FeSTEM community platform: creating meaningful, mentoring relationships with experts in STEM

George Pallaris
Department of Multimedia and Graphic Arts/ Cyprus University of Technology
Limassol, Cyprus
pallaris@ibsc.com.cy

Antigoni Parmaxi
Department of Multimedia and Graphic Arts/ Cyprus University of Technology
antigoni.parmaxi@cut.ac.cy

Irini Christou
Department of Multimedia and Graphic Arts/ Cyprus University of Technology
eirini.christou@cyprusinteractionlab.com

ABSTRACT

This poster presents an overview of an e-mentoring platform that aims to link Higher Education (HE) students in Science Technology Engineering and Mathematics (STEM) with experienced mentors in the field. Given the nature of this venture, we democratized the design process, encouraging for multiple voices from different stakeholders to be heard and inform the design process. This poster demonstrates the process adopted for building FeSTEM (Female Empowerment in Science Technology Engineering and Mathematics) e-mentoring platform and concludes with implications for research and practice in maximizing users' involvement in the design process.

CCS CONCEPTS

• Human-Centred computing • Information systems

KEYWORDS

e-mentoring, STEM, community platform, network platform

1 Introduction

Community building and networking play an important role for the academic career in STEM, especially for women [1–3]. Likewise, mentoring is beneficial not only for the students, but also the mentors or employers, who improve leadership skills [4]. In addition, previous studies found that the use of Web 2.0 community platforms allowed students to create more powerful bonds with their educators and fellow students, resulting increase in their engagement [5,6]. The FeSTEM e-mentoring community Web 2.0 platform aims to link Higher Education (HE) students (male, female and non-binary) in STEM with experienced mentors in the field, as learners rely on mentors' expertise and experience to help them graduate on time and advance in their careers [4]. Given the nature of this effort, special attention is given in building a space that will match the end-user's needs while providing easy to use and highly intuitive user interface. This poster provides the process followed for informing the design through multiple venues.

2 E-Mentoring

E-mentoring has become a popular method of overcoming the challenges associated with being mentored by men [7]. Previous findings indicate that even in a virtual environment, mentor gender has an impact on the mentoring relationship, but when adjusted according to the necessary environment for the mentee to advance, an e-mentoring program can advance their career dramatically regardless of the mentor's gender [7]. Studies also support that well-designed and implemented e-mentoring, has the potential to increase the social capital of both girls and female professionals [8] and may be as effective as face-to-face mentoring [9]. Previous studies also highlighted the need for more research on mentoring experiences in higher education [7], just like the FeSTEM platform.

3 Methodology

Ethnographic and scenario-based methodologies and techniques were employed to capture and document user needs. Ultimately, by putting users in the heart of the design process, we aim at attracting a higher number of target users and at the same time tackle with unauthorized use.

4 Findings

Capturing and documenting user needs is an essential part of the development of the FeSTEM e-mentoring platform (See Figure 1). This step informed us on how our intended users are expected to use our platform, and eventually develop the platform in a way that will cater for the needs of its intended users [10].

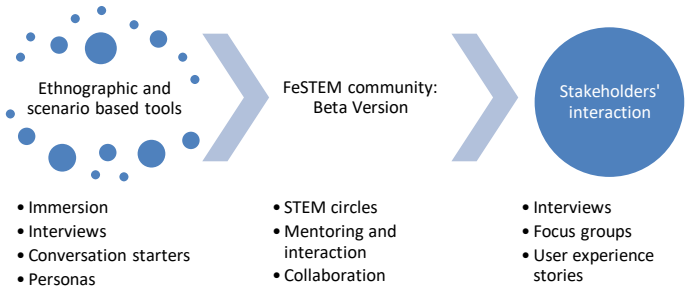

Figure 1. Democratizing the design process.

5 Platform Overview

Open-source technologies were used for the development and hosting of the platform. Apache Webserver was used to host the platform while MySQL / MariaDB were used to host the database. Regarding the development of the platform, WordPress was employed which is an open-source Content Management System and Buddy-Press which is an open-source social networking software package. The two systems were then adapted to the actual requirements of the project and the end users (see Figure 2).

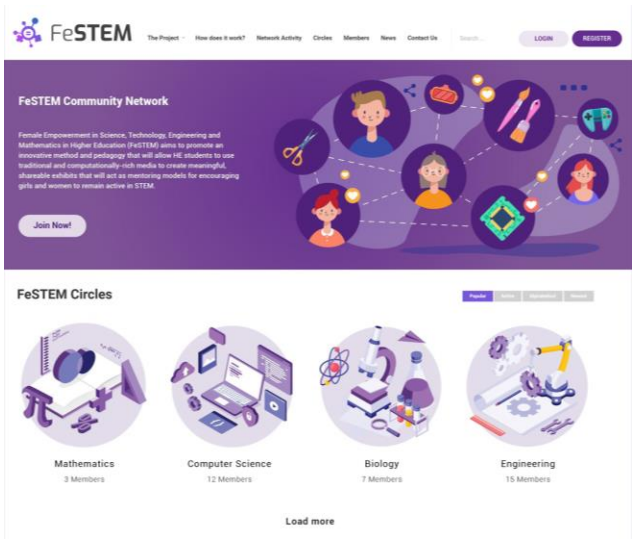

Figure 2. FeSTEM platform interface (Beta version).

The end platform is an interactive Web 2.0 based soliciting ideas and contributions and provoking debate and discussion. The Beta version of the platform hosts various communities, the so-called "Circles'. Circles have a prominent place on the platform encouraging discussion and interaction between users with common interests. The content of each circle is driven by the users in the format desired or in the format determined by the administrators of each Circle. In addition, every Circle has its own forum to encourage discussion, improve communication, increase collaborations and ultimately engage the members to their Circle and the platform in general. Except Circles, members are able to search for people that they know and then build up their own network of friends (see Figure 3).

Lastly, great importance is given to ensure the security of the platform and the privacy of its members. Accordingly, the platform will allow members to fully manage their privacy, while at the same time comprehensive security platforms will offer proactive real-time platform protection and web server security.

6. Conclusion

Active engagement of users and consideration of human factors is instrumental in making decisions in all stages of the design process. User-Centered Design approaches can enlighten the design process and avoid flaws and strengthen usability and user-friendliness. The beta version is currently available and we invite people to join here (https://festem.network/).

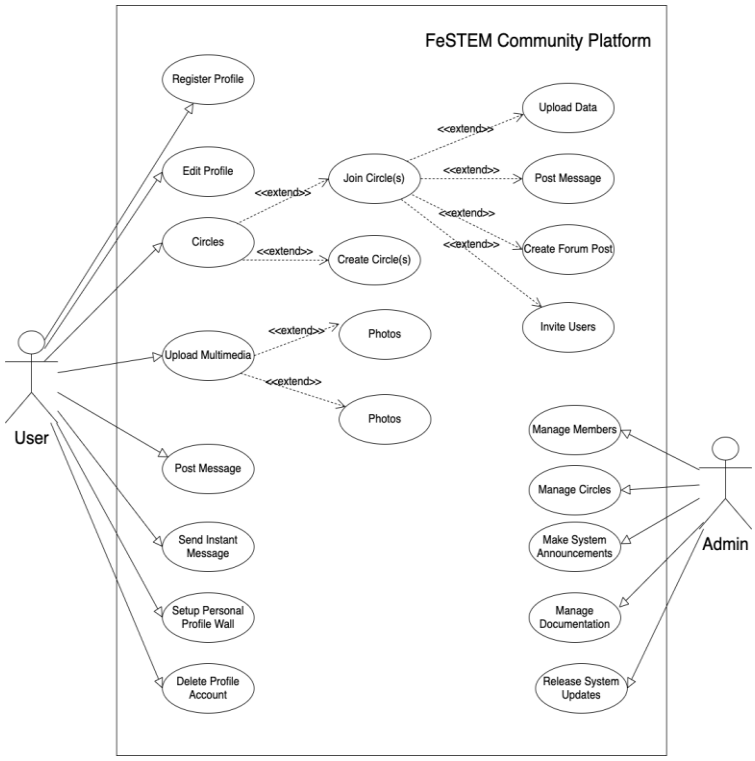

Figure 3. Use case diagram of FeSTEM platform.

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