2008).

2.3. Data analysis

The data were analyzed in three phases. In the first phase, we conducted a descriptive analysis of adolescents' digital leisure activities. In the second phase, the Family Functioning Coefficient of each subject was determined, following the guidelines of Olson (2008). In the third phase, using one-factor analysis of variance (ANOVA), we assessed the relationship between family functioning perceived by the students and their digital leisure activities. Before performing the ANOVA, we tested the homoscedasticity or homogeneity of the variances, as well as the normality of the variables, to determine whether the required assumptions were met. Finally, we performed contrasts through multiple post-hoc comparisons; in those cases in which Levene's statistic had equal variances, we employed Tukey's HSD test; if the variances were not equal, we used the Games-Howell test. The level of significance used in all cases was $p<.05$.

3. Results

Almost 30% of the Spanish students of Upper Secondary Education reported one digital activity among their three most important leisure practices.

The three most mentioned digital activities were participating in social networks (13.8%), playing video games (12.3%), and surfing the Internet (3.5%). The practice of activities such as seeking information on the Internet (3.5%), participating in chats (0.8%), sharing information (0.6%), online gambling (0.4%), and writing their own blog (0.3%) was considerably lower.

Focusing on family functioning perceived by Spanish students of Upper Secondary Education, the data show very positive values, with means above 1 both in cohesion (Cohesion Ratio=2.21) and flexibility (Flexibility Ratio=1.75), as well as in family functioning (Family Functioning Coefficient=2). This shows that Spanish adolescents perceive their families as being very balanced on cohesion, with emotional ties that are not excessively binding,

and as having healthy flexibility with some discipline, without rigidity or chaos, and hence, a fairly balanced family functioning.

Examining more closely the relationship between adolescents' digital leisure and family functioning, these results confirm that family cohesion is healthier when young people do not place any digital activities among their favorite leisure practices versus when they report one or two digital leisure activities among their favorite activities. As shown in table 1, family cohesion is healthier when young people practice one digital leisure activity than when they perform two (X0 digital activity=2.39+1.11; Ẋ 1 digital activity=2.23+1.07; vs X2 digital activity=2.14+1.04; F(3, 1646)=9.351, p<.001).

Table 1: Multiple comparisons by Games-Howell: Analysis of the Family Cohesion Ratio based on digital leisure

(I) Digital leisure	(J) Digital leisure	Difference of means (I-J)	Standard error	p
.00	1.00	.19406*	.06045	.008
	2.00	.72392*	.11300	.000
	3.00	.49852	.20623	.133
1.00	.00	-.19406*	.06045	.008
	2.00	.52986*	.11954	.000
	3.00	.30446	.20989	.496
2.00	.00	-.72392*	.11300	.000
	1.00	-.52986*	.11954	.000
	3.00	-.22540	.23058	.764
3.00	.00	-.49852	.20623	.133
	1.00	-.30446	.20989	.496
	2.00	.22540	.23058	.764

p < .005.

Family flexibility, defined by the quality and expression of leadership and family organization, the relationship among roles, as well as the rules and negotiations in family interactions, is also healthier in families whose children do not indicate any digital leisure activity among their three priority activities versus those who indicated one digital activity (X0 digital activity=1.87+0.76 vs X1 digital activity=1.75+0.73; F(3, 1633)=3.763, p<.005) (table 2).

Table 2: Multiple comparisons by Games-Howell: Analysis of the Family Flexibility Ratio based on digital leisure

(I) Digital leisure	(J) Digital leisure	Difference of means (I-J)	Standard error	p
.00	1.00	.12430*	.04282	.020
	2.00	.23003	.11762	.205
	3.00	.09007	.24052	.982
1.00	.00	-.12430*	.04282	.020
	2.00	.10573	.12114	.819
	3.00	-.03423	.24226	.999
2.00	.00	-.23003	.11762	.205
	1.00	-.10573	.12114	.819
	3.00	-.13996	.26587	.953
3.,00	.00	-.09007	.24052	.982
	1.00	.03423	.24226	.999
	2.00	.13996	.26587	.953

p < .005.

Lastly, we confirmed that family functioning is also healthier when youngsters do not report any digital activities among their priority leisure practices versus when they indicate one or two digital leisure activities among their favorites. Moreover, family functioning is healthier among those who practice one digital leisure activity compared to those who perform two digital activities (X0 digital activity=2.13+0.84; X1 digital activity =1.94+0.80; X2 digital activities=1.87+0.82; F(3, 1608)=8.154, p<.001) (table 3).

4. Discussion

This study reveals that Spanish students of Upper Secondary Education grant value to digital activities in their leisure time, although the importance varies according to the type of practice. In particular, in accordance with other studies and authors, the target participants of this study underscore as priority activities their participation in social networks (Colás, González & de-Pablos, 2013; García, López-de-Ayala, & Catalina, 2013; INJUVE, 2012; Zheng & Cheok, 2011), playing video games (Muñoz & al., 2014; Gros, 2009), and surfing the Internet (García & al., 2013; Gomes-Franco, & Sendín-Gutiérrez, 2014; Muñoz, & al., 2014), whereas other digital activities, like participating in chats, sharing information over the network, online gambling, or writing their own blog are less important to them.

Regarding family functioning perceived by the analyzed young Spaniards, we observed balanced family cohesion, revealing affective links without excessive dependence, healthy flexibility without rigidity or chaos and, conse-

quently, a sufficiently balanced and serene family functioning.

In relation to the link between children's digital leisure and family functioning, this research makes some interesting contributions. For example, family cohesion is healthier when young people do not indicate any digital activities among their predominant leisure practices than when they report one or two digital leisure practices among their favorites. Moreover, family functioning is healthier if the adolescents perform a single digital leisure activity than if they perform two activities. This reveals that lower digital consumption in children is linked to families with stronger emotional ties among family members, possible emotional reciprocity, family engagement, mutual respect between parents and children, as well as the establishment of "internal boundaries" and alliances in intergenerational relationships. These results are consistent with the conclusions of Mesch (2006a) but they contradict the findings of other studies (Kennedy & Wellman, 2007; Fernández-Montalvo & al., 2015; Oliva, Hidalgo, & al., 2012) that confirmed important benefits of digital devices for the cohesion of family systems.

Table 3: Multiple comparisons by Games-Howell: Analysis of the Family Functioning Ratio based on digital leisure

(I) Digital leisure	(J) Digital leisure	Difference of means (I-J)	Standard error	p
.00	1.00	.16462*	.04705	.003
	2.00	.48386*	.09926	.000
	3.00	.29558	.21333	.537
1.00	.00	-.16462*	.04705	.003
	2.00	.31925*	.10395	.017
	3.00	-.13096	.21555	.927
2.00	.00	-.48386*	.09926	.000
	1.00	-.31925*	.10395	.017
	3.00	-.18828	.23259	.849
3.00	.00	-.29558	.21333	.537
	1.00	-.13096	.21555	.927
	2.00	.18828	.23259	.849

p < .005.

We obtained similar findings regarding family flexibility. Spanish students of post-compulsory secondary education who do not place any digital leisure practices among their three priority activities are related to families with healthier flexibility as compared to families whose children indicated one digital leisure activity among their three preferred activities. This shows that families with healthy flexibility can adequately cope with changes, adapt to and learn from different experiences and situations, which can often lead to practical consequences for those involved in the processes of leadership, negotiation, discipline, roles, or rules. These results are more in accordance with authors like Verza and Wagner (2010), who confirmed that the use of digital devices can limit face-to-face relations within the family and increase stressful family situations.

These findings associate children's digital leisure with family functioning; we emphasize that this concept includes cohesion and flexibility. In contrast to the findings of other authors (Kennedy & Wellman, 2007; Fernández-Montalvo & al., 2015; Jupp & Bentlley, 2001), this research confirms that family functioning is healthier when the children do not place digital activities among their favorite leisure practices. In fact, family functioning is more complete when children practice one digital leisure activity than when they practice two. These issues confirm that optimal internal family functioning is related to children's lower practice of digital leisure. This leads to considering that children's greater practice of digital activities fosters unhealthier functioning, translating into a system that is either inflexible or too flexible, with greater dependence among its members and little capacity to cope with the demands of the "Network Society" (Smith & al., 2009). All this hinders positive juvenile and family leisure in which to enjoy interesting, attractive, and enriching experiences that are significantly related to satisfaction with family life (Agate, Zabriskie, Agate, & Poff, 2009; Hornberger, Zabriskie, & Freeman, 2010; Smith & al., 2009).

The conclusions obtained in this research lead us to consider that the new entertainment experiences related to the digital world require an adaptation of the family educational project. Families should receive guidance and education so they can naturally incorporate technology into their daily life (Bringué, Sádaba, & Sanjurjo, 2013). In this regard, it is encouraging to find research that confirms that families express great interest in the use and incorporation of digital media, as well as in receiving training in the use of these devices (Ballesta & Cerezo, 2011).

One of the limitations of this research is the lack of data on shared experiences of digital leisure within the family and their relation to family functioning, in order to confirm our findings of the relationship between family functioning and children's digital leisure. Future research should investigate shared digital activities within the family and determine their potential to improve family cohesion and flexibility and, hence, to make internal family functioning healthier.

We highlight that the present work identifies an association between digital leisure and the family functioning of young students of Upper Secondary Education but it fails to determine the possible causality or direction of the

relationship. Future studies should focus on resolving this issue, which would provide important insights for intervention to improve digital use, conciliating it with a high quality family life.

Supports

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The Emotional Impact of Traditional and New Media in Social Events

El impacto emocional de los medios tradicionales y los nuevos medios en acontecimientos sociales

Dr. Minodora Salcudean is Lecturer at Lucian Blaga University of Sibiu (Romania) (minodora.salcudean@ulbs.ro) (http://orcid.org/0000-0002-1192-0617)
Dr. Raluca Muresan is Lecturer at Lucian Blaga University of Sibiu (Romania) (ralmuresan@yahoo.com) (http://orcid.org/0000-0001-9686-6367)

ABSTRACT
In past times, media were the sole vector to reflect in their entire complexity the events surrounding major world tragedies. Nowadays, social media are an essential component of the media process and classical press channels are connected to the social networking flow, where they can find information and, at the same time, tap into the emotional pulse of society. On 30 October 2015, a Bucharest nightclub was destroyed in a blaze tragedy in which 64 people were killed, most of them young. The present study focuses on how Romanian mainstream media and social media came together and made use of each other, generating post-tragedy side effects. Monitoring was conducted over a period of one month, starting from 30 October 2015, the date of the tragedy, until 30 November. Our investigation method combines content analysis and the interpretation of quantitative data, with reference to parameters such as context, themes, style, genre, and information/opinion rapport. The conclusions of this case study show that the interweaving between media and social media has generated a change of paradigm in mass communication, as a result of which professional journalists continue to play a role as responsible filters.

RESUMEN
En el pasado, al referirse a tragedias, los medios de comunicación representaban el único vector que reflejaba el acontecimiento en toda su complejidad. Hoy en día, los medios sociales constituyen un componente esencial del proceso mediático, y son los medios clásicos de prensa los que están conectados al flujo de las redes sociales, de las que no solo recopilan información, sino también el pulso emocional de la sociedad. El 30 de octubre de 2015, en un club de Bucarest, se produjo un incendio que ocasionó 64 muertes, la mayoría jóvenes. Este estudio se centra en cómo el flujo mediático y las redes sociales en Rumanía se fusionaron y se apoyaron mutuamente, generando efectos secundarios tras la tragedia. El período de seguimiento fue de un mes, desde el 30 de octubre, cuando se produjo la tragedia, hasta el 30 de noviembre. El método de investigación combina el análisis de contenido y la interpretación cualitativa de los datos, con referencia a parámetros como el contexto, el tema del artículo, el estilo, el género periodístico o la relación información/opinión. Las conclusiones de este estudio nos muestran que la conexión entre los medios tradicionales y los medios sociales ha ocasionado un cambio en el paradigma de los medios de comunicación, cuyo resultado es que el papel de los periodistas profesionales como filtro de garantía sigue siendo prioritario.

KEYWORDS | PALABRAS CLAVE
Media, social media, blogs, tragedy, emotional impact, opinion leader, online.
Medios, medios sociales, blogs, tragedia, impacto emocional, líder de opinión, on-line.

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1. Introduction

With events featuring strong emotional impact that extends nationwide and worldwide, the public and media communication are under the direct influence of first-moment reactions which arise and then spread spontaneously at incredible speed and uncontrollably across the online medium. Gortner & Pennebaker (2003: 581) note that, when a tragic event strikes a community, it "produces a collective experience of shock and grief" and one of the first reactions "is that people immediately band together and talk about the experience".

This study focuses mainly on the manner in which the media and social media came together and influenced each other during and after the tragedy that occurred in Colectiv, a Bucharest nightclub, causing the deaths of 64 young people.

We use the term "media" to refer to traditional and news media. The concept, as employed in the present paper, includes all classical mass communication media such as newspapers, magazines, radio and television, and also the online versions of traditional newspapers. The latter belong to mainstream news media, even if they use an electronic format.

"Social media" is a generic term used for various forms of consumer-generated content (CGC) such as blogs, social networks sites, forums, virtual communities, online newspaper reader comments, media files shared on sites such as YouTube, etc. Accordingly, it is not synonymous with "social network sites", as it is a more comprehensive concept.

Being permanently connected to blogs and streaming social networks, mainstream media journalists tend to take shortcuts from direct investigation and delve into the emotion-drenched spirit of social media. This is self-evident in the case of television and professional online mass media. As Nayar (2009: 153) shows, "in the age of tele-trauma, suffering is spectacle". According to Allan & Einar (2006; 2009), Atton & Hamilton (2008), Carlson (2011), Deuze (2012) and Gillmore (2010), there are two main reasons for such behavior: firstly, it is much more convenient and less costly for them to select and pick up ready-made user-authored content. In this regard, social media have become an inexhaustible source of topics. The second reason is closely connected to the increase in rating or traffic, which ultimately translates to money. On the other hand, present-day media consumers, who are at the same time active producers in the virtual realm, are considerably more sensitive and more receptive to emotional enthralment than to naked information and factual reasoning. In this context, Mythen (2010) considers citizen journalism to be a powerful and ambivalent phenomenon which entails advantages but also risks.

1.1. Context

On the night of 30 October 2015, fire broke out leading to a horrific tragedy during a rock concert by the underground band "Goodbye to Gravity" in Colectiv, a Bucharest club. Over 400 people were in the club at the time. On the night in question, 27 people died and almost 200 were injured although in the hours, days and weeks that followed the number of deceased rose to 64. Dozens of other young people were hospitalized in the country and abroad due to their severe burns.

The emotional impact of the tragedy was so great that it initially generated a massive wave of sympathy and, in tandem, an even greater wave of indignation, both very visible online. Organizing themselves quickly through Facebook, hundreds and thousands of people took to the streets of the main cities in Romania to demonstrate against the system and the corrupt political class. On the fifth day of civil pressure from the streets, Prime Minister Victor Ponta resigned. A few days after the Government fell, a proposal emerged for a new Prime Minister and a technocrat Government.

In the tense context of manifestations, and using a poorly inspired declaration of the Orthodox Patriarch Daniel as a pretext, an additional revolt arose against the Orthodox Church, an institution that is a symbol of Romanian spiritual identity. Social networks hosted a bitter anti-church campaign, enhanced and reinforced by clamors from the street, which accompanied day after day of protests across the country.

Naturally, the press in Romania accorded generous, consistent and diverse media coverage to the tragedy. In the hours and days immediately following the fire, the mass media initiated a flow of breaking news. According to Spiridon and Delcea (2015), the first information on the fire was broadcast simultaneously on the Mediafax news agency and the Digi24 television channel at 23:15, approximately 45 minutes after the first telephone call to the emergency services. After midnight, Facebook began to show the first lists with the names of victims, written in longhand, along with photographs of the dead and other lists of injured people admitted to different hospitals. "There are moments when Facebook functions like a press agency of this particular tragedy" (Spiridon & Delcea, 2015).

1.2. The influence of social media on traditional media

When unpredictable events such as tragedies occur, it is very unlikely journalists will be present on site at the very instant of occurrence. Since 9/11, the trend has been for laypersons to replace the mainstream media by recording relevant spectacular, first-hand frames, which they subsequently post on their personal accounts on the various social networks they use (Palen & Liu, 2007; Mythen, 2010). Some of this footage then goes viral.

As Oliver (2015) notes, "Social media is the best in the minutes after because there's an almost instantaneous spread of reports from the ground. When big news strike, traditional news outlets seem to be always a step behind, often relying on the same reports that crowd your feed".

Up to a point, this is a natural occurrence. Technology and mobile Internet, but also the civic instincts of people, have generated alternative forms of journalism based on the spontaneity and involvement of citizens who witness events.

As an event unfolds or its consequences generate another chain of events, the mass media and social media continue to interrelate, sometimes to the point of becoming confused with each other, which means capturing, producing and transmitting content they consider to be of general interest or relevant for a certain target public only. For professional journalists, the documentation and verification of sources are often stages that may hinder and delay the process of information reaching the public, whereas many common users, unhampered by these principal filters, can instantaneously post and distribute the most diverse content relating to the tragedy.

> As a professional media entity, adevarul.ro played a filtering role, taking authentic information and attributed opinions from social media, indicating the sources in nearly all cases. This aspect is important in terms of the interweaving of media and social media, given that rumors, false information, highly aggressive personal attacks, and moves towards the political appropriation and exploitation of events were insidious traps for professional journalists.

Gillmore (2010: 27) considers that "big breaking stories are literally exciting. They're often about death or the threat of death, or they otherwise create anxiety. Neurological research shows that the more of your personal bandwidth anxiety takes up, the less clearly you think".

Therefore, along with prompt, factual and equidistant journalistic feed, one finds authentic and useful content, as well as false information, and faked or biased opinions. Moreover, social media represent a space of emotions, of subjectivism and of extreme reactions (Serrano-Puche, 2016: 21). However, as Yates & Paquette (2011: 7) have argued, "bringing together various players with different expertise and contexts, and providing some level of common ground between them" are social media's strengths.

Atton and Hamilton (2008: 86) offer their perspective on the above by noting that "Alternative media are characterized by their explicitly partisan character. In the language of ethics, they exhibit clear biases, yet they proclaim their selectivity and their bias, and generally have little interest in balanced reporting". Clearly, any event with a strong emotional impact will ripple down onto social networks, where there is no censorship and people feel entitled to express themselves freely. Last year's tragic events in Europe, such as the terrorist attacks, received their own generous share of prompt and extremely diverse reactions in themes and intensity across the social media.

This reality is summarized by journalist and blogger Nick Denton (2014), head of Gawker Media, in a self-critical article pleading for truth, honesty and professionalism in the online medium. In his own team, too, the race for quantity has affected the quality of published content: "Editorial traffic was lifted but often by viral stories that we would rather mock. We - the freest journalists on the planet - were slaves to the Facebook algorithm".

1.3. Influencers on social media and in real public space

Web 2.0 applications have fundamentally modified the paradigm of mass communication. Social media have become the main arena for debates, providing space for the public voice of citizens. The de-monopolization of mass

communication is a phenomenon that has spawned adjacent phenomena, such as the creation of professional or interest communities and the rise of informal opinion leaders with the power to focus, concentrate and influence various categories of users (Meraz, 2009).

In the delineation of the mainstreams of opinion (a pro and con debated topic), formal and informal leaders play an essential role on social media.

Through likes, comments or distributions received for their content on blogs and social networks, fans, followers or supporters enhance the symbolic image capital of influencers. In highly tense contexts, although not only there, users confess their adherence to a dominant opinion stream by sharing the perspective of an influencer. In other words, in online debates, texts written by opinion leaders often work as authoritative arguments, good enough to underwrite reactions and attitudes.

Barratt (2014) states that categories which are well-known as providers of opinion leaders include journalists, university professors and experts, artists, and celebrities.

2. Material and methods

The methods considered for the present study were an analysis of the content (themes, perspectives, style) of the media and social media during a period of one month following the tragedy, and the interpretation of quantitative data provided by Zelist.ro (the most important platform for social media monitoring in Romania) and by the adevarul.ro site.

We chose to combine and corroborate data from two relevant quantitative sources, namely, Zelist.ro – as mentioned, the most important Romanian platform for social media monitoring; used by important state organizations (such as the Romanian Ministry of Communications and Information Society) as well as private organizations (Forbes, for example) – and the website of the Adevarul newspaper, adevarul.ro, one of the most widely-read and popular press sites in Romania, with national coverage and a very clear code of conduct. The adevarul.ro site is constantly ranked in 3rd place in both the "General news" and "Mass-media" categories, according to traffic.ro site, and is surpassed only by two highly sensationalist/tabloid sites.

A vulnerability of the data provided by the Zelist.ro platform is that it only monitors public Facebook pages, not personal profile ones. In the absence of the latter data we can only approximate the impact of the tragedy on this online segment, which we have not been able to investigate directly for objective reasons, but rather only by corroborating other information, such as media analysis or highlighting the popularity of content that went viral. In order to analyze the online medium after the Colectiv Club tragedy, we focused on monitoring the most relevant segments of social media: blogs and Facebook. The latter remains by far the top preference for Romanians, with 8,300,000 users at present, according to http://facebrands.ro/, the Facebook pages monitor in Romania.

According to Oprea (2015), the manager of the Face brands analytic service and of the Standout marketing and communication agency in social media, "social networks and blogs remain the most dynamic and interactive media nationwide, and we expect them to continue to consolidate their position in 2016 also".

Our monitoring was performed over a one-month time period, from 30 October 2015, when the tragic event occurred, until 30 November. The site's search engine allows results for a given interval to be listed following two criteria: timeline and popularity.

Regarding the popularity criterion, we noticed that the search engine uses an algorithm based on the number of distributions, number of likes and number of comments.

Although we used the term #Colectiv and the timeline criterion, the search engine displayed all results for the given month (7,495 articles) and we therefore performed the rest of the selection manually, by titles and key words. We viewed approximately 860 journalistic contents relating to the Colectiv tragedy which were published on the adevarul.ro site between 30 October and 30 November. Our analysis related to content and was based on interpreting figures (number of distributions, likes or comments, direct observation of attributing sources) as well as on the interpretation of the most significant text clip-outs to reveal the way in which mass media and social media blend.

3. Analysis and results

All journalistic genres are covered on the adevarul.ro site, although the most frequently occurring is news text (news spot, broad news articles, updates). As in all Romanian media, there is a growing trend towards opinion-flavored discourse, as well as a growing preference for subjective approaches, a direct consequence of the interlocking between social media and media.

From a topical perspective, the scope of approaches to the event and connected developments is wide and correlative. On the first day after the tragedy, most materials refer directly to the persons involved (deceased, injured, unidentified persons, relatives, friends, participants, witnesses, club owners, members of the band), as well as to donating blood, on-site aspects of the club, messages from officials, etc. In the following days, as events unfolded, the scope widens considerably, with instructive articles concerning donating blood or skin, first aid for burns, national mourning, postponed or cancelled concerts and other events, clubs being closed down or under scrutiny, similar tragedies, sales of fire extinguishers, etc. As of the second day after the event, the first news concerning street demonstrations began to appear. Initially, these demonstrations were intended to express sympathy for the victims and their families.

In the week following the tragedy, manifestations of sympathy gradually turned into street protests, clamors, organized marches, collective demands, etc., culminating in the resignation of Prime Minister Victor Ponta on 4 November 2015. From a topical point of view, content (with text, photo and video) referring to protests was predominant, especially between the second and the eighth day post-tragedy. After the tenth day, the Current Events section featured associated articles regarding the street manifestations and their political consequences. After this period, the subjects of incoming materials related to subsequent deaths, the condition of the victims, an inquiry to establish accountability, the closure of many unlicensed clubs, charitable actions, medical or psychological views concerning the events, etc. Opinion articles continued to be published, but to a lesser degree, a sign that the emotional climax had passed. The subjects of the latter articles focused on victims' profiles/stories, messages from celebrities, personalities and public figures, taken from their blogs or Facebook accounts.

3.1. Blending of social media and mainstream media

The phenomenon of overlap and intertwining between social media and media is present also to a high degree in Romania in the case of the Colectiv tragedy. According to information from the online monitoring platform, Zelist Monitor, during the period 31 October-30 November, the words #Colectiv and various associated words achieved 66,985 Facebook postings and 62,925 occurrences in the online press. Bearing in mind that the Zelist platform only monitors public Facebook profiles, as well as other social networks and blogs, the proportion seems to be clearly in favor of social media, as is natural. The intensity with which the event was addressed on personal Facebook pages cannot be gauged with quantitative instruments, although it can still be interpreted according to the level of popularity of some content that went viral.

The primary context of the tragedy –in particular the late hour (22:23) when the fire broke out, as well as the type of venue (an overcrowded and panic-stricken nightclub)– meant that the first pieces of news were released by the mass media, since journalists from the Current Events section are permanently tuned into the crisis management institutions, such as the Emergency Services and Ambulance Service.

In less than an hour, information, pictures, opinions and reactions had already begun to circulate online. Within a very short time, a matter of hours, there was an explosion of social media messages containing a variety of emotional reactions, passionate opinions, calls for solidarity, initiatives to take to the streets, other Facebook-triggered events, an initiative by Facebook users to add a uniform symbol of sympathy to their profile picture, or the sharing of songs by the headline rock band, photographs of victims, footage from the concert taken seconds before the fire broke out, etc.

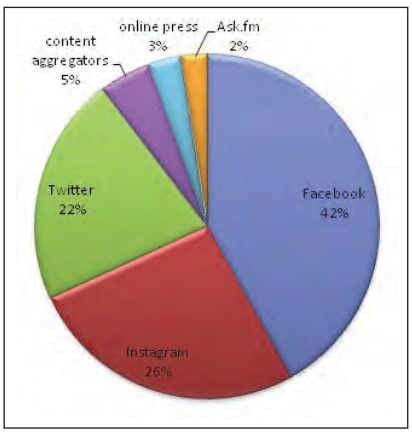

Figure 1. The hashtag #Colectiv on social media in the first 12 days.

After the tragedy, social media operated as a tool of maximum utility, with users reacting spontaneously and with great solidarity in a very short time. The first lists with names of the injured were picked up by adevarul.ro from social media, where they had begun to circulate shortly after the fire broke out. According to Preda (2015), "The lists were taken from Facebook, and some of the injured may be moved to other medical centers before morning. The article will be updated as soon as new lists appear".

In addition, requests for blood invaded the online and circulated simultaneously in the media and social media. The third news item chronologically from the adevarul.ro site regarding the event featured a call from the Romanian

authorities for donations of blood. This news item achieved 2,029 distributions, revealing the high level of interest among users for such factual and useful information at the very moment tragedies occur. Very soon, thanks to social networks, firstly in Bucharest and soon after across the whole country, hundreds of people –particularly young people– formed long queues at blood banks as proof of unwavering solidarity.

Another example this time of moral solidarity was the creation of the group "Nimeni in cluburi! Astazi nu iesim in club!"[Nobody in clubs! Today we're not going to clubs!], the first in a series of Facebook-originated post-tragedy groups. Referring to the popularity of the sympathy movements, adevarul.ro wrote on 31 October "Even before this information was made public, over 14,000 people had joined in".

Further research shows that, even more interestingly, the name of this group was changed to "Nimeni in cluburi! Mai bine in strada!" [Nobody in clubs! Better on the streets!]. This version can be found currently on the Internet. This aspect is important because it shows how user intentions changed and how events evolved a few days after the tragedy.

As is natural, the level of emotional load in the mass media and especially on social media reached its highest point between 1-10 November, after which the intensity of broadcasts and coverage of the tragedy and its consequences declined notably. According to information provided by the Zelist Monitor online monitoring platform, during the first 12 days after the tragedy the hashtag #Colectiv was mentioned 50,588 times and registered 575,006,000 impressions.

The hashtag was mentioned more by men (61%) than by women (39%). Most discussions on the topic originated in Bucharest (68.5% of postings are from accounts with social and demographic info) and in Transylvania (9.5%). The persons who mentioned #Colectiv on most occasions were aged 30-34 (36% of postings from accounts with social and demographic info).

It is interesting to note the two most important articles concerning the #Colectiv tragedy published on social media between 30 October and 11 November. In first place, with 33,912 re-postings and 460 comments, having gone viral in the days following the fire, was an article penned on 1 November 2015 by a journalist from Gandul.info, Cristina Andrei (2015), entitled: "With 18,000 Churches and 425 Hospitals, We Are Watching Our Brothers Die on Pavements". By using a slogan voiced by protesters on the second day of street action, she publicized the idea that Romania had invested more in building churches than in the construction or renovation of hospitals, thus forcing many burn victims to be hospitalized abroad due to the lack of resources to be treated in their own country. In the following days, social media messages regarding the involvement or lack of involvement of the Church in the Colectiv tragedy exploded furiously, aggressively and with a high emotional charge, polarizing entire communities of onliners to extremes. New themes to emerge in the debates included the association of rock music with satanism or the tarnished image of the Patriarch, not to mention several unflattering figures of priests, etc.

In second place in the Zelist ranking is a "letter" published on the Hotnews.ro site and signed by a certain Adrian (2015), who calls himself "a surviving witness of the Colectiv Club fire". The text is both a description of the very tense and painful moments of the tragedy and an indictment aimed at official institutions and authorities whom the author considers responsible for the failures in managing the rescue operation. The source of the letter is not given by the hotnews.ro journalists and we therefore contacted one of them on Facebook in order to find out more about the origin of this quasi-anonymous text. The answer received was that the letter had not been taken from social media but rather was handed in by the author himself, who asked for his identity not to be disclosed. Ultimately, this text could have been written by anybody, including one of the hotnews.ro journalists themselves. This is a relevant example given that, without having a precise source, the text became very popular on social media thanks to media endorsement and its immediate amplification. The Digi24 TV channel, considered to be the most balanced in news reporting, mentioned the hotnews.ro text in three newscasts but without allowing the accused party to defend itself, which is why the channel was fined by the country's broadcasting regulator. The foregoing shows how, in the interplay between media and social media, emotionally-laden contents are often validated by media and recuperated by social media, thus enhancing their popularity exponentially.

Between 1-10 November, of 758 articles referring directly or indirectly to the Colectiv Club fire, around 122 are opinion columns (included here also are personal perspectives by some politicians). In addition, during this time and with reference to the same number of articles, in roughly 100 we identified full or partial re-postings from social media. We have not included here references to social networks that appear in most of the materials used in the calls for protest.

Between 11-30 November, interest on the part of Romanian media in the Colectiv tragedy declined generally once the protests had stopped. During this period we identified 102 materials containing direct or indirect reference

to the subject. Of these, 12 are opinion articles (or ones containing mostly opinions), and 18 contain full or partial reposting from social media. In a few cases (not included here), although the named source of quoting was mentioned, there is no mention of the location it was taken from. In one case, given that the text is somewhat longer, it is inferred that it may have been taken from a social network.

Figure 2. The most viewed article concerning the #Colectiv tragedy on social media [18,000 churches, 425 hospitals, and we watch our brothers die on pavements. Marching for Colectiv].

An analysis of the most popular articles on the adevarul.ro site between 11-30 November reveals that no article concerning the Colectiv fire or its consequences figures among the top 30, according to the search engine. However, on 28 November we spotted material signed by Raduta (2015a) that was re-posted from social networks. This highly emotional letter from a mother to her dead son achieved 1,059 shares (most of them within the aforementioned period, on the topic of Colectiv) and was among the texts that went viral online.

Over 80% of the materials that appeared during this period (news, articles, interviews) have informative content or feature topics related to the main theme of the tragedy. The number of shares varies from zero to a few dozen, considerably less compared to the previous periods analyzed.

3.2. The role of influencers in polarizing user communities

In the case of tragedies, opinion leaders become social vectors for the polarization of attitudes and reactions (Zhang, Zhao, & Xu, 2016).

Already a well-known blogger on account of his civil activism, artist Tudor Chirila, who already attracted thousands of likes and hundreds of shares of his Facebook postings, saw his popularity grow exponentially during the period and he became a role model for many young people.

In the wake of the Colectiv tragedy, the involvement of Tudor Chirila, whose blog occupies first place in the Zelist ranking, is the most telling example of a role played by an influencer in the online. After the fire, Tudor Chirila posted on his personal blog and on Facebook several texts calling for mobilization and urging young people to go out and protest. During the anti-system demonstrations on 4 November, adevarul.ro republished an entire posting by him in which he incited people to take to the streets. Here is a relevant quote:

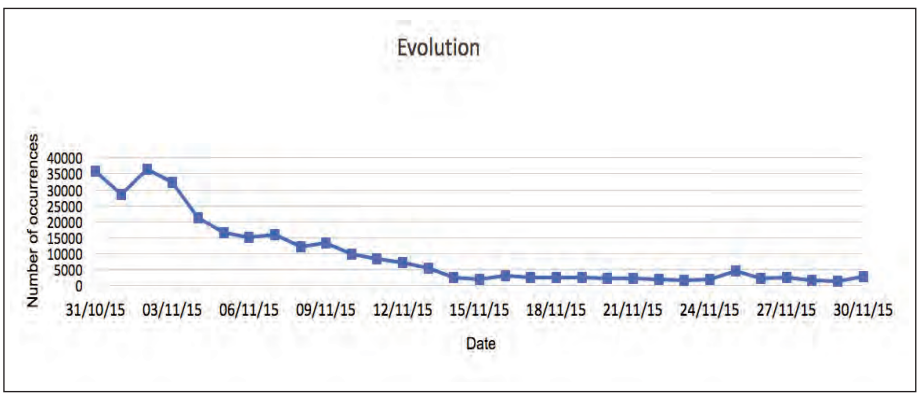

Figure 3. Evolution of #colectiv mentions during the month following the tragedy. [Evolution. Number of appearances].

"The pressure of the streets has to continue. The political class in its entirety is compromised. Its replacement is difficult and ties consuming. Yet, this must not discourage us. The only solution is our solidarity. We must go out

in the streets until they understand that they have to leave. All of them. And leave their places for others who can do something real for their country. Today there should be more of us in the streets than yesterday. We ought to be wary of their attempts to regroup. Tonight I will go out to the streets again. It is the only and most important weapon I have" (Raduta, 2015b).

On 6 November his most popular Facebook post on the protests achieved 17,106 likes, 3,695 shares and 893 comments and was reposted by a large proportion of Romanian media, including adevarul.ro, who reposted it in full, despite its considerable 6-paragraph length (Constanda, 2015).

Another prime example of an influencer is journalist Victor Ciutacu, one of the oldest and best- known journalist bloggers in Romania. We have chosen this example for two reasons: this blogger occupies second place in the Zelist ranking, so his popularity score is very high. The second reason, essential to our study, is that, in the context of the street protests after the Colectiv tragedy, his stance as influencer clashes with the dominant trend on the Romanian online. During the time period monitored, Victor Ciutacu had eight postings on his blog referring to the tragedy and the ensuing protests it sparked. The top three ranked postings in terms of views and sharing rates contain opinions critical of the protests and the protesters.

One of the most widely viewed and distributed of Ciutacu's (2015b) postings on the topic of the anti-system protests on the most dramatic days after the tragedy (4 and 5 November) was "Revolt. Protest. Coverage. Anger. Blood". Here the blogger journalist is critical of the protesters, speculating that they might be manipulated by political interests. In other words, Victor Ciutacu is voicing the opinion that the street protests had been appropriated by groups with ideological interests, who took advantage of young Romanians' naivety, ignorance and resentment. This position is also expressed in a short post entitled "The Angry Caliphate of the Facebook generation" (Ciutacu, 2015a), which was also one of the most viewed and followed.

4. Discussion and conclusions

During the initial hours and also on the first day after the tragedy, social media and the media operated complementarily. Important and useful information featuring lists with names of victims, calls for blood donations, early testimonies and declarations circulated both ways. In one day alone, approximately 80 articles appeared on the adevarul.ro site, 20 of them with full or partial re-postings from social media and 9 opinion articles.

From 1 to 10 November, the number of journalistic materials devoted to the fire tragedy reached peak levels. Although the number of news and informative articles was much greater during this period, their popularity on the adevarul.ro site and on social media was much lower. During the period of protests, social media constituted the prime and preferred space for communication and organization, as mentioned frequently by adevarul.ro and the main TV channels in Romania. During this period of maximum publicity, social media were a precious source of information and completion of articles with opinions and statements.

Figure 4. One of the most viewed postings of an influencer from Romania. ["The angry caliphate of the Facebook generation" Harsh Words' blog by Victor Ciutacu].

As of 10 November the number of tragedy-related articles declined dramatically, falling to 102. During this period, the most shared article (1,059) was a very emotional text taken from social media.

On the adevarul.ro site, the articles enjoying the greatest popularity during the month following the tragedy were of the non-informative type, together with extremely opinionated and impassioned ones, with emotional confessions pulling on upper-end emotional strings.

The situation on adevarul.ro is, to a large extent, emblematic of the approach of the classical and digital media in Romania. The professional press paid special attention to the chain of events generated by the fire at the Colectiv

Club, permanently monitoring social media and picking up from here a significant amount of information and, in particular, opinions. The rapid conversion of manifestations of solidarity into anti-system protests and their evolution became predominant themes in the Romanian media. From a quantitative point of view, days 4 and 6 marked the climax. Most materials over the ten days after the tragedy were related to the street protests. Many adevarul.ro correspondents across the country reported that the people, especially young people, were mobilizing via Facebook, switching from simple mobilizing messages and spontaneous civil impulses to creating events and groups dedicated to solidarity movements and anti-system protests, as the manifestations were generically dubbed.

Like the majority of Romanian media the adevarul.ro site functioned during this period as an intermediate vector for the consolidation and enhancement of the transmission of messages from social media. These two functions conferred a twin role on classical media, namely, as a transmitter and at the same time guarantee of the information circulating on social media.

As a professional media entity, adevarul.ro played a filtering role, taking authentic information and attributed opinions from social media, indicating the sources in nearly all cases. This aspect is important in terms of the interweaving of media and social media, given that rumors, false information, highly aggressive personal attacks, and moves towards the political appropriation and exploitation of events were insidious traps for professional journalists.

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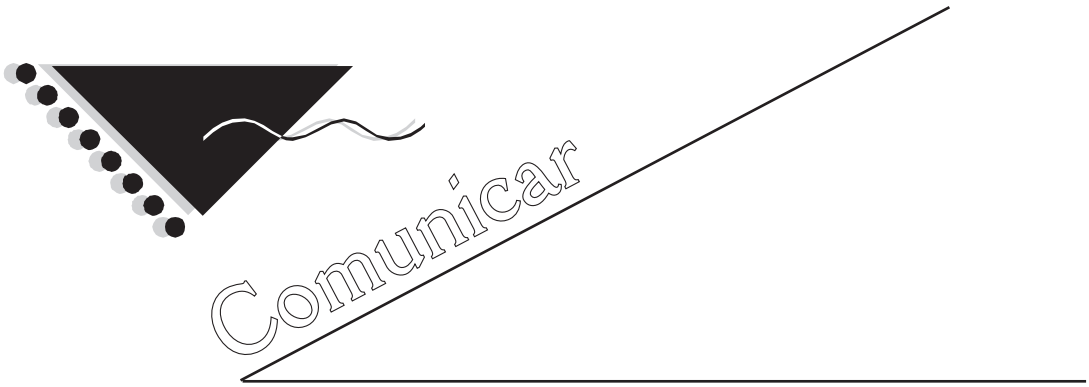

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