

Narrative scripts embedded in social media towards empowering digital and self-protection skills

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Abstract. Social media has become an important part of adolescents' lives, with an increasing number of teenagers spending a great part of their time creating, sharing, and socializing with online content. Although the popularity of social media keeps growing, different studies identified threats and dangers that exist in such networks. From harmful content to negative behaviors, users can fall victim to negative social media phenomena that can affect their mental health and wellbeing. Several media literacy initiatives have been designed to promote social media awareness amongst the youth using traditional approaches to teaching about social media risks and threats. However, these approaches are limited in enabling deep reflection about the dangers behind their social media interactions and empowering their empathy, perspective-taking, critical thinking, digital and self-protection skills. This demo paper introduces a perspective in this context proposing the integration of educational opportunities within social media. The proposed approach is designed as a social media simulated learning platform where embedded learning activities follow a novel “narrative scripting” approach, in which Computer Supported Collaborative Learning script mechanisms are combined with counter-narratives strategies.

Keywords: Social media, digital skills, self-protection skills, CSCL scripts, counter-narratives

1 Pedagogical and technological background

As digital media is more present in teens' lives, the use of Social Media (SM) sites leads as their favorite activity [1]. Yet, the existence of harmful content and toxic behaviors would make adolescents be exposed to dangers in the SM environment [2]. Recent studies suggest that most adolescents have had a negative experience in social media; nevertheless, only a few of them have asked for adults' advice or mediation [3]. Negative experiences in SM can affect adolescents' wellbeing [4]. Some of the potential harms of SM exposure include its impact on self-esteem, eating attitudes, or depressive disorders. Moreover, some studies have connected its prolonged use to addictive behaviors and anxiety [6]. In response to that, different actions have taken

place to reduce the impact of SM exposure. While the regulation of social media networks is still a debating issue in most countries, digital education has been foreseen as a more effective action [7]. Different media literacy initiatives have taken place in order to promote both digital skills and social media awareness (e.g. [8], [9]). Although educating about SM currently involves different issues, there is still the need to promote SM awareness; especially when interventions have centered on traditional methods such as the persuasive discourses based on fear and risks, in addition to the formal structure some of these have adopted within the school curricula [9].

The COURAGE project introduces a new perspective in this context proposing the integration of digital educational opportunities within social media [10]. This paper proposes an approach designed as a social media simulated learning platform where embedded learning activities follow a novel “narrative scripting” approach. Our proposed notion of “Narrative Scripts” (NS) borrows design elements from the Computer Supported Collaborative Learning field in combination with the use of narrative pedagogy strategies (see Table 1). When narrative scripts are applied to educate about social media, it leads to learning scenarios in which students are immersed in SM stories that expose them to counter-narratives - and conversations about counter-narratives - of biases, discrimination, or attitudes and behaviors in what (and how) is spread online. Such an approach can support learning by raising awareness through motivation, external thinking, empathy, responsibility, and perspective-taking, while at the same time develop digital and self-protection skills related to SM.

Table 1. Pedagogical strategies behind the formulation of “narrative scripts”

Narrative Scripts (NS)
<p>Narrative – Storytelling: provides students with motivating, engaging, authentic scenarios suited to their personal experiences, making the content seem important and valuable [11]. Storytelling has been reported as an effective approach for helping students to generate new ideas and organize their knowledge, improving the students' comprehension of the learning content. After successfully completing challenging tasks, students who are actively involved in learning gain confidence and motivation.</p>
<p>Narrative - Counter-narratives: The use of narratives within an educational content also enables having students exposed to contrasting or opposing views about certain concepts or realities. Having students exposed to counter-narratives [12] that challenge previously made assumptions can generate learning through awareness about cognitive conflicts and bias and the need to organize and contextualize the phenomena behind the narratives.</p>
<p>Scripting - Scaffolding: Structuring the learning method through small, manageable steps for students to complete across a learning path that is aligned with their previous knowledge and has been designed to lead them to expected learning outcomes [13].</p>
<p>Scripting - Structuring social interaction: CSCL scripts structure a collaborative learning flow (group formation, sequence of tasks, role rotation, etc.) to facilitate the triggering of desired social interactions leading to fruitful learning. Conversation with rich argumentation is one of these key social interactions as it promotes productive ways of thinking, conceptual change, and problem-solving. These can be achieved by pairing students with contrasting opinions to work on a task (ArgueGraph [14]), by distributing pieces of knowledge (Jigsaw [15]) or by confronting views through a consensus-building process in collaborative social groupings (Pyramid [16]). In the case of narrative scripts, the conflicting perspectives leading to productive interactions are provided by the (counter-)narratives.</p>

There are several CSCL tools that enable the design and implementation of collaboration scripts (see examples in the last row of Table 1). We propose an integration of CSCL script tools in SM platforms operationalized with stories framing missions to be solved through scripted sequences of tasks. A first prototype of NS educating about SM integrates the PyramidApp tool [16] into the PixelFed platform [17]. PixelFed is an open-source SM environment that reflects the features of a photo sharing social network. PyramidApp implements scripts based on the Pyramid collaborative learning flow pattern, which enables individuals to share their perspectives about a narrative and to contrast them through argumentation and consensus-building across incrementally larger groups [18]. The current platform consists of a frontend written in HTML, with the Javascript framework Vue.js, as well as a backend with a MySQL database supported in the Laravel PHP framework.

2 Description of the prototype and use case

The prototype of NS embedded in SM is a responsive web-based application that works as an interactive learning environment. The implementation includes a full-fledged script focused on social media behaviors (Digital Self), with tasks involving free-roaming inside the platform, guided roaming following a (counter-)narrative, quizzes, mini-games, or participating in structured group tasks (Fig. 1). Students are required to register to access the learning material. A classroom ID is also required to enable teachers to run synchronous activities and enable specific topics of interest to their class. Once the student is registered they can start using the platform to share and browse photos or videos. The NS are accessible through a learning progress page.

A *use case* illustrating the developed prototype is as follows: A high school teacher is worried about the digital footprint her students might be leaving behind them. She, therefore, initiates the Digital Self narrative script activity and shares a classroom ID with her students. The students use the ID and enter the chat in the SM platform where a fictional character initiates a conversation with them. The students can reply with predefined options or in some cases with open text, Likert scales, or checkboxes (Fig 1a). The character narrates a story regarding employing influencers to promote the SM platform and shares information about them that it found online (e.g. photos, videos, reviews and posts the influencers might have posted some years ago) (Fig 1b). The character prompts the students to reflect on the digital footprint the influencers might have left behind by asking them questions related to the information that was found online. The students reflect on three influencers. Each influencer has a different kind of digital footprint. Once the students go through all three influencers the script initiates a scripted collaborative activity (Fig 1c), where the students have to individually reflect on how much social media knows about us and then collaboratively choose or propose a better answer. The activity then ends. The students should now have become more critical about the information they share online.

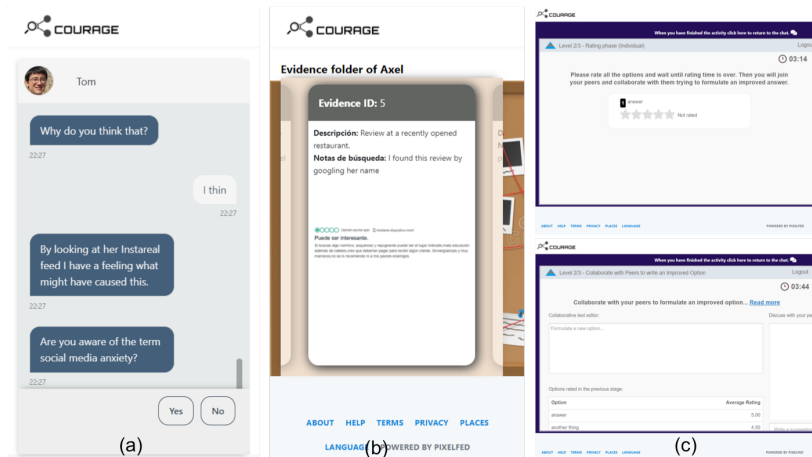


Fig. 1. Screenshots of (a) the chat interface where the NS take place embedded in the SM. The student can answer with predefined answers, free text, Likert scale, or checkboxes. (b) A task within the script referred to as the evidence folder. (c) A collaborative task with PyramidApp

3 Preliminary results and future work

Before the development of the first version of the web-based prototype, we conducted a pilot study with 50 teenage students (20 females, 29 males, 1 did not specify) (Mage = 18.2, SD=1.9). The purpose of the pilot studies was to evaluate the learning material and the activities' intrinsic motivation levels. The pilot studies were in the format of a virtual workshop. The students completed tasks with material based on the Digital Self script. In the end, a motivation questionnaire extracted from the intrinsic motivation inventory (IMI) [19] was used to measure their interest/enjoyment levels during the workshop. The results showed that students found the material interesting (5.06 - average agreement of Interest/Enjoyment IMI scale w/ 1=Not at all true; 7=Very true) and would recommend the provided material to younger teenagers (6.18 - average agreement of the statement "I would recommend this material to younger teenagers" w/ 1 = Strongly disagree; 7 = Strongly agree). Moreover, through the analysis of the results, we found it important to make changes related to guaranteeing the reinforcement of student's previous knowledge with concepts in which to base their reflection and argumentation and revisions to the clarity of the (counter-)narratives.

Teaching teenagers about SM risks and threats in a SM environment can enhance not only their knowledge/awareness about a problem but to sharpen their emotional skills, preventing toxic behaviors and unhealthy attitudes. In this vein, we aim to consolidate the research work testing the NS to assess the implication of social interaction, participation, motivation and learning gains. Forthcoming research also encompasses the implementation and testing of adaptive scripting strategies aligned with students' learning needs, e.g. by assigning learners to counter-narratives that can especially contrast with assumptions and prior knowledge.

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