Inspired Learning
The Next Generation Digital Learning Environment (NGDLE)

Ebba Ossiannilsson[1], Nick E. Eriksen[2] and Nina Rung-Hoch[2]

[1]*Swedish Association for Distance Education, Kung Oscars väg 27, Lund, Sweden*
[2]*Mentorix Moving Minds, Gammel Strandvej 161, Nivå, Denmark*

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Abstract: With todays increased use of digitization in education and society there are needs for innovative educational strategies for enhancing learning and teaching. In addition, there are rising demands on embracing new digital learning and educational environments and integration of the social context, such as social interactions outside the formal institutional settings and social media to enhance new digital educational practices. This paper introduce the concept of next generation digital learning environment (NGDLE), and explore one inititave named *Eureko*s, from Mentorix, Denmark, but now from EUREKOS, which has been tested and in practical use for many learners and courses, especily in the Netherlands, and Denmark. The architects behind EUREKOS follow the successful characteristic of a Personal learning environment (PLE), i.e. learn with other people, control of own learning resources, integrate learning from different institutions and sources, and manage activities. Eurekos provides course building facilities, learning teams, and a social hub integrated with social media. Eurekos can be likened to a LEGO baseplate. It integrates interoperability, personalization, learning analytics, collaboration, and a universal design with social media and the necessary software.

1 INTRODUCTION

This paper introduces the concept of the next-generation digital learning environment (NGDLE). It explores Eurekos, a NGDLE that was developed by the Mentorix Consultancy Group in Denmark. Eurekos has been tested and implemented by many learners and courses, especially in the Netherlands and Denmark.

Because of the increased use of digitization in education and society, there is a need for innovative educational strategies that enhance learning and teaching (Ossiannilsson, 2016). In addition, there are increasing demands for new digital learning and educational environments and their integration with the social context Ossiannilsson,, Eriksen &Rung Hogh, 2016 . Examples are social interactions outside formal institutional settings and the use of social media to enhance new digital educational practices.   New educational strategies for learning and teaching must be created, which will require designs that promote inclusion in teaching and learning. Social media can be used as a catalyst to support the process of inclusion. Embracing social interactions, and what Jahnke (2015) has called cross-action learning spaces, can promote community building and enhance collaborative knowledge building and sharing. Informal and formal learning could be integrated into such collaborative processes. The involvement of societal stakeholders could influence the educational culture of inclusive teaching and learning, which would improve the quality of individual and collaborative learning processes Ossiannnilsson, Eriksen & Rung-Hoch, 2016). Access, personalization, interactivity, flexibility, inclusion, and taking ownership of one's learning environment are crucial indicators of the quality and success of learning from the learner's perspective (Kear, Roswell, Williams, and Ossiannilsson, 2016; Ossiannilsson, 2016).

2 PERSONAL LEARNING ENVIRONMENTS AND CONNECTIVITY

In the 21st century, collaborative learning is one of the most important skills that students should develop. Knowledge is no longer the property of a

single person; it is a resource that expands when it is shared. The student's ownership of the learning process enhances the motivation to learn. According to Downes (2016), personalized learning takes place when students determine their own learning objectives. This differs from personalized learning that is tailored by the providers and is not selected by the learners (Downes, 2016; Ossiannilsson, 2016). Personal learning and self-determined learning lead to the attainment of profound knowledge. In this approach, learners tune their learning objectives to their educational needs, thus designing their own learning. Today, learning has become increasingly unbundled, and the lines between formal and informal learning have become increasingly blurred, which has led to the concepts of just-for-me learning and just-in-time learning, which are conducted mainly on mobile devices. This approach to learning will address key issues, not only today but also in the future.

Virtual learning environments (VLE) or learning management systems (LMS) have been highly successful in the administration and management of learning but less successful in enabling learning. Therefore, the personal learning environment (PLE), has become increasingly used either with a VLE and/or an LMS or as a stand-alone approach. A PLE contains the tools, communities, and services that constitute the individual educational platforms that learners use to direct their own learning and pursue their educational goals (Milligan et al., (2006). A PLE also facilitates communication and sharing among users. (Attwell, 2007; EDUCAUSE, 2007). However, a NGDLE goes beyond a PLE to support new teaching and learning methods to achieve better results (Brown & Dehoney, 2015; Brown, 2016; Tousignant, 2015).

3 EUREKOS, NEXT GENERATION LEARNING ENVIRONMENT

According to Ossiannilsson, E., Eriksen, and Rung-Hogh, (2015) Eurekos[1] is more than a PLE; it is a NGDLE that seamlessly integrates the systems and services used by students, instructors, and society. It should be emphasized that a NGDLE is more concerned with education than with technology although the latter is a key driver in educational change (Chatti, 2010). It should also be emphasized

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[1] http://www.eurekos.com/

that the responsiveness of NGDLE allows it to be used on smart phones and tablets to enhance personal, flexible, and accessible mobile learning and to allow individuals to take ownership of their own learning (Institute of Museum and Library Services, n.d, Ossiannilsson, 2016).

The Eurekos initiative was implemented to disrupt the traditional development of education and to challenge the aging structures of the myriad of LMSs. Aa a NGDLE, Eurekos is quickly replacing the traditional LMSs because it facilitates innovation and integration in teaching and learning programs. Personal learning experience is provided through the tools, communities, and services that learners use to self-direct their personal educational goals. Eurekos is designed to deliver innovative education and to support new learning strategies. In developing Eurekos, the objective was to empower teachers and literally to include "the world" in the personal learning environment. The goal of this NGDLE is to empower learning and teaching and provide the tools needed to facilitate education that is effective in the 21st century.

Driven by the need for change the initiative was developed to empower educators and embrace the 21st-century world in which learners live. The Eurekos NGDLE was developed in a close partnership with higher education—Hogeschool Utrecht, Danish Technical University—and several private-sector companies. The initiative was designed meet the demand for innovative education, to support new learning strategies, and to meet the changing ways in which people work and learn online. The objective was first to empower teachers and then the world in a very literal sense. During the last three years, the platform has been adapted and refined to become a central part of blended learning in educational programs. In one organization, Hogeschool Utrecht 1,700 courses in all disciplines were adapted within three years. This organization's ambitious goals to migrate from a traditional LMS to "online conversion" were accomplished almost two years ahead of schedule, which is considerable proof of the concept. Both pedagogical and technical developments took place in an iterative process that allowed ample time for changes and feedback from the organization.

Eurekos can be likened to a LEGO baseplate. It integrates interoperability, personalization, learning analytics, collaboration, and a universal design with social media and the necessary software, as shown in Figure 1.

Figure 1: Eurekos as a LEGO baseplate.

The challenge is not only to pick the right pieces but also to determine how they fit together to make a coherent solution that connects the several services performed by different technologies, providers, and to be social. Eurekos was based on meeting this challenge from its inception, which positively affected its development. The features of Eurekos include communities, calendars, assignments, learning teams, study friends, course pages, and, importantly, the course builder.

This NGDLE is designed for communication, sharing, collaboration, and co-creating. It embraces co-designed structures, co-creating, and collaborating in sharing materials and resources. It is self-organized to create, for example, teams for different kind of projects. It shows the assignment schedules and individual course schedules, and it provides notifications and updates (see Figure 2).
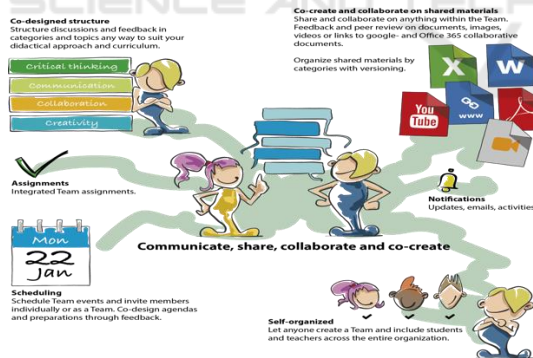

Figure 2: Eurekos for communication, sharing, collaboration, and co-creating.

Eurekos provides innovative channels of communication and sharing between users, which is a key aspect in a NGDLE but has not been completely integrated in learning environments. The NGDLE has four key characteristics, which have been described as the key characteristics of a personal learning environment (PLEA) (Milligan et al., 2006):

- Learn with other people by managing and creating relationships and forming connections between contacts that are not part of a formal learning network
- Control one's learning resources, which allows learners to structure, share, and annotate the resources that they find or have been given
- Integrate learning from different institutions and sources by re-using evidence of competency and making links between formal and informal learning
- Manage activities by creating and participating in activities and bringing together people and resources

Figure 3 illustrates that Eurekos enables the following:

- Interacting among students, instructors, and society
- Communicating, networking and learning through social media such as Facebook, Twitter, and others, through which students and instructors can involve everybody on this planet
- Creating open and private learning communities on a safe platform that is self-maintained or facilitated by instructors
- Integrating tools and services from across the world into one seamless hub

Figure 3: An interface that integrates communication, creates learning communities, and provides tools.

Eurekos is designed to be a social hub of seamlessly integrated learning tools that enable communication, co-creation, collaboration, and sharing. The social hub facilitates not only the external and internal communities and communication throughout the learning environment but also the integration of formal and informal learning. This aspect is important because only a small part of learning takes place in formal environments. The majority of learning takes place in

informal settings and in the workplace (Dabbagh & Kitsantas, 2011). In learning together, students exchange information with each other and introduce information learned in their social experiences. The social hub effectively funnels communication to the point where it concerns the relevant few rather than the irrelevant many. This social hub will promote long-lasting network alliances that will be powerful not only for the single student but also for the brand value of the organization. Figure 4 illustrates the integration of societal stakeholders in promoting the use of social media by groups of learners
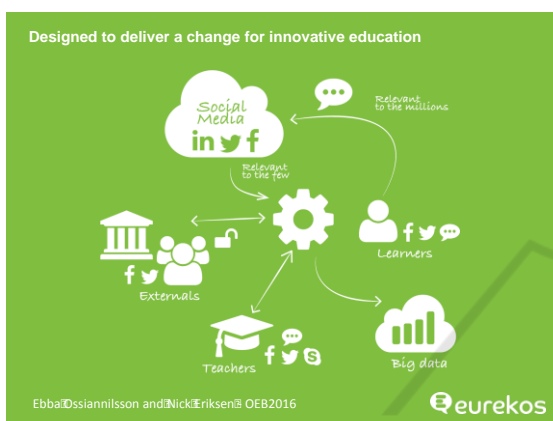

Figure 4: The Eurekos hub.

4 CONCLUSIONS

In summary, the novel features of a PLE within the communication hub (cHub) are the following:

- Provides the default state of sociability
- Facilitates inclusiveness
    o Enabling the collaboration of classroom learning and external stakeholders
    o Sharing across system barriers (inside-out and outside-in)
    o Sharing and promoting in groups and individuals
    o Integrating multiple personal social media accounts
- Enables interactivity with social media
- Combines internal and external communication channels in one interface
- Facilitates interactivity through an accessible design
- Provides a dynamic individual personal space that integrates social media
- Allows the use of learning analytics

- Allows the use of a career ladder
- Allows the accumulation of social capital
- Enables online status across system barriers

In the communication hub (cHub), the teacher is fully responsible. The courses are constructed at the teacher's discretion through the user friendly and interactive course builder in Eurekos. The Eurekos NGDLE by Mentorix meets all four dimensions of quality.

The session presented at CSEDU 2017 is designed to provide an overview of the concept of the next-generation digital learning environment (NGDLE), which will inspire personal education and will promote the learner's perspective in self-determined learning. The architecture of the NGDLE Eurekos will be explored, and examples will be given, such as the following:

- Raise awareness of co-creating work in learning teams and connecting external stakeholders as part of the educational process
- Apply different types of communication to one's educational concepts and understand the differences
- Show how to create a course with new interactive tools and how to incorporate social media, external sources, topic experts, stakeholders into the course design
- Discuss students' interactions and how they are integrated with the course features and social stakeholders by using social media.

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