Community events

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Content

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INTRODUCTION

Project ALIEN introduced an active and problem-based learning intervention aiming at promoting the adoption of problem-based learning methodologies in engineering higher education. The ALIEN problem-based learning intervention involves the establishment of physical problem-based learning labs, the development of a digital problem-based learning platform and content, and instructor training. To further promote the adoption of problem-based learning in engineering higher education, the ALIEN consortium organized a series of community-building events. These included 11 webinars and over 50 regional events reaching over 6.000 individuals. This document summarizes the ALIEN community building activities.

The report further presents the ALIEN final conference, which took place on April 9, 2021 and had duration of 6 hours. The event was a great opportunity to present project outcomes and experiences from the deployment of active learning in 9 countries in Asia and Europe.

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PART A. LOCAL COMMUNITY EVENTS

This section presents a summary of community events that took place locally at the partner communities. These events engaged the academic communities of the project partners as well as external stakeholders, including other universities, other sectors, such as secondary and vocational education, and authorities.

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P1 University of Thessaly (UTH)

ALIEN at the Thessaly Science Festival, October 11 - 12, 2018

The Thessaly Science Festival was organized by the University of Thessaly for celebrating the 30 years since its inception. The event took place at the town of Larissa, in the central region of Thessaly, Greece. Notably, while the ALIEN project takes place at the town of Volos in Thessaly, the University of Thessaly has departments in all 4 main towns of the region, namely Volos, Larissa, Karditsa, and Trikala as well as the town of Lamia in that lies further to the south.

The event was attended over 2 days by more than 1.500 school children in the mornings, while more individuals attended in the evenings and on Saturday. Participants were from the entire region of Thessaly, and arrived to the town of Larissa in an organized manner by buses.

Figure 1. ALIEN team members present the project objectives and activities to participants in the Thessaly Science Festival on October 11 – 12, 2018.

The participants visited booths in which they were informed by diverse research activities of University of Thessaly research teams. The Creative Technologies Learning Lab, that coordinates the ALIEN project, had a booth at the event in which 5 team members discussed project ALIEN activities with the audience.

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In addition, participants had the opportunity to reflect on the benefits of problem-based learning for building foundational knowledge as well as soft skills, including analytical and critical thinking. The audience further had the opportunity to reflect on the benefits of digital applications, including serious games and simulations, on fostering exploration, experimentation, and collaboration, enriching interaction in learning, and promoting knowledge retention. They further discussed the objectives, activities, and early outcomes of the ALIEN project. Audience participants received ALIEN project leaflets.

Connection with the TEALs laboratory of the University of Malaya, October 16, 2019

On October 16, 2019 a Skype® event took place between the University of Thessaly and the University of Malaya. The purpose of the event was to familiarize University of Thessaly students with the ALIEN project activities and objectives on promoting problem-based learning. The event further aimed at familiarizing the University of Thessaly students with the physical lab that the University of Malaya has built through the ALIEN project.

Figure 2. University of Thessaly students connect to the University of Malaya TEALs laboratory on October 16, 2019.

While there were some technical issues related to the sound, the University of Thessaly students benefitted from understanding the importance of international collaboration in education and research. They further had an opportunity to see TEALs laboratory developed at

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the University of Malaya through the ALIEN project as well as the laboratory equipment, including the workstations, the Arduino® and Rasberry Pi® devices, and the drones. The students further reflected on how the lab organization in collaborative "islands" helped team collaboration in problem-based learning. Over 70 students participated on the side of the University of Thessaly in the context of the Technology in Education course of the Department of Electrical and Computer Engineering.

The University of Thessaly would like to thank Dr. Siti Salwah and Dr. Raja Jamilah Yusof from the Universiti of Malaya as well as the members of Universiti of Malaya research team that eagerly participated in this presentation.

ALIEN presentation to the Hellenic Open University, September 25, 2020

The ALIEN project was presented to 5 researchers of the Hellenic Open University on September 25, 2020. Participants belonged to the OnLabs group (Onlabs @ Hellenic Open University (google.com) of the Hellenic Open University and had a direct interest on emerging pedagogical design. The OnLabs group has developed a VR simulation of the biology laboratory of the Hellenic Open University. Participants had the opportunity to discuss problem-based and active learning and their benefits towards building foundational knowledge as well as higher order thinking skills such as applying knowledge, analyzing information, evaluating sources, and synthesizing new knowledge from old.

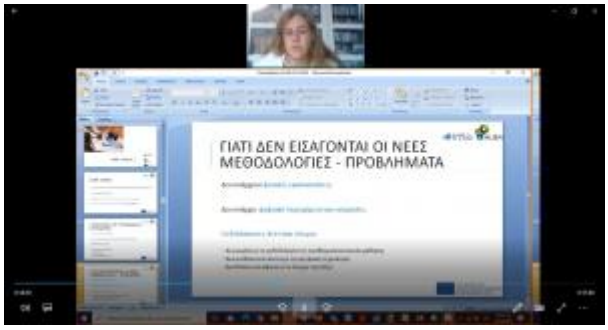

Figure 3. ALIEN is presented to researchers of the OnLabs group of the Hellenic Open University.

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The audience further had the opportunity to reflect on related experiential learning design, in which knowledge development is initiated by an event that drives students to explore, research, and experiment leading to the creation of new knowledge or the adjustment of attitudes. The audience further discussed the reasons that inhibit the wide adoption of the active and problem-based learning, which include the lack of infrastructures, the lack of open digital content, and the need for instructor training.

The seminar subsequently focused on the solution proposed by ALIEN towards making problem-based learning a strategic educational approach in higher education. The presentation focused on the labs developed at Asian universities and the ALIEN digital problem-based learning platform that at the time of the presentation hosted over 200 problems based on games, simulation, or digital experiences, while currently it hosts over 300. What was discussed was that ALIEN promotes the development of a community or sharing knowledge and experiences on problem-based learning. To this end, the digital platform offers functionality that supports the replication of problems and their adaptation to address additional learning needs. This feature aims to encourage sharing of ideas among educators and the fostering of an inclusive environment in which peers can learn from each other.

A discussion followed on good practices on deploying active and problem-based learning in diverse subjects and towards diverse student group sizes.

Notably, the OnLabs group has contributed content to the ALIEN digital problem-based learning platform, ensuring that the platform is used beyond the University of Thessaly by other Greek universities.

The web stream of the webinar is available at:

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ALIEN presentation the University of Crete, September 28, 2020

ALIEN was presented to 5 researchers of the Department of Computer Science of the University of Crete on September 28, 2020. The audience had the opportunity to reflect on problem-based and active learning and their benefits in engineering education and more generally higher and secondary education in terms of knowledge retention and transferability from the academic environment to the world of work. In addition, the audience discussed experiential learning design based on Kolb's theory that knowledge creation starts from an event that an individual follows through with research until the individual is altered. The audience experienced the ALIEN digital problem-based learning platform and understood how problems are structured. There was a specific interest on publishing new material and so the audience was informed on how to registered as a teacher. In addition, the audience reviewed the ALIEN digital forums through which SIG members may exchange good practices on problem-based learning methodologies, problem-based learning in specific subjects, AI and problem-based learning, problem-based learning and gamification. Finally, the audience viewed pictures from the ALIEN labs and instructor training.

Figure 4. ALIEN is presented towards researchers of the University of Crete on September 28, 2020.

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A discussion followed on how it would be very interesting to build at the University of Crete labs similar to those developed by ALIEN not only for higher education students but also for use by visitors, such as secondary schools. In addition, the audience reflected on how some educators already use problem-based learning in student theses, practical training, Erasmus+ student exchanges, and other activities even though they do not realize it.

Notably, the participants have published content on the ALIEN digital problem-based learning platform, ensuring that the platform is used beyond the University of Thessaly by other Greek universities.

A web stream of the webinar is available at:

http://projectalien.eu/wp-content/uploads/2020/09/%CE%A0%CF%81%CE%BF%CE%B2%CE%BB%CE%B7%CE%BC%CE%B1%CF%84%CE%BF%CE%BA%CE%B5%CE%BD%CF%84%CF%81%CE%B9%CE%BA%CE%AE-%CE%BC%CE%AC%CE%B8%CE%B7%CF%83%CE%B7-%CE%BA%CE%B1%CE%B9-%CF%88%CE%B7%CF%86%CE%B9%CE%B1%CE%BA%CE%AE-%CF%84%CE%B5%CF%87%CE%BD%CE%BF%CE%BB%CE%BF%CE%B3%CE%B9%CE%B1-2020-09-28-17-06-55.mp4 .

ALIEN presentations in the Technologies in Education course, October 7, 2020 and October 12, 2020

ALIEN was presented to students enrolled in the Technology in Education elective course of the Department of Electrical Engineering of the University of Thessaly. Two separate presentations took place, one on October 7 and one on October 12 2020, each attended by 45 students.

The students had the opportunity to be exposed to innovative pedagogical practices such as problem-based learning, active learning, and experiential learning and to reflect on the benefits of these approaches towards building foundational knowledge and soft skills that are in-line with industry and societal needs and are transferable to the real world. Furthermore, the

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students understood how active and problem-based learning helps develop higher order thinking skills that are in high demand in professional situations.

Figure 5. ALIEN is presented to students enrolled in the Technologies in Education course of the Department of Electrical and Computer Engineering of the University of Thessaly on October 7, 2020.

The students were exposed to ALIEN activities including the development of labs at universities in Asia, instructor training, and community building. They further followed a demo of the digital services, which they will use throughout the fall 2020 semester for developing and publishing problems. The presentation was not recorded because Greek regulations forbid the recording of sessions that take place in courses.

Students published content to the ALIEN digital problem-based learning platform, ensuring that it is deployed not only by instructors but also the wider educational community.

ALIEN presentation at the Civil Engineering Department of the University of Thessaly, October 20, 2020

A webinar was delivered on the ALIEN project in the context of the scientific lecture series of the Civil Engineering Department of the University of Thessaly on October 21, 2020. The event was attended by 19 individuals. The event was promoted to the entire University of Thessaly community of 40.000 students and teachers via email and on the social media pages of the University of Thessaly. In addition, it was delivered live on the University of Thessaly TV channel

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(live.uth.gr), while it is still available on-line for interested parties to view. The webinar was delivered by Hariklia Tsalapatas.

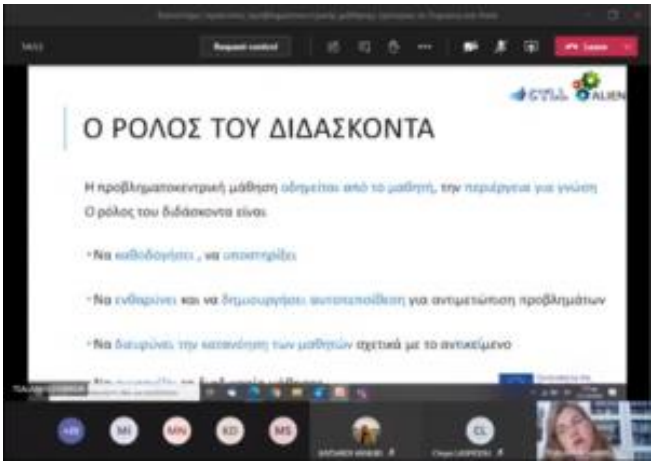

Figure 6. ALIEN is presented to the Civil Engineering Department of the University of Thessaly on October 20, 2020.

The audience had the opportunity to reflect on active and problem-based learning and related experiential learning design. In addition, the audience was exposed to the ALIEN learning intervention that involves the development of physical problem-based learning labs, the design and implementation of a digital problem-based learning platform for problem-based learning, and instructor training / community building activities.

The event generated particular interest among individuals at the Civil Engineering department on how emerging pedagogical design, such as active and problem-based learning may enrich educational experiences of students and help reach educational goals.

ALIEN presentation at the Department of Ichthyology of the University of Thessaly, October 23, 2020

ALIEN was presented at the Graduate Program of the Department of Fisheries of the University of Thessaly. The event was attended by 42 individuals. The audience had the opportunity to reflect on the benefits of problem-based and active learning methodologies for building foundational knowledge in engineering education as well as soft skills such as analytical and critical thinking.

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The audience was exposed to the ALIEN learning intervention, including the labs, the functionality of the digital problem-based learning platform, and the instructor training initiatives. The event was not recorded due to legal limitations related to recording material in the context of courses. A screenshot demonstrates the attendants connected to the session.

ALIEN presentation at Diofantos Research Center, February 18, 2021

The ALIEN project, its objectives, activities, and outcomes were presented to researchers and educational coordinators at the Diofantos center. The center is responsible for the production of all educational content delivered to primary and secondary education schools and works closely with the Greek Ministry of Education assuming a consulting role.

Figure 7. ALIEN is presented at Diofantos Research Center on February 18, 2021

The presentation focused on problem-based, experiential, and active learning. Subsequently, the ALIEN project was presented, with an emphasis on the collaboration between Europe and Asia, the labs created at partner sites, the ALIEN digital problem-based learning platform, and instructor training and other events. A short discussion followed on problem-based learning in

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secondary and higher education, while there were comparisons between the ALIEN platform and a related platform developed by Diofantos on behalf of the Greek Ministry of Education. In addition, inspired by the ALIEN learning activities that are based on digital games and simulations, a discussion was conducted on learning games and their benefits.

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P2 Instituto Politécnico do Porto (IPP)

LEAP 2018 - Presentation of active, lean, and agile approaches to learning in higher education, April 13, 2018

LEAP was an event organized locally by the ALIEN team for students and teachers in higher education showcasing the use of different technological tools that support active, lean, and agile practices in higher education. Approximately 100 students were present from Porto Polytechnic and the University of Vigo. The students had the opportunity to experience the outcomes of the ALIEN and LEAP (http:// http://leapproject.eu/) projects. Students were able to test some problem-based learning activities using LEAP games and ALIEN methodology.

Figure 8. LEAP event, April 13, 2018.

CASHE 2019 - Conference Academic Success in Higher Education, organized at ISEP, February 14-15, 2019

This conference, organized with the collaboration of the local ALIEN team, aimed at bringing together teachers, researchers, and students in higher education and all who are interested in the subject of academic success in higher education. In this 1st edition of CASHE: Conference on the Academic Success in Higher Education, the focus was on new technological approaches in the educational praxis of higher education. The ALIEN project and methodology was presented

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at the conference as one of the key presentations with about 75 attendants in the room from a total of 150 in the conference. Later on, a specific ALIEN instructor-training workshop took place.

Figure 9. CASHE conference, February 14-15, 2019.

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P3 University of Central Lancashire (UCLAN)

Implementing active learning event, April 22, 2020

A community event took place on April 22nd. It was attended by 11 educators. The theme was implementing active learning. The event took place on-line because of COVID-19 restrictions and so the content was geared towards on-line approaches to active earning.

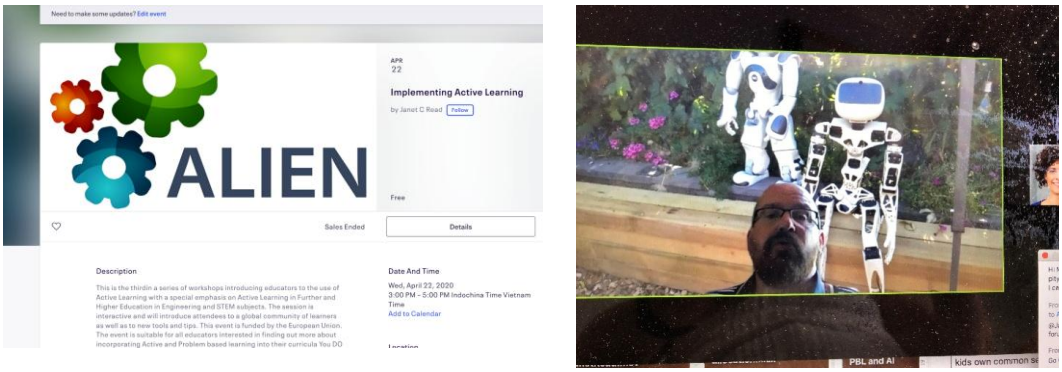

Figure 8. Educators participate in the "Implementing Active Learning" event at University of Central Lancashire on April 22, 2020.

Troubleshooting active learning event, June 2, 2020

A 2nd event took place on June 2, 2020. It was attended by 8 educators. This was a drop-in session for staff to talk about problems they were encountering in their active learning work.

Figure 9. Educators participate in the "Troubleshooting Active Learning" event at the University of Central Lancashire on June 2, 2020.

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P4 Universiti of Malaya (UM)

Connection with the University of Thessaly, October 16, 2019

On October 16, 2019 a virtual event took place between the University of Thessaly and the Universiti of Malaya. The purpose of the event was to familiarize University of Thessaly students with the ALIEN project activities and objectives on promoting problem-based learning. The event further aimed at familiarizing the University of Thessaly students with the TEALS laboratory that the Universiti of Malaya has built through the ALIEN project. While there were some technical issues related to the sound, the University of Thessaly students benefitted from understanding the benefits of international collaboration, while they also had an opportunity to see the lab, its setting that promotes collaboration and exploration, and its equipment. Over 70 students participated on the side of the University of Thessaly in the context of the Technology in Education course of the Department of Electrical and Computer Engineering.

For more information, please check related description above in University of Thessaly section **Error! Unknown switch argument.**.

ALIEN presented at the GLU IDE4 Management Forum, November 4, 2019

The ALIEN project was presented at the GLU IDE4 Management Forum, which took place on November 4, 2019. The forum's objective was academic development. Dr. Aishah Abu Bakar was invited as a panelist in the event and delivered a presentation on the Universiti of Malaya experiences on problem-based learning through the ALIEN project.

The event was attended by management officials from 4 private universities, namely Universiti Tenaga Nasional, UTP, UniKL, and MMU. The audience included 30 participants all of who were Presidents, Vice Presidents, Deans, and Heads of Department. During the event the audience had the opportunity to reflect on how digital solutions, and more particularly games and simulations, may enrich educational activities for students. Diverse equipment was discussed for promoting the creativity and interactivity of students, such as drones, Arduino®, Rasberry Pi®,

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and 3D printers, all of which are available to students at the Universiti of Malaya through the TEALs laboratory that was developed through ALIEN.

Figure 10. Dr; Aishah Abu Bakar is invited to present as panelist at the GLU IDE Management Forum experiences on active learning through the ALIEN project on 4 November 2019

The discussion highlighted how the TEALs laboratory promoted technology enhanced learning and game-based learning. Upon completion of the event, the presentation slides were made openly available to participants. The audience further had the opportunity to be exposed to the ALIEN digital problem-based learning platform and the services for publishing, reusing, and accessing problem-based learning educational content.

ALIEN at the Fluid Organic Curriculum, University Malaya Kelantan, October 9, 2019

ALIEN was presented at a Fluid Organic Curriculum workshop organized by the Universiti Malaya Kelantan. Members of the ALIEN implementation team acted as trainers in the event. They presented ALIEN experiences with active and problem-based learning, such as teaching programming through game-based approaches and through the deployment of the equipment of the TEALs laboratory developed through the ALIEN project.

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A total of 25 individuals participated in the event. The participants were coordinators and lecturers from the Faculty of Bioengineering and Technology at the Universiti Malaya Kelantan.

Figure 11. ALIEN is presented at the Fluid Organic Curriculum, Universiti of Malaya Kelantan on October 9, 2019.

The event was a great opportunity to promote the ALIEN project problem-based learning approach to universities beyond the Universiti of Malaya. Through this and more related events project outcomes were disseminated to the higher education sector in Malaysia.

ALIEN at the Future Ready Curriculum, Universiti Malaya Kelantan, September 9, 2020

The event was organized by the Centre for Excellence and Academic Development, Universiti Malaya Kelantan in collaboration with the Universiti of Malaya. The event targeted top management. It was attended by Deans and Deputy Deans from the various faculties. The active learning project under Erasmus funding was shared during the curriculum delivery section of the workshop. There were around 25 participants in this workshop.

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Figure 12. ALIEN presented at the Future Learning Curriculum of the University Malaya Kelantan on September 9, 2020

During the event participants had the opportunity to become familiar with active and problem-based learning and to reflect on how technology enhanced approaches that deploy games, simulations, and experimentation through robotics, drones, and 3D printers encourage exploration and collaboration among students, foster creativity and entrepreneurial thinking, and build skills for industry.

ALIEN is the focus of the Tools for On-line Active Learning in Software Engineering event, September 30, 2020

The event took place on September 30, 2020 as the TEALs laboratory developed by the Universiti of Malaya in the context of the ALIEN project. It also was delivered live through the Universiti of Malaya Facebook Live® channel. 10 participants engaged in the workshop.

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Figure 13. ALIEN is the focus of the Tools for On-line Active Learning in Software Engineering event, September 30, 2020.

This sharing session covered the UVA competitive programming practice, the Lucid chart, atom for pair-programming, and Android Monkey®, and Droidbot Mobile® User Interface Testing. The event further addressed good practices on delivering active learning on-line through virtual tools, a topic particularly relevant in the COVID-19 pandemic. The event was delivered by Dr Raja Jamilah Raja Yusof, Dr Hazrina Sofian, Dr Asmiza Abdul Sani, and Associate Prof. Dr Aishah Abu Bakar, who are members of the ALIEN team at the Universiti of Malaya.

Active Learning with Computational Thinking Games event, Kolej Universiti Islam Zulkifli Muhammad, Gombak, October 1, 2020

The event was delivered on October 1, 2020. The workshop focused on types of active learning and computational thinking approaches in solving problems. It further focused on good practices towards integrating game-based active learning approaches in engineering education

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and on how to effectively design games for learning. It was delivered by Dr Raja Jamilah Raja Yusof. The event was attended by 9 individuals.

Figure 14. ALIEN methodologies and tools presented at the Active Learning with Computational Thinking event at the Kolej Universiti Islam Zulkifli Muhammad, Gombak University on October 1, 2020.

The event was a great opportunity for researchers and educators from other universities in Malaysia to become exposed and benefit from ALIEN project objectives, activities, and outcomes.

ALIEN at the Teaching and Learning Innovation Festival online forum, Universiti Technology Petronas, October 8, 2020

This event was part of the 6th Teaching and Learning Innovation Festival organized by the Centre of Excellence in Teaching and Learning, Universiti Petronas, Malaysia. Dr. Aishah Abu Bakar was invited as penal forum to discuss Teaching and Learning in the New Normal: Expectations vs. Reality from the perspective of curriculum development.

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Figure 15. ALIEN is presented at the Teaching and Learning Innovation Festival of the University Technology Petronas on October 8, 2020.

In her discussion, the presenter shared the practices of lecturers from the Software Engineering program migrating from the physical active learning practice to remote active learning practice. The event was a continuation of a previous activity that took place on September 30, 2020 and focused on tools for active learning.

During the event, the audience had the opportunity to experience the ALIEN learning intervention as a good practice methodology for promoting active and problem-based learning in Software Engineering and beyond. Approximately 60 individuals participated in the event.

Sharing session with the Universiti Malaya Pahang Committee for the new normal in teaching and learning venue Chancellery Building, Universiti Malaya Kelantan, October 21, 2020

This is a targeted session in defining appropriate learning spaces for Universiti Malaysia Pahang and its way forward. During this session, Dr. Aishah Abu Bakar shared the design and layout of active and problem-based learning TEALs laboratory funded by project ALIEN. Approximately 25 individuals participated in the event.

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Figure 16. ALIEN presented to the University Malaya Pahang on October 21, 2020.

The session aimed at illustrating the basic active learning laboratory requirements and how Software Engineering programs can be effectively delivered through technology-enhanced learning interventions that allow students to not only be passive recipients of information but also to experiment hands-on building critical thinking and knowledge in demand by industry and society in the modern world.

Multiplier event targeting secondary education students in Malaysia, December 5 and 12, 2020

On-line active learning workshops were conducted on December 5 and 12, 2020 on developing programming skills. The events targeted secondary education students and pre-university students. 20 individuals attended the events, which had a total duration of 6 hours.

Basics of programming were taught through 3 sorting algorithms: bubble sort, count sort and, merge sort. Students not only learned the Python programming language, they also learned how to solve problems through computational thinking. The Google® Collab environment was used as the programming IDE.

In the workshops, students started by becoming familiar with sorting algorithms. Subsequently, they followed a step-by-step process for transferring their ideas into programmable code. And finally, they were challenged to code the algorithms in a programming environment.

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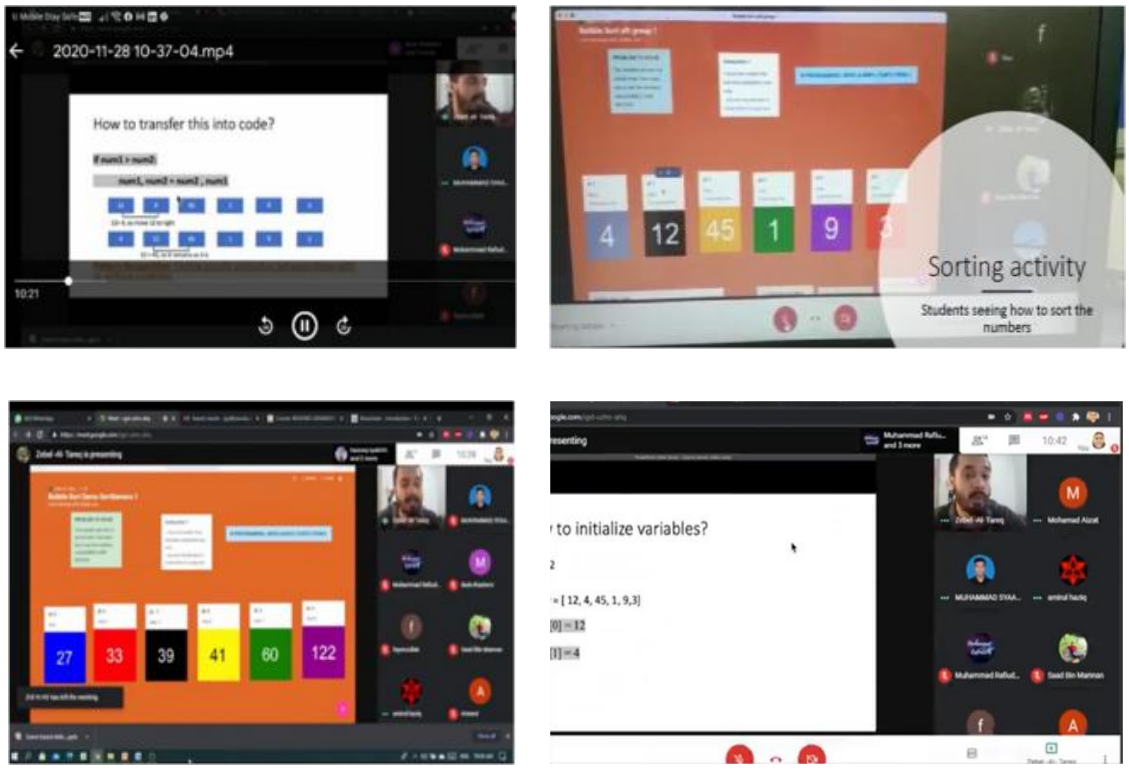

Figure 17. Secondary education students were exposed to problem-solving and programming activities on December 5 and 12, 2020.

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P5 Universiti Tenaga Nasional (UNITEN)

ALIEN at the Universiti Tenaga Nasional Teaching and Learning Fest, September 19, 2019

The ALIEN project was presented at the Universiti Tenaga Nasional Teaching and Learning Fest on September 19, 2019. During the event participants had the opportunity to explore active and problem-based learning design deployed in the ALIEN project and to reflect on the benefits of these approaches towards building 21st century skills. Approximately 20 individuals participated in the event.

Figure 18. ALIEN presented the Universiti Tenaga Nasional Teaching and Learning Fest 2019 on September 19, 2019.

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ALIEN at the IDEATE 2020, September 23, 2020

IDE4TE is a teaching and learning exhibition organized by the Industry Driven Education Alliance (IDE4) comprising four government-linked universities (GLUs) in Malaysia. The 4 universities are Universiti Tenaga Nasional (UNITEN), Universiti Teknologi Petronas (UTP), Universiti Multimedia (MMU) and Universiti Kuala Lumpur (UniKL). The exhibition aims to bring together educators, researchers, and practitioners of digital education and innovation in an exhibition that showcases a myriad of innovative technologies for the classrooms. IDE4TE is hosted on rotational basis between the 4 universities and for IDE4TE 2020, UNITEN proudly took up the baton.

With the theme "Innovating Teaching, Advancing Learning", IDE4TE 2020 was conducted fully online on 23rd September 2020 due to the COVID-19 pandemic. A total of 80 posters were showcased in the event across various disciplines of education, the highest number ever. Apart from the four GLUs, participations were also received from Universiti Selangor (UNISEL) and Universiti Pertahanan Nasional Malaysia (UPNM).

Figure 19. Posters exhibited at IDEATE 2020.

The ALIEN research group at UNITEN participated in the exhibition via 3 posters entitled "Collaboration between Asian and European Institutions in Fostering Active Learning: An

Experience Sharing", "Development of a Serious Game for Requirement Elicitation and Analysis", and "ALIEN Platform: A Global Platform for PBL Practitioners". The 1st and the 2nd posters won gold medals while the 3rd poster won a silver medal. Through the presented posters during IDE4TE 2020, ALIEN project has been promoted to other universities in Malaysia. Over 80 individuals participated in the event.

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P6 ISRA University (IU)

ALIEN at the ISRA Job and Trade Fair 2019, November 21, 2019

The ALIEN project, its objectives, and activities were presented at the ISRA Job and Trade Fair 2019 by ISRA University. The event was attended by 60 individuals. The event targeted the general public. The objective of the event was to provide employment opportunities to students and graduates for the development of the community. More than 2.500 graduates and students from Hyderabad and its vicinity visited the fair and acquired information from the stalls set-up by multinational companies. More than 60 organizations presented their work at the event. ISRA University presented the ALIEN learning intervention and the proposed active and problem-based learning design. The audience had the opportunity to explore and experiment with some of the equipment of the ALIEN problem-based laboratory that was demonstrated in the fair. The audience had the opportunity to explore VR equipment and to discuss how evolving digital tools such as games, simulations, VR spaces, and more can enrich educational experiences, help students reach their learning goals, and develop skills and knowledge that students need in order to be competitive in the job market.

Figure 20. ALIEN presented at the ISRA Job and Trade Fair on November 19, 2021.

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Awareness Session on Innovative Project Ideas, February 20, 2020

The Office of Research, Innovation, and Commercialization (ORIC), ISRA University, Hyderabad organized an Awareness Session on Innovative Project Ideas on Thursday, 20th February, 2020 at Asadullah Kazi Auditorium, ISRA University, Hyderabad. The event was attended by over 70 individuals. The facilitator of the session was Dr. Kamran Khowaja, Associate Professor, ISRA University Hyderabad. The objective of the session was to build awareness among faculty and students on how to conceive innovative project ideas and how to transform those ideas into commercial activities. He also encouraged students to work more on market and research-oriented projects and introduced the problem-based learning laboratory developed in the ALIEN project that is available to faculty members and students for conducting classes and semester or final-year projects. It was an informative session highly acknowledged by faculty and students.

Figure 21. Participants attend the 2nd community event at ISRA University on February 20, 2020.

Projects and Ideas Exhibition with C@SHE Student Society, January 21, 2020

The Department of Computer Science organized a 1-day Projects and Ideas Exhibition in collaboration with C@SHE student society on Tuesday, 21st January 2020. Graduating students presented their final year projects. Newly registered students presented their project ideas. All students had an opportunity to visit the problem-based learning laboratory developed in the ALIEN project and explore the equipment available. Pro Vice Chancellor Prof. Dr. Hameedullah Kazi, Chairperson Department of Computer Science, Dr. Mutee U Rahman, faculty members,

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and students visited the exhibition and appreciated the student work. Approximately 50 individuals participated in the event.

Figure 22. Students visit the ALIEN problem-based lab in the 3d community event at ISRA University on January 21, 2020.

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P7 Tallinn University (TLU)

ALIEN community event in Tallinn March 2, 2021 Summary

The goal of the event was to introduce active learning as well as the objectives and activities of the ALIEN project. Due to COVID-19 restrictions the event took place on-line and was attended by 6 individuals from Tallinn University and Aalto University Finland.

The event started with an introduction of the ALIEN project and continued with a presentation of the ALIEN portal and the digital problem-based learning platform, including the problems and scenarios published through it. Furthermore, the event focused on ALIEN related initiatives, such as the development of a wiki for more engaged online teaching and the newly funded CBHE ICT-INOV project that focuses on design thinking and gamification in learning.

More specifically, participants had the opportunity to get exposed to ALIEN project objectives on the implementation and validation of problem-based learning in STEM subjects using virtual learning environments and taking advantage of a multinational learning community.

Figure 23. Participants in an ALIEN promoting event at Tallinn University on March 2, 2021.

The participants further were exposed to how ALIEN methodologies and tools were integrated into Tallinn University courses through the publication of problems on the ALIEN digital problem-based learning platforms.

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ALIEN promoted in wiki-development semester wide activities, spring 2021

The goal of the activities was to engage students and support educators in the deployment of on-line learning due to COVID-19 restrictions by developing a wiki on using active learning in virtual environments. The wiki is available at https://elu.tlu.ee/en/projects/active-learning-internet-creating-wiki-more-engaged-online-teaching-1. The wiki was used in a Tallinn University course that engaged 13 students. This study project was initiated in the context of ALIEN project initiatives. The ALIEN project was introduced at the beginning of the activities as a good practice example of on-line problem-based learning and provided inspiration to students for developing a related wiki.

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P8 Technical University of Gabrovo (TUG)

ALIEN at the Modeling your Future educational fair, June 26, 2019

The Modeling your Future educational fair was organized by the Ministry of Education and Science and Gabrovo Municipality on June 26, 2019.

Figure 24. ALIEN presented at the Modeling your Future educational fair on June 26, 2019.

The audience included regional authority officials, such as the Deputy Mayor of Gabrovo Municipality, the Deputy Minister of Education, the Director of Regional Educational Inspectorate, and the Director of Gabrovo Chamber of Commerce and Industry.

The fair was visited by secondary schools, companies, and students from the Technical University of Gabrovo.

During the event participants had the opportunity to discuss with members of the ALIEN implementation team from the University of Gabrovo and to reflect on the benefits of active and problem-based learning in higher education but also in additional sectors, such as secondary and vocational education. Approximately 30 organizations participated in the event.

ALIEN at the VET Institutions' Exhibition, October 7 - 9, 2020

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The Technical University of Gabrovo participated in the VET Institutions' Exhibition, which was an event within the National Lifelong Learning Days 2020 jointly organized by the Ministry of Education and Science and Gabrovo Municipality.

Figure 25. ALIEN promoted at the VET Institutions' Exhibition on October 7 -9, 2020.

The Technical University of Gabrovo implementation team was on-site to discuss with participants the ALIEN active and problem-based learning intervention as well as experiences from the deployment of active learning in real life courses. The team distributed promotional material focusing on current European educational projects, including ALIEN. More than 1.000 individuals representing VET providers, professional high schools, universities, and the general public participated in the event.

ALIEN presentation at problem-based learning for technicians and engineers meeting, November 27, 2020

The second e-meeting of European project Active Learning Community for Upskilling Technicians and Engineers was organized by the University of Gabrovo on November 27, 2020. The meeting was attended by 17 individuals, participants from 4 universities and 4 chambers of commerce from Bulgaria, Greece, Serbia, and Poland. Specifically, the organizations that

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participated were The Technical University of Gabrovo, The Chamber of Commerce and Industry Bulgaria, the Chamber of Commerce of the town of Kavala, Greece, the International University of Greece, the Polytechnic of Gdansk, Poland, the University of Nis, Serbia, Privredna Komora Srbije, Serbia, and Regionalna Izba Gospodarcza Pomorza, Poland. The Technical University of Gabrovo, Since ALIEN focuses on related problem-based activities, the ALIEN problem-based learning platform as a best practice focusing on the problem structure, content, and teaching methodology. The University of Gabrovo researchers shared their experience on deploying active learning through the ALIEN problem-based learning platform. Approximately 25 individuals participated in the event.

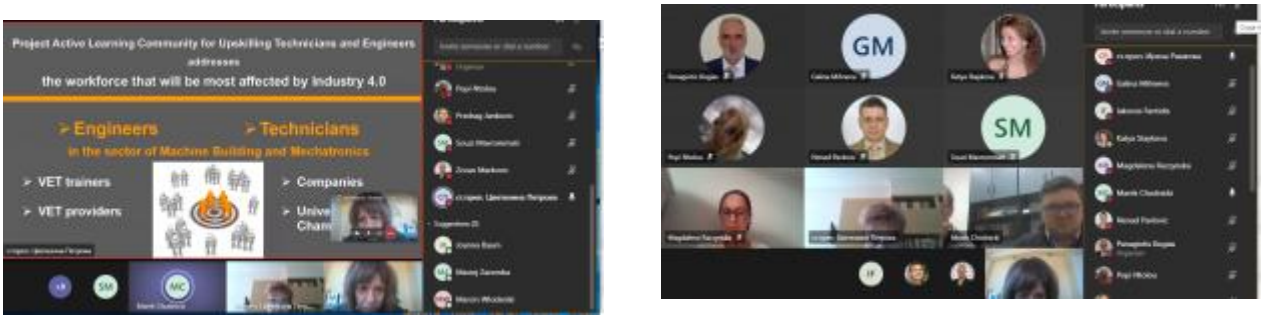

Figure 26. ALIEN presentation at problem-based learning for technicians and engineers meeting, November 27, 2020

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P9 John Von Neumann Institute – Viet Nam National University Ho Chi Minh City (JVN)

Seminar about ALIEN project on September 27, 2019

A seminar on the ALIEN project was held on September 27, 2019 at University of Natural Sciences - VNUHCM. The seminar was organized during the Information Day of John Von Neumann Institute to disseminate active learning and problem-based learning applied at John Von Neumann Institute through the ALIEN project. It was attended by more than 100 students from John Von Neumann Institute and faculties from VNUHCM. The event was presented by Dr. Huy Nguyen and Dr. An Mai, John Von Neumann Institute's members of the ALIEN project team.

Figure 27. Students attend a seminar on the ALIEN active and problem-based learning design on September 27, 2019.

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Seminar about ALIEN project on November 26, 2019

A seminar on the ALIEN project was held on November 26, 2019 at John Von Neumann Institute. The seminar was organized in the context of the monthly scientific day of John Von Neumann Institute to introduce and discuss the application of active and problem-based learning at the organizations through the ALIEN project. The event was attended by more than 40 students from John Von Neumann Institute. The event was presented by Dr. Huy Nguyen, John Von Neumann Institute's key member of the ALIEN project team.

Seminar about ALIEN project on December 11, 2019

A seminar on the ALIEN project was held on December 11, 2019 at John Von Neumann Institute. The seminar was organized in the context of orientation activities for introducing foreign students to the educational environment and courses at John Von Neumann Institute. The seminar demonstrated active and problem-based learning methods applied in the ALIEN project. It was attended by 31 students from John Von Neumann Institute, ECE, and EMSE France. The event was presented by Dr. Huy Nguyen and Prof. Bao Ho, John Von Neumann Institute's members of the ALIEN project team.

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Figure 28. Students are exposed to the ALIEN project active and problem-based learning design during orientation activities on December 11, 2019.

Seminar about ALIEN project on May 25, 2020

A seminar on the ALIEN project was held on May 25, 2020 at the Active Learning Lab built through the ALIEN project at John Von Neumann Institute. This seminar was organized during the scientific day of John Von Neumann Institute. The purpose of the seminar was to share experiences from the deployment of active learning, problem-based learning, and gamification at John Von Neumann Institute. It was attended by approximately 30 students from John Von Neumann Institute. The event was presented by Dr. An Mai, John Von Neumann Institute's members of the ALIEN project team.

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Figure 29. Students attend a seminar on the ALIEN project active learning design at the Active Learning Lab developed through the project on May 25, 2020.

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P10 Hanoi University (HANU)

ALIEN presented in problem-based learning session at Hanoi University, February 14, 2019

A community event was held at Hanoi University of February 14, 2019. The event focused on how problem-based learning can enrich educational activities on Information Systems Design and Implementation. The presentation focused on the benefits of problem-based learning and specifically how it can address the challenges faced by students in traditional educational practices, which include lack of motivation and ineffective teamwork. The presentation further high-lighted the way that problem-based learning can introduce more interactivity in the classroom through tasks that deploy digital applications and through group work. Approximately 40 educators for the Faculty of Information Technology, English Department, Faculty of Management and Tourism, Faculty of International Study, Foundation Study Department and Leaders of Hanoi University participated in the event.

Figure 30. ALIEN presented in problem-based learning session at Hanoi University on February 14, 2019.

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The presentation further focused on how case studies in problem-based learning may enrich student experiences and foster critical analysis.

The presentation subsequently focused on good practices in problem-based learning, demonstrating how digital tools such as on-line quizzes and effective classroom organization can promote the exchange of and collective development of knowledge.

Presentation of Active learning and Problem based learning at VTI Academy, March 15, 2021

On March 15, 2021 key members of project ALIEN from Hanoi University delivered a presentation for teachers and students of VTI Academy on active and problem-based learning. The event was attended by 20 instructors and students from VTI academy, including Mr. Nguyen Quyet, General Manager of the Academy.

VTI Academy is an organization that specializes in providing training courses on IT with the purpose of developing high-quality human resources for domestic and international information technology markets. VTI Academy courses provide prospective programmers with the best technology skills, software skills, and software development process knowledge for application in enterprise contexts.

Figure 31. CTI academy and Hanoi University students attend a presentation of active learning and the ALIEN project on March 15, 2021.

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Dr. Nguyen Xuan Thang, a key member of the ALIEN project, introduced the advantages of active learning and the reason why active learning should be used in engineering education. In addition, he provided a list of tools and techniques that help in the application of active learning.

Opening a course on active learning in Java programming teaching for HCL staff, January 15, 2021

HCL Technologies Group is one of India's three largest IT companies and top 10 in the world. HCL has revenue of about 8.4 billion USD per year. In India, HCL Group has a history of over 40 years specializing in software production providing for 19 different service industries. Currently the group has 140.000 engineers working in 44 countries.

On January 15, 2021 the opening ceremony of the course on “Active learning in Java programming teaching” took place at Hanoi University. This course is commissioned by HCL Technologies Group. Attending the ceremony were Mr. Sanjay Gupta, Vice President and Chief Strategy Officer of HCL Technologies Group and representatives of relevant departments and divisions of HCL Technologies. From Hanoi University, Associate Professor Doctor Nguyen Van Trao, President of Hanoi University, heads of departments, teachers, and 20 students from the Faculty of Information Technology attended.

Speaking at the opening ceremony the Rector of Hanoi University, Assoc. TS. Nguyen Van Trao, revealed that training courses for HCL Vietnam's future staff would be implemented at the problem-based learning lab funded by the ALIEN project. The application of project-based teaching methods will help learners develop the practical skills needed for work, including professional skills and soft skills.

Lecturers of the Faculty of Information Technology and HCL Technologies Group appreciated the teaching and learning facilities of the ALIEN problem-based learning lab. The teaching staff and about 20 students believed that applying the project-based learning model in the Java Programming training will help students significantly improve their competencies and skills such as critical thinking, creativity, problem solving strategies, team collaboration, resource management, ability to communicate, and entrepreneurship.

The course is scheduled to last for 3 months and will end in May 2021.

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Figure 32. Members of the HCL group and Hanoi University students attend the opening of a course with a presentation of active learning and the ALIEN project on January 15, 2021.

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P11 University of Battambang (UBB)

ALIEN presentation to students and educators, October 15, 2020

NUBB organized an event for disseminating emerging learning design, including STEM, active, and problem-based learning on October 15, 2020. The ALIEN project was presented at the event. The event was attended by 40 participants, educators receiving continuous training at the Battambang Teacher Education College (BTEC). The focus of the event was to share knowledge on problem-based learning acquired through the ALIEN project in order to improve the participants' capacity to effectively teach their students at lower and upper secondary schools in the northwestern part of Cambodia. H.E. Sieng Emtotim shared knowledge and experience on active learning pedagogy in science education, especially, engineering education and applied sciences.

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Figure 33. Secondary education teachers participate in a problem-based learning event focusing on ALIEN on October 15, 2020.

ALIEN presentation to undergraduate students, February 10, 2021

The University of Battambang organized an event for disseminating the activities and outcomes of ALIEN and its best practices to 300 undergraduate students enrolled in the 1st year in majors of Computer Science, Civil Engineering, Business Management, and Agriculture on February 10, 2021. The event shared ALIEN methodologies, best learning activities, active learning, gamification, and problem-based learning that offer benefits to students towards their academic success. These new pedagogies have been integrated to the course syllabuses at the University of Battambang.

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Figure 34. Students are informed on the benefits of emerging problem-based learning design integrated into course curricula at the University of Battambang, February 10, 2021.

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P12 Institute of Technology of Cambodia (ITC)

Introducing the ALIEN PBL platform to students, March 11 - 12, 2021

Students at the Department of Information and Communication Engineering of ITC were introduced to the ALIEN problem-based learning platform on March 11 – 12, 2021. Students explored the platform, learned how to use it, and downloaded problems for further study and research. During the session, students were divided into 4 groups of 20 students each, for a total of 80 students. Due to COVID-19 restrictions, the session was organized virtually through MSTeams®.

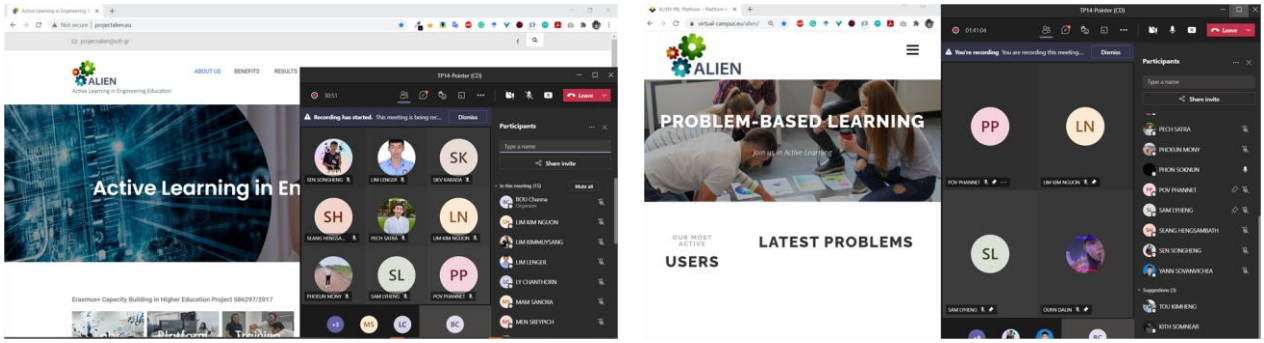

Figure 35. Students use the ALIEN problem-based learning platform under instructor guidance on March 11 – 12, 2021

Students at the Department of Information and Communication Engineering present their work, January 27, 2021

Students at the Department of Information and Communication Engineering presented projects they implemented using the ALIEN problem-based learning platform activities. This work was the result of group projects, and took place on January 27, 2021. While working on projects, students were divided into 17 teams of 3 – 5 individuals, for a total of 80 participants. Each team was assigned a topic to be solved through problem-based learning, on which they worked for a period of 3 weeks. Each team submitted their work and report to the instructor. In addition, each team presented their work to the instructor and other teams, with the instructor

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providing feedback. Most teams worked on different topics. Some worked on the same topic, but introduced different solutions.


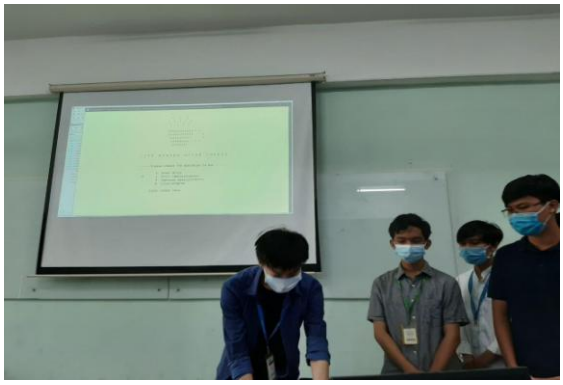


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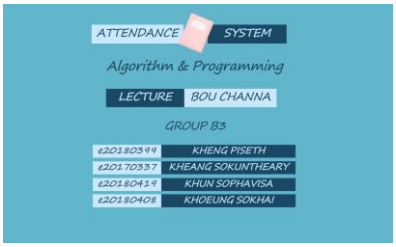
Figure 36. Students present their projects implemented using the ALIEN digital problem-based learning platform on January 27, 2021.



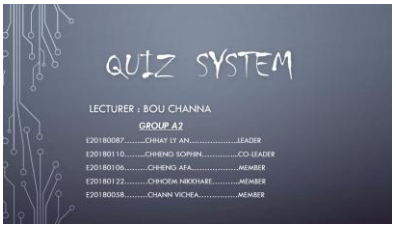


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Figure 37. Examples of student work presented on January 27, 2021.

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P13 Mean Chey University (MCU)

ALIEN on community event for promoting problem-based learning, May 23 - 24, 2019

An event for promoting active and problem-based learning took place at Mean Chey University on May 23 - 24, 2019. The event was coordinated by an educator that provided assistance in student project activities. Furthermore, 5 students were selected for promoting good practices on problem-based learning. The event was attended by 15 students from Mean Chey University.

Figure 38. ALIEN is presented to students at Mean Chey University on May 23 – 24, 2019.

Students had the opportunity to become familiarized with active and problem-based learning design, a methodology that the university aims to integrate broadly in engineering courses.

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Students discussed diverse active and problem-based learning approaches, including eLearning, deployment of digital applications such as games and simulations, project-based learning, group collaboration, and more. Student reflected on the benefits of active and problem-based learning towards building analytical and critical thinking, team building abilities, and other higher order thinking skills such as analyzing and evaluating information stemming from diverse sources and being able to apply knowledge in real-world scenarios.

ALIEN at the We Live in the Information Age event, May 25 - 26, 2019

Mean Chey University organized on May 25, 2019 an event supported by Bacamp® titled “We live in the Information Age”. The aim of the event was to demonstrate that Cambodia can produce computers of the KOOMPI® brand. Approximately 100 students participated.

The event took place at the Mean Chey problem-based learning laboratory built through the ALIEN project. During the event students participated in active learning sessions that involved programming in order to build their confidence in their ability to act professionally in the information age.

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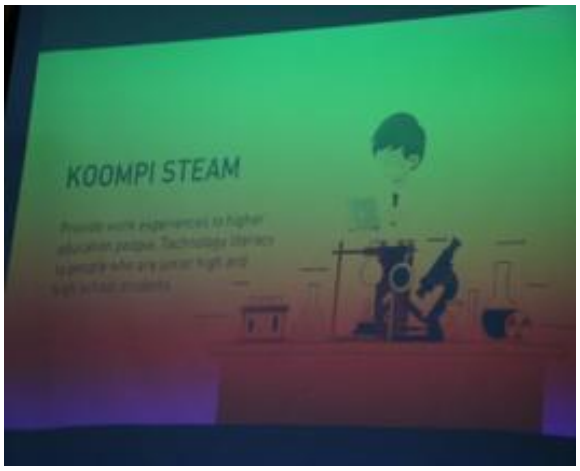

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Figure 39. Students engage in active learning during the We Live in the Information Age event, May 25, 2019.

Students interacted with their peers and discussed the challenges and benefits of the digital age and how education gradually adapts to emerging needs and opportunities.

Presentation of ALIEN to Iinformation Technology students, February 27, 2019

On February 27, 2019 Mean Chey University organized an event that targeted students enrolled in the Information Technology program. Approximately 100 students engaged in this event.

The event was announced and promoted on social media. During the event students worked in the problem-based learning laboratory that was established through the ALIEN project.


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Figure 40. ALIEN is presented to students of the Information Technology program on February 27, 2019.

Students followed presentations and engaged in active learning activities using the laboratory work stations. The event was significant for demonstrating how emerging learning design, such as active and problem-based learning, can help modernize educational practices and build skills for industry.

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P14 Institute of Engineering, Tribhuvan University (IOE/TU)

ALIEN presented to Tribhuvan students on August 30, 2018

The ALIEN project was presented to the student community at Tribhuvan University following the project kick-off meeting that took place in June 2018. Students had the opportunity to reflect on the benefits of the problem-based learning approach in their studies and research. The event was headed by the Dean of Institute of Engineering, Tribhuvan University Prof. Dr. Tri Ratna Bajracharya and program was hosted by the Director of Centre for Energy Studies (CES) Dr. Shree Raj Shakya. It was attended by 20 students from bachelor, masters, and PhD programs.

Figure 41. Students attend a community event on the ALIEN project at Tribhuvan University on August 30, 2018.

ALIEN presented in problem-based learning event on July 13, 2020

The Institute of Engineering, Tribhuvan University organized a community event targeting students of Masters of Science in Energy System Planning and Management (ESPM) and Masters of Science in Renewable Energy Engineering (MSREE) on July 13, 2020. The event was organized virtually due to COVID-19 restrictions. The event focused on how problem-based learning can enrich student experiences in their study work and in real life. The event was attended by 13 participants.

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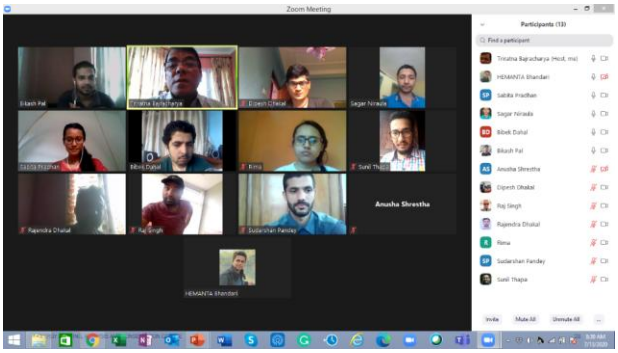
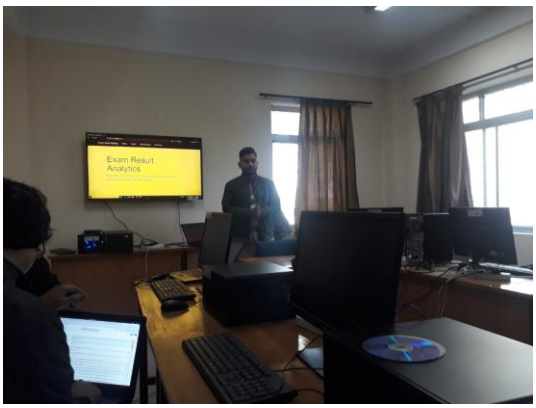
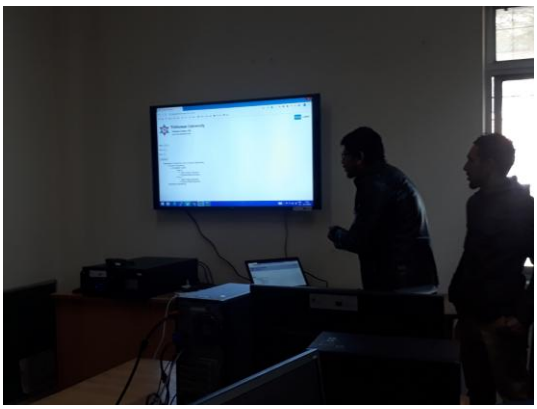


Figure 42. Students attend a community event on problem-based learning on July 13, 2020.

The ALIEN laboratory used by the Exam Control Division of Tribhuvan University, fall 2020 and spring 2021

The Centralized Visualization System Laboratory by the ALIEN project is being used for problem-based learning as well as other activities at Tribhuvan University. In this context, a discussion and demonstration program was organized with the officials of Examination Control Division in the premises of the Center for Energy studies. High level officials from the Examination Control Division participated in the discussion program. Based on the discussed technology and ideas, the division has incorporated problem-based learning in their practices.





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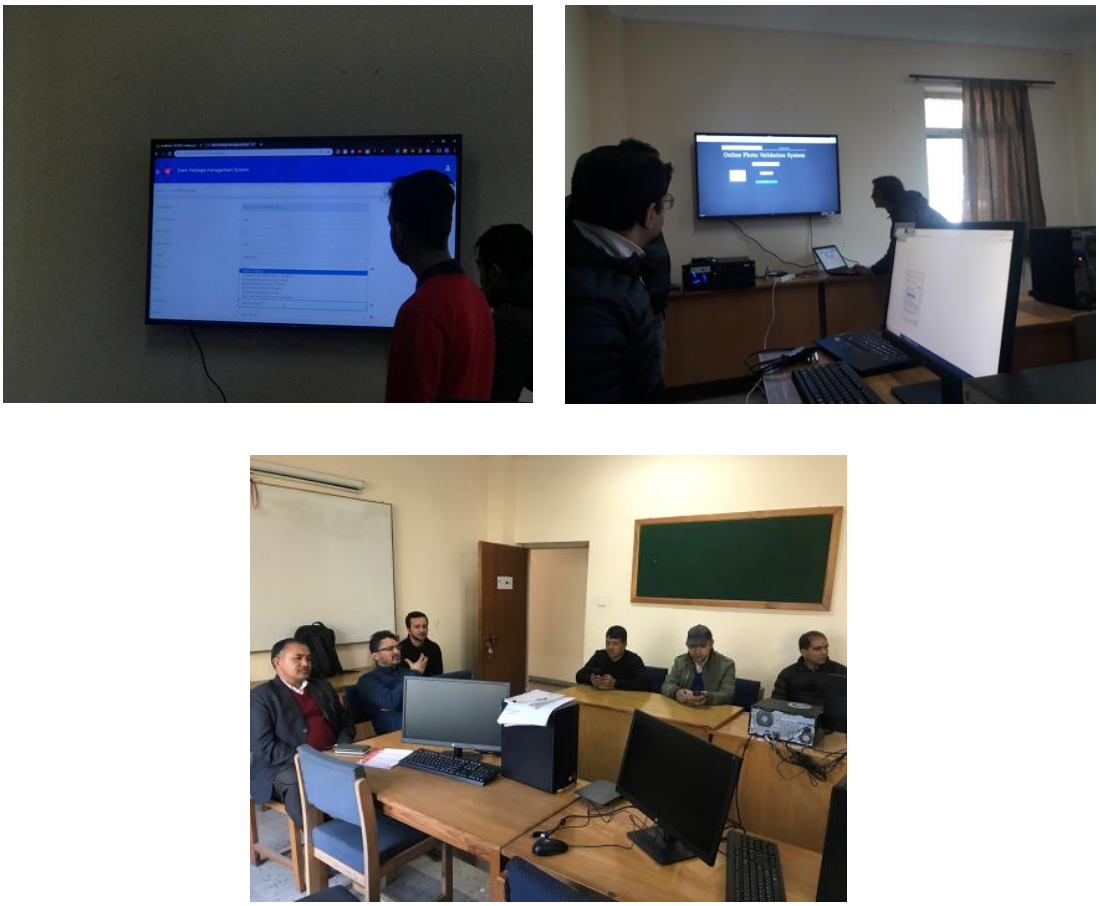

Figure 43. Members of the Examination Control Division participate in discussions on the wide deployment of problem-based learning, fall 2020 and spring 2021.

ALIEN event on building bridges with professional organizations, January 14, 2021

In order to maximize the deployment of active learning and the use of the Centralized Visualization System Laboratory funded by the ALIEN project, the Centre for Energy Studies, Institute of Engineering, Tribhuvan University signed a MoU with Nepal Engineers' Association (NEA). The main objective of this MoU is to disseminate and promote the application of active learning methods by members of the association. NEA is the largest organization of engineers in Nepal. It was established in 1962 and has more than 40.000 members. For this reason, it is a great organization for promoting ALIEN project ideas.

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TRY-PARTY MEMORANDUM OF UNDERSTANDING

BETWEEN

NEPAL ENGINEERS' ASSOCIATION (NEA)

AND

CENTER FOR ENERGY STUDIES, INSTITUTE OF ENGINEERING, TRIBHUVAN UNIVERSITY

AND

KATHMANDU UNIVERSITY, NEPAL

Figure 44. An MoU was signed between Tribhuvan University and the Nepal Engineering Association towards promoting active learning in January 2021.

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P15 Kathmandu University (KU)

On-line ICT training to basic level science and mathematics teachers, October 11, 2020

An event titled Online Based ICT Training to Basic level Science and Mathematics Teachers 2020 war organized by Kathmandu University and LUPIC on October 11, 2020. During the event Prof. Dhiraj Shrestha delivered a presentation on active learning in the 21st century. The event was attended by 25 individuals and took place on-line. During the event the audience had the opportunity to be exposed to active and problem-based learning design.

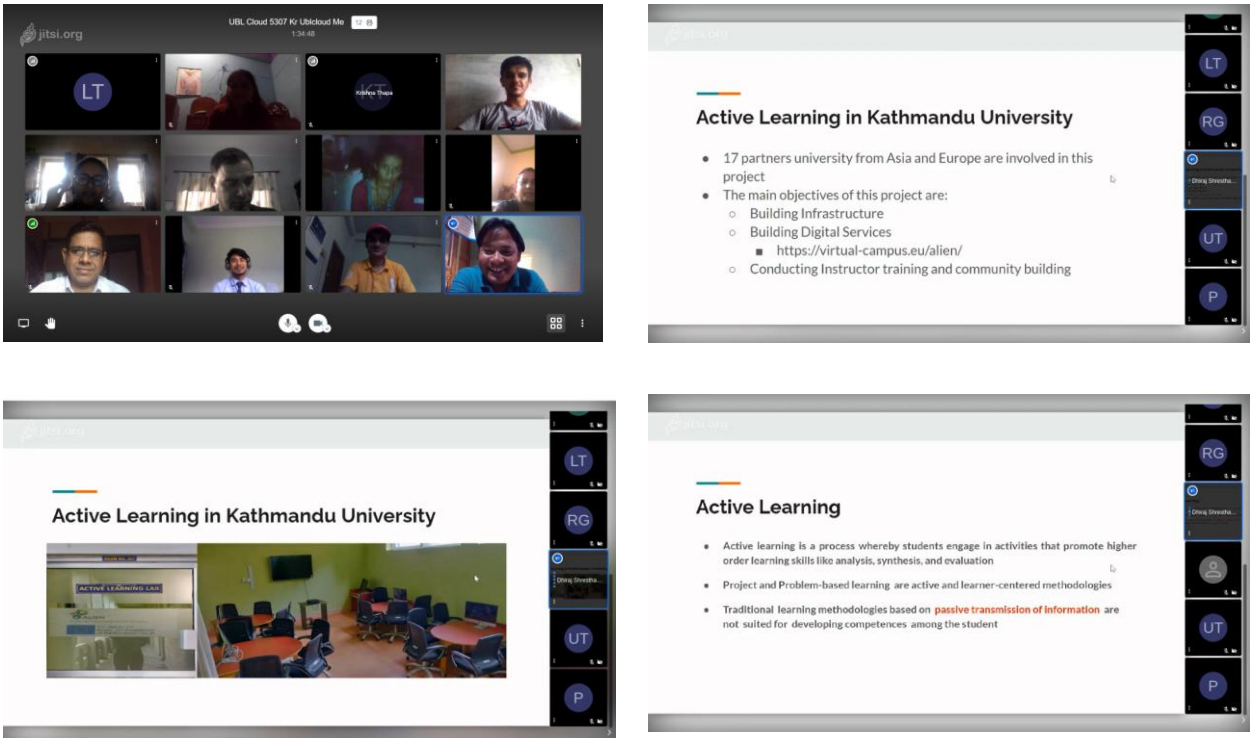

Figure 45. ALIEN is presented to researchers at Kathmandu University on October 11, 2020.

In addition, the audience became familiar with the ALIEN project objectives and activities both at Kathmandu University and at the consortium partner sites.

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ALIEN on community event for promoting problem-based learning in engineering education, February 24, 2021

The Kathmandu University Active Learning Lab and Lumbini Engineering College, Rupandehi, Nepal organized an event for discussion on the use of active learning through problem-based learning in engineering education on February 24, 2021. The event was organized by Lumbini Engineering College in Bhalwari, Rupandehi. The event was attended by 15 faculty members from various engineering departments.

Mr. Dhiraj Shrestha, Assistant Professor and team member of Active Learning Lab developed through the ALIEN project facilitated the session. He presented the Active Learning Lab and its facilities. He also shared his experiences and success stories on how problem-based learning has been implemented in Kathmandu University.

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Figure 46. ALIEN on community event organized by Kathmandu University Active Learning Lab and Lumbini Engineering College

Lumbini Engineering College and Kathmandu University Active Learning lab have agreed to work collaborate in the field of problem-based learning.

Co-funded by the Erasmus+ Programme of the European Union

P16 National University of Future and Emerging Sciences (NUCES)

ALIEN presentation to National University of Modern Languages, November 16, 2019

ALIEN was presented to the National University of Modern Languages on November 16, 2019. The presentation took place in the context of a faculty development program running in that university in which the management called speakers from other universities to hold talks and to introduce their faculty to modern research aspects and running projects. The talk was attended by university staff and faculty. A total of 22 individuals participated.

Figure 47. Instructors and staff of the University of Modern Languages attend an ALIEN project presentation on November 26, 2019.

ALIEN presentation to the National University of Technology, May 18, 2020

ALIEN was presented in a research meeting with the National University of Technology on May 18, 2020. The meeting aimed at extending collaboration on local and foreign projects in the future. The ALIEN project objectives and activities were presented to participants. Also, participants had the opportunity to follow a demonstration of the ALIEN digital problem-based learning platform. 7 individuals participated in the event.

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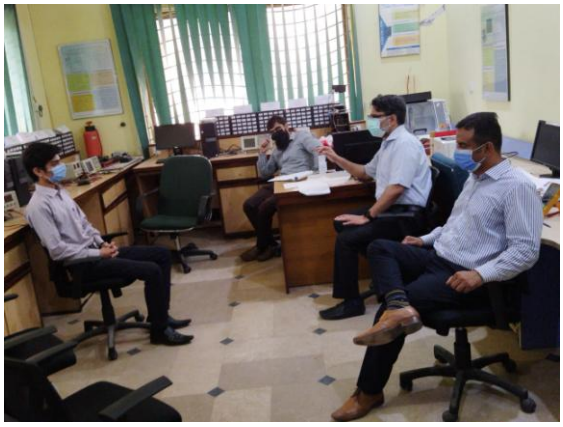

Figure 48. Participants in a meeting with the National University of Technology are presented with the ALIEN project objectives and digital problem-based learning platform on May 18, 2020.

Co-funded by the Erasmus+ Programme of the European Union

P17 Hanoi University of Science and Technology (HUST)

Active learning introduction in welcoming event of new students, October 12 - 16, 2020

Each year, the School of Information and Communication Technology, Hanoi University of Science and Technology welcomes more than 1.000 new students. In the 2020 – 2021 academic year the event took place from October 12 – 16, 2020. The event aimed at welcoming new students by SOICT leaders, who introduced the faculty's educational programs. Presenters further discussed with students how to select a major that suits their abilities and interests and their desired career after graduation. Finally, presenters focused on the teaching and learning methods deployed at Hanoi University of Science and Technology in engineering and technology subjects, which differ significantly from those that students were exposed to during their high school studies.

Figure 49. ALIEN active learning design is presented at welcoming event for new students enrolled at Hanoi University of Science and Technology on October 12 – 16, 2021.

These methods include active and problem-based learning that are promoted by the ALIEN project.

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The ALIEN active learning methodology presented to Data Science and Artificial Intelligence students, September 10, 2020

Data science and Artificial Intelligence is a new engineering program at Hanoi University of Science and Technology. This is an advanced program that enrolls 60 students. All subjects are taught in English. Lecturers are both Vietnamese and foreigners.

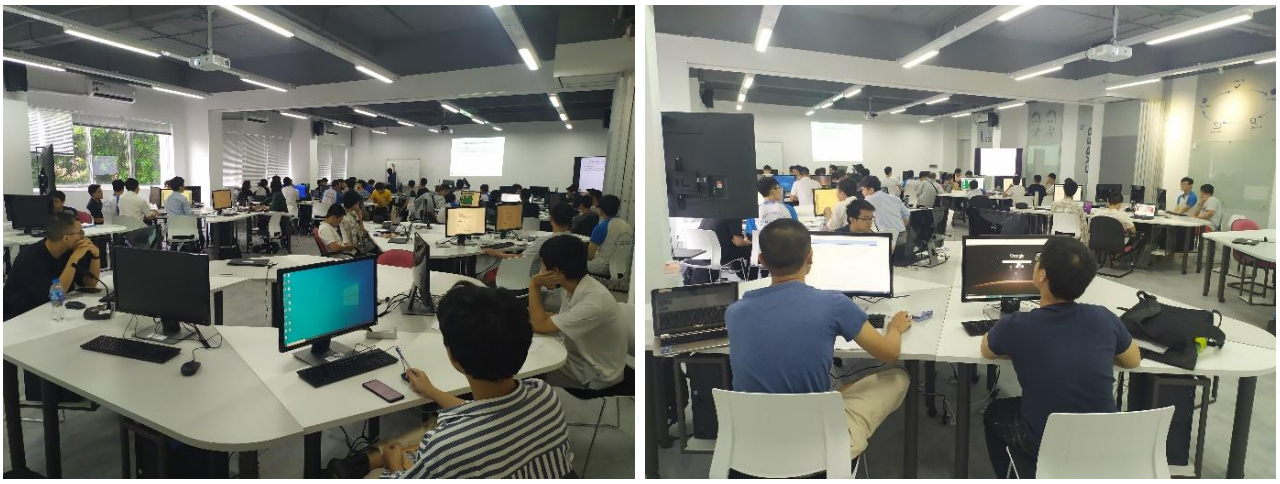

Figure 50. Active learning is presented to students enrolled in the Data Science and Artificial Intelligence program, September 10, 2020

The training program is designed to cover the latest topics in the fields of data science and artificial intelligence. Courses are designed to increase student autonomy, increase interaction between lecturers and students, and promote group work for solving problems. During the course students were introduced on the active learning and problem-based learning method supported by the ALIEN project.

ALIEN presentation to educators from HUST departments, January 21 - 22, 2021

Hanoi University of Science and Technology organized a course on January 21 - 22, 2021 towards building the basic knowledge on artificial intelligence. 56 individuals participated in the event. Participants were lecturers and researchers from all faculties, institutes, and schools of Hanoi University of Science and Technology. The instructors were lecturers on Artificial Intelligence majors of the School of Information and Communication Technology.

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Figure 51. ALIEN presentation to educators from HUST departments, January 21-22, 2021

The course is structured around the active learning model. It was held in the problem-based learning laboratory developed through the ALIEN project. Participants were introduced to active learning as well as the ALIEN project activities and outcomes.

Joint training delivered by HUST and the Vietnamese Ministry of Education and Training towards school educators, July 4, 2020

A training session was jointly delivery by Hanoi University of Science and Technology and the Vietnamese Ministry of Education and Training on July 4, 2020. The event target high school educators and was attended by 50 individuals.

The event was organized in the context of broader initiatives of the Ministry of Education and Training towards modernizing educational practices. More specifically, since academic year 2020, Vietnam experiments with a new textbook program, in which training and learning methods are also updated. One of the basic directions of educational innovation is to move from an academic education, away from reality, to an education that focuses on forming action capacity and promoting pro-activity and creativity of learners.

The important orientation in innovating teaching methods in general and teaching methods in primary schools in particular is promoting activeness, self-reliance and creativity, developing action capacity, collaborative capacity of students.

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The Ministry of Education and Training has organized many specialized training sessions in high schools to train teachers on new teaching and learning methods. In this specific session, Hanoi University of Science and Technology integrated the concept problem based learning and educational content on building instructor capacity towards deploying it in practice. The session further included content on situated learning and on combining a variety of teaching methods.

The event was presented by Dr. Ta Ngoc Tri, Deputy Director of Primary Education Department, Ministry of Education and Training.

Figure 52. Joint training delivered by HUST and the Vietnamese Ministry of Education and Training towards school educators, July 4, 2020

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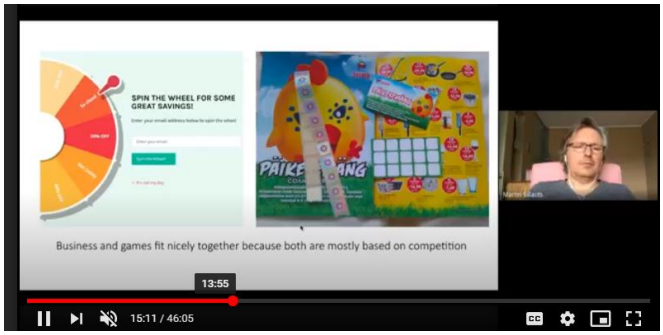
PART B. ALIEN WEBINARS



This section presents a series of ALIEN webinars that were delivered on-line. The webinars were attended by researchers of the project partners as well as external stakeholders, namely they had an international audience. 11 webinars took place. Most of the webinars are still available for review through streaming on the ALIEN portal at: Webinars – Active Learning in Engineering Education (projectalien.eu).

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ALIEN webinar "Problem-Based Learning and the ALIEN Project Objectives", November 22, 2019

Summary

The webinar presented the problem-based learning approach and related active and experiential learning methodologies. The webinar discussed how active and problem-based learning contributes to the development of higher order thinking skills, including analytical and critical thinking skills, evaluation of information that stems from diverse sources, ability to apply new knowledge in practice, and capacity to synthesize new knowledge from old. In addition, it presented how the ALIEN project aims to promote the adoption of problem-based learning as a strategic educational approach in higher education through the establishment of physical laboratories, digital services, and instructor training processes. The audience had the opportunity to see the lab spaces under development at ALIEN partner universities in Asia.

Figure 53. An ALIEN webinar on Problem-based Learning and the ALIEN Project Objectives was delivered on November 22, 2019.

Speaker

Dr. Hariklia Tsalapatas is an instructor at the University of Thessaly's Electrical and Computer Engineering Department. Her research interests focus on the integration of emerging pedagogical design with digital technologies towards designing innovative, rewarding, and

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effective learning experiences that build the knowledge and skills needed by industry and society in today's world.

She teaches Educational Technologies, Learning Games Design, Software Engineering, Discrete Mathematics, and Design Thinking. She has a Bachelor Degree from the University of Patras, Greece, a Master's Degree from Rice University in Houston, Texas, a MBA from Columbia University in New York, and a PhD from the University of Thessaly with a focus on serious games design.

Resources

On the ALIEN portal: Webinar on PBL and the ALIEN Objectives, 22/11/2019 – Active Learning in Engineering Education (projectalien.eu).

Co-funded by the Erasmus+ Programme of the European Union

ALIEN webinar "Reflections on the Use of Active Learning in Large Groups", January 23, 2020

Summary

The webinar presented insights of Janet Read and Gavin Sims on the deployment of active learning methodologies on large groups of students. It was an insightful presentation of practical aspects on the deployment of active learning from instructors that have broad experience with both small and large groups of students. It provided valuable insight on how to design active learning activities and how to get the best results for the benefit of students in diverse educational scenarios, ranging from in-class to remote instruction.

Speakers

Dr. Janet Read has a PhD in Child Computer Interaction. A former secondary school teacher, she has been employed at UCLan since 2000 where she is the director of the Child Computer Interaction research group. Currently managing the usability sections of the UMSIC EU project,

Dr. Read has previously successfully completed the U-Think project (2008) which was a development of an educational product for disaffected teenagers and the BEAM project (2007) which was to enhance children's museum experiences using technology.

She has over 50 refereed articles, many relating to fun in the user interface, and recently published the first text book on evaluating interactive products with children.

Dr. Gavin Sim completed his PhD on the usability of e-learning systems for students and is the Chief Editor of the local UCL Journal of Pedagogical research. He has worked with Read on the design of culturally appropriate serious games and is certified as an Agile Scrum

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master. Since his PhD he has published work on the evaluation of fun and usability in serious games environments.

Resources

On the ALIEN portal: [Webinar on Reflections on the Use of Active Learning with Large Groups, 23/1/2020 – Active Learning in Engineering Education (projectalien.eu)](#).

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ALIEN webinar "Gamification and Problem-Based Learning", May 5, 2020

Summary

Project ALIEN promotes active and problem-based learning methods. Gamification is an implementation of game elements in non-game environments, including classrooms. Gamification as a teaching method is definitely active. Its links to problem-based learning needs further analysis. This webinar introduced how gamified learning activities can be designed. The webinar presented the gamification design process and focused on possibilities on how to integrate problem-based learning with gamification or game-based learning in which problems are challenges.

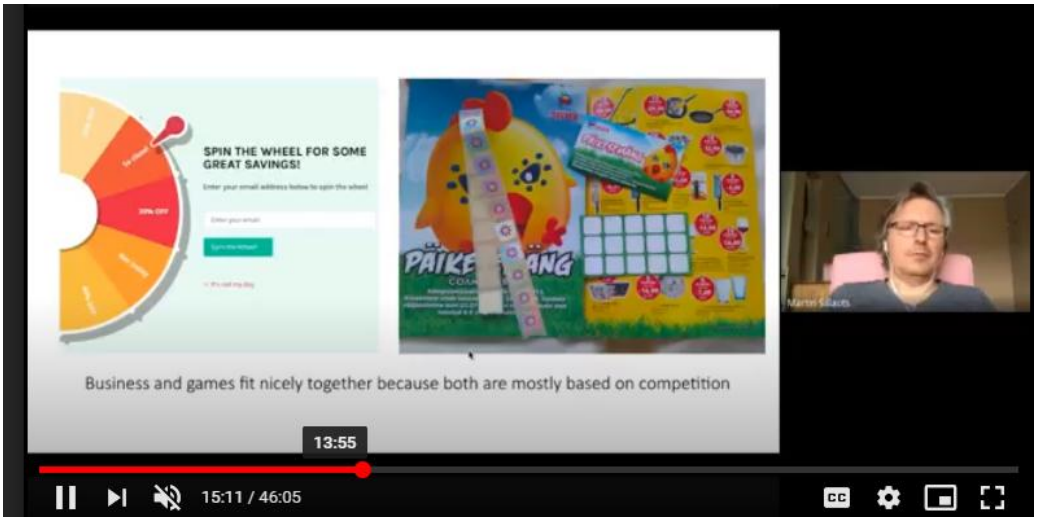

Figure 54. ALIEN webinar on "Gamification and Problem-Based Learning" was delivered on May 5, 2020.

Speaker

Dr. Martin Sillaots is an Associate Professor of serious games and the Head of the Digital Learning Games International Master's Program (http://dlg.tlu.ee/) in Tallinn University. He teaches courses on Game Logic, Learning Game Design, and Gamification Workshop and is a national coordinator of several international projects such as MAGNUS, G.A. STEM, and ALIEN.

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Resources

On the ALIEN portal: [Webinar on Gamification and PBL, 4/5/2020 – Active Learning in Engineering Education (projectalien.eu)](projectalien.eu).

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ALIEN webinar "Digital Problem-Based Learning Platforms", May 28, 2020

Summary

Problem-based learning is an active-learning, student-centered pedagogical methodology in which students learn about a subject through the experience of solving an open-ended problem normally based on real contexts and situations. This methodology also allows to further promote the development of interpersonal and intrapersonal skills like enhanced group collaboration and communication, leadership, inquiry and research, decision making, etc. The PBL process implies normally working f2f in small groups of learners something that has been rendered problematic due to the pandemics restrictions. The use of online PBL solutions allows to overcome the current limitations and also to extend the scope of application of this methodology to online collaboration processes. This will be demonstrated using the ALIEN PBL platform.

Speaker

Dr. Carlos Vaz de Carvalho has a Ph.D. in Technologies and Information Systems (e-Learning) from the University of Minho, in Portugal. He has been a Higher Education professional for 25 years, now as Associate Professor of the Computer Engineering Dep. of the Instituto Superior de Engenharia do Porto (ISEP). Throughout this period he produced educational content for over 15 different subjects, in most cases with innovative components based on technology enhanced learning. He was also responsible for planning and developing syllabuses for several of these disciplines, namely in the Master in Computer Eng. He has, in parallel, considerable activity in training actions related to e-learning, in collaboration with leading organizations in this area.

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Scientifically, he was researcher at INESC (Computer Graphics Group) from 1988 to 1996. From that time began developing a scientific career in the e-Learning area. From 2005 to 2014 was Scientific Coordinator of the GILT Research Group (Graphics, Interaction and Learning Technologies). He directed eight PhD theses and 30 Master in this area.

Throughout his career he authored over 150 publications and communications on the subject, including more than ten books (as author and editor). Also noteworthy is the coordination of over 15 national and European projects and the participation in more than 20 other. It should be noted that by the nature of the themes, these projects always had a mixed profile of technology and education.

He was eLearning Director (2001-2005) of the School of Engineering and directed (1997-2000) the Distance Education Unit of the Polytechnic Institute of Porto. Between 2011 and 2013 he was President of the Portuguese Chapter of the IEEE Education Society. In August 2011 was promoted to Senior Member of IEEE, in recognition of the relevance of the activities carried out under the Engineering.

Resources

On the ALIEN portal: [Webinar on Digital Problem-Based Learning Platforms, 28/5/2020 – Active Learning in Engineering Education (projectalien.eu)](#).

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ALIEN webinar "The TEALs Laboratory and Experiences on Active Learning in Malaysia", June 25, 2020

Summary

TEALS is a learning space designed under the ALIEN Erasmus+ project for conducting active learning classes in the Software Engineering Department, Faculty of Computer Science and Information Technology, University of Malaya. The aim of creating the learning space is to equip software engineering students for the workplace to solve future problems, and to improve the psychomotor, cognitive and affective skills in teaching and learning software engineering courses.

To achieve this aim, hardware and software are used in the active learning process to strike a good balance between emphasis on knowledge and application of the knowledge. In this webinar series, TEALS is introduced, which elaborates on its learning space principles and its existing set of software and hardware.

This includes Arduino, Raspberry Pi, Programmable Autonomous, Programmable Drones Car and 3-D Printer. This is followed by demonstration of three implementations of active learning in TEALS with different focus of active learning methods and the technology used.

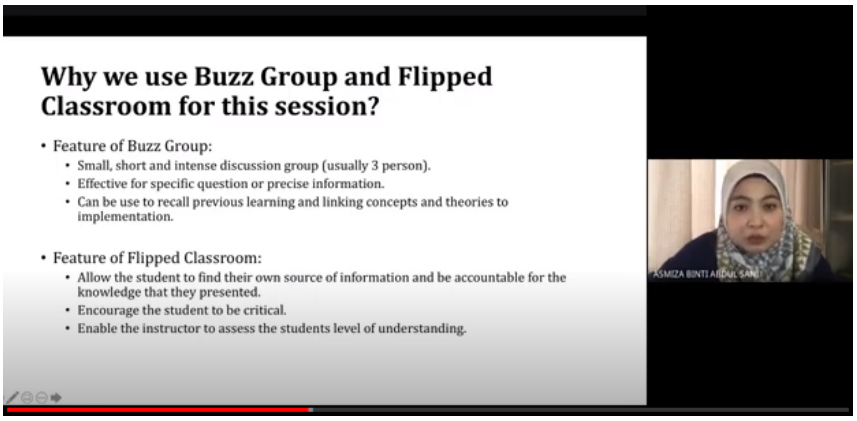

Figure 55. ALIEN webinar The TEALs Laboratory and Experiences on Active Learning in Malaysia" was delivered on June 25, 2020.

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Speakers

Dr. Raja Jamilah Raja Yusof is currently a Senior Lecturer in the Department of Software Engineering in Faculty of Computer Science and Information Technology, a member of Centre of Quranic Research, University of Malaya and also a Senior Member of Institute of Electrical and Electronics Engineer (IEEE Senior Member). Currently she is actively involved in Active Learning in Engineering Education (ALIEN) project under the Erasmus Plus. Her other research interests are in Human Computer Interaction and Algorithms while Quranic and Islamic information are valued aspects of her research. Currently her other funded research grants include Gesture Based Interaction and optimization of Machine Learning algorithms for 3D image retrieval.

Dr. Hazrina Sofian is currently a Senior Lecturer in the Department of Software Engineering in Faculty of Computer Science and Information Technology, a member of Institute of Electrical and Electronics Engineer (IEEE Senior Member). Her research interests are in Requirements Engineering, Semantic Web, and Intelligence Computing. Currently her research grants include Software Requirements Engineering using Evolutionary Prototyping in financial sector. She is also a researcher for the Active Learning in Engineering Education (ALIEN) project.

Dr. Asmiza Abdul Sani is currently a Senior Lecturer in the Department of Software Engineering, Faculty of Computer Science and Information Technology, University of Malaya, Malaysia. Her recent work focuses on software frameworks and her research interest includes model-driven engineering and formal software specification. She is also a researcher for the Active Learning in Engineering Education (ALIEN) project.

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Resources

On the ALIEN portal: Webinar on "The TEALS Lab and Experiences on Active Learning in Malaysia", 25/6/2020 – Active Learning in Engineering Education (projectalien.eu).

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ALIEN webinar "Design Thinking in Problem-Based Learning Contexts", September 10, 2020

Summary

Design thinking is a human-centered, solution-oriented approach to entrepreneurial innovation that aims at designing products and services that more accurately address user needs by factoring into design user experiences, addressing real, as opposed to perceived, needs. Design thinking achieves this through a process of empathy that documents user reactions, feedback, and feelings while they engage with a particular solution; accurate problem definition that helps focus on real user needs; ideation or brainstorming, that encourages the introduction of broad ideas towards addressing a challenge; prototyping of solutions in a manner that allows users to engage with them; and evaluation of prototypes that engages users and documents feedback for optimizing solutions. Design thinking is applicable both in industry and social entrepreneurship contexts. In education, it fosters the development of adaptive, resilient, innovative, and creative young professionals that have the life skills necessary for addressing 21st century challenges.

This webinar presented the design thinking framework and practical processes of synthesizing solutions through empathy, problem-statement definition, ideation, prototyping, and evaluation. It further presented a digital collaboration framework that supports design thinking in teams through services that encourage the sharing ideas on a jointly owned solution design canvas, reviewing and building on the ideas of others, and evaluating feedback with the objective of reaching a solution that better address user needs.

The services demonstrated deployed gamification principles that promoted user engagement by rewarding participation in the generation and review of ideas fostering group collaboration.

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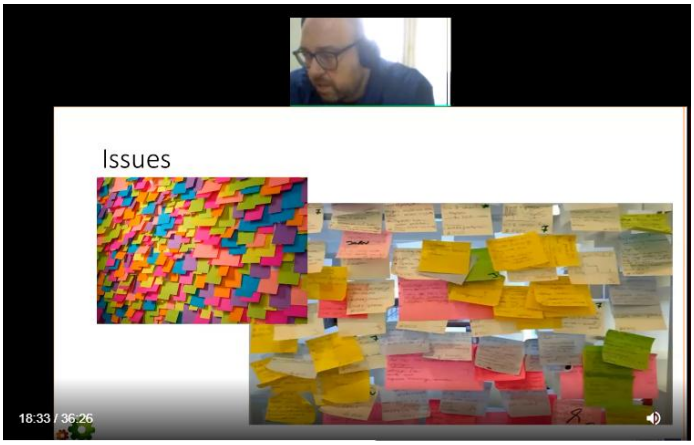

Figure 56. ALIEN webinar "Design Thinking in Problem-Based Learning Contexts" was delivered on September 10, 2020.

Speaker

Olivier Heidmann has a Master's Degree from Louis Pasteur University of Strasbourg, France. He also taught computer science, mathematics and management to students ranging from 14 years old to adults. Since 2004, he participated as a key software and service designer and developer in more than 25 different EC-funded projects, using ICT and web-based solutions to enhance teaching and learning methodologies and tools. The projects tackled a wide variety of subjects using innovative methodologies such as problem-based learning, agile methods and design thinking. Mr. Heidmann has published several papers at international conferences, including the EDUCA On-line Conference, the CELDA Conference, the Europrix Academic Conference, and more.

Resources

On the ALIEN portal: Webinar on Design Thinking in PBL Contexts, 10/9/2020 11:00 EET – Active Learning in Engineering Education (projectalien.eu).

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ALIEN webinar "Education in the New Era", October 22, 2020

Summary

Covid 19 has set the entire globe to zero. Now, the world faces new more global problems rather than local problems. New and different challenges and opportunities emerge in this pandemic and these challenges can be addressed with global perspectives. No country is safe until every country is safe. Education has moved to new era because of this pandemic. Entire educational system has to be rewired in order to address the new challenges and to get the new opportunities. Adaptation and Innovation are pre-requisite to survive in this new era with proper use of proper emerging technologies. This webinar focused on the proper use of emerging technologies to equip the entire world to address the new challenges and grab the new opportunities with proper education.

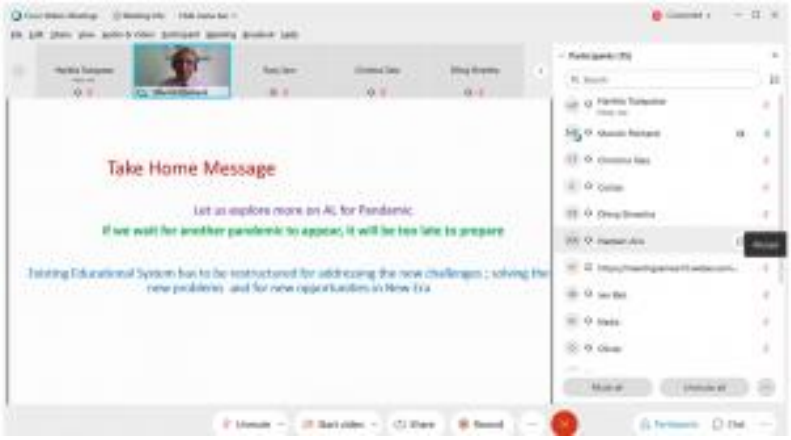

Figure 57. ALIEN webinar "Education in the New Era" was delivered on October 22, 2020.

Speaker

Dr. Manish Pokharel is a Professor at the Department of Computer Science and Engineering, Kathmandu University, Nepal. He holds a Post Doctorate and PhD from Korea Aerospace University, South Korea from 2007-2013. His research interests are: Learning Management System (LMS), Learning

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Analytics, Personalized Adaptive Learning, Active Learning, Cloud Computing, Big Data, Internet of Things, and Artificial Intelligence. He has taught various graduate level courses in Korea Aerospace University from 2008 – 2010. From the last 25 years, he has been involved with Department of Computer Science and Engineering Kathmandu University as a lecturer, Assistant Professor, Head of Department and Professor.

He is appointed as a member of High-Level ICT Council under the chairmanship of Prime Minister of Nepal. He was also the member of "High Level Education Commissions" under the chairmanship of Education Minister in Nepal. At present, he is working on "Impact of Covid 19 in Education and using Disruptive Technologies such as: AI, Cloud Computing, and Big Data to manage the challenges in Education".

He has attended many National and International Conferences as a keynote speaker and special speakers and also he has written many research papers in International conferences as well as in Journals. He has travelled India, Israel, Thailand, Singapore, Finland, South Korea, Macao, China, USA, Costa Rica, Philippines, Bangladesh, Indonesia, Japan, Greece, Turkey, Vietnam, Malaysia, Portugal and Spain.

Resources

On the ALIEN portal: Webinar on Education in the New Era: challenges and opportunities 22/10/2020 – Active Learning in Engineering Education (projectalien.eu).

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ALIEN webinar "Active Learning Techniques at Hanoi University", November 19, 2020

Summary

The webinar focused on the challenges in teaching and learning in the 21st century classroom. Active learning was analyzed and practical techniques were introduced. Emphasis was placed on applying these techniques in teaching courses at FIT, Hanoi University to enhance student engagement and learning.

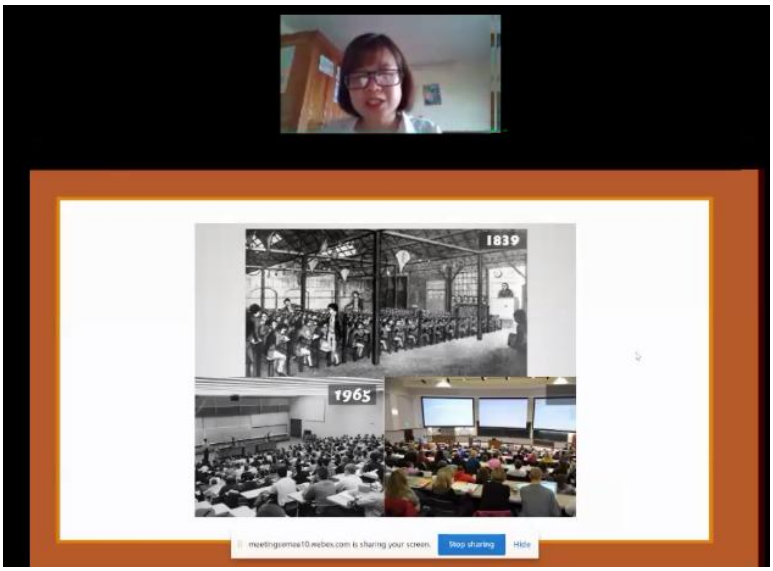

Figure 58. ALIEN webinar "Active Learning Techniques at Hanoi University" was delivered on November 19. 2020.

Speaker

Dinh Thi Minh, Nguyet has completed her Msc Degree on Information System Design at the University of Central Lancashire (UCLAN). She has been teaching System Analysis and Design as well as Database Design at the Faculty of Information Technology, Hanoi university for 7 years.

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Resources

On the ALIEN portal: ALIEN webinar on Active Learning Techniques at Hanoi University, 19/11/2020 11.00 EET – Active Learning in Engineering Education (projectalien.eu).

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ALIEN webinar "Learning in problem-based learning (PBL) context at ISRA University – from the old normal to new normal", February 11, 2021

Summary

Problem-based learning practices at ISRA University remained part of practical lab exercises since a decade, however formal implementation of PBL in various subjects (theory and practical) of the Faculty of Engineering Science and Technology is in place since August 2019. COVID-19 pandemic has shown tremendous effect across the world including academia. As per the guidelines of Higher Education Commission (HEC) Pakistan, ISRA University adopted the HEC online education policy during COVID-19 lockdown. Problem-based learning was in practice before pandemic (old normal) and remained in practice pandemic lockdowns (new normal). Use of learning management systems for on-line classes and problem-based learning were integrated to have on-line problem-based learning education. Apart from the use of some software tools and platforms overall PBL model remained same in old normal and new normal situations at ISRA University.

Speaker

Dr. Mutee U Rahman is an Associate Professor at Department of Computer Science, ISRA University Hyderabad. His expertise include diverse fields including Computational Linguistics, Artificial Intelligence, IT Management and Online Learning. He led a team of IT professionals to implement Moodle LMS, ERP System and Online Examinations at ISRA University. He served as head of IT Services department, chairperson department of Computer Science, and Turnitin Administrator positions. He was a key member of various committees to develop online learning and examination policies during COVID-19 pandemic. He is an active member of ALIEN-PBL implementation team at ISRA University.

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Resources

On the ALIEN portal: Webinar: PBL at ISRA University – from the old to the new normal – Active Learning in Engineering Education (projectalien.eu).

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ALIEN webinar "Teaching S&T through Active Learning on-line", February 18, 2021

Summary

A webinar was delivered by Universiti Tenaga Nasional on February 18, 2021. The webinar was a discussion among educators at the university on best practices related on how to cope with on-line instruction. The webinar provided valuable experiences on how engage students through diverse methods including quick quizzes using digital tools, how to promote collaboration in small groups working from a distance, how to enable experimentation and exploration through digital tools, and more, how to apply emerging active learning design, and more. The webinar was delivered on Facebook(r) live. The recording is available for review.

Figure 59. ALIEN webinar "Teaching S&T through Active Learning on-line" was delivered on February 18, 2021.

Speakers

Jehana Ermy Jamaluddin is a senior lecturer at the Department of Electrical and Electronics Engineering and involved in academic and research for the past 18 years. She teaches

electronics and communication network for undergraduates at Universiti Tenaga Nasional. Jehana is a graduate of Universiti Tenaga Nasional with BEng. in Electrical Engineering and PhD in Engineering. She graduated from Loughborough University, UK with M.S. in Digital Communication Systems. She is a professional technologist in ICT and a certified Huawei Academy Instructor. Her research spans from IoT applications to adaptive learning. She is currently seconded to the Teaching and Learning Centre.

Karmila Kamil graduated in Electrical Engineering. Currently, she is a lecturer of Electrical & Electronic Engineering at the College of Engineering, Universiti Tenaga Nasional, Malaysia. She started her career in teaching in 2012. Her area of interest in research is on artificial intelligence. She loves the creativity, tinkering and trying various approaches to teaching and learning especially when dealing with the young generation.

Rahmat Abdul Wahid is a Physics lecturer in the Department of Engineering Foundation & Diploma Studies, College of Engineering, Universiti Tenaga Nasional. He is also a member of the Malaysian Institute of Physics, and a blended learning advocate. He has been teaching Physics for more than six years to the foundation and diploma students in Universiti Tenaga Nasional. He is a graduate of Universiti Teknologi Malaysia with a Master of Science (Physics) degree in 2014 and a Bachelor of Science (Physics) degree in 2010. He has been implementing blended learning in his teaching since 2016 and active learning since 2019.

Feninferina Azman is currently with the Computing Department, College of Computing and Informatics, Universiti Tenaga Nasional. She is with the Software Engineering Unit and she teaches Basic Programming, Problem Solving, and Web Programming. She helps students to understand course content in a fun and creative way. Her main goal every semester is, when she looks at the evaluation results, she feels at ease and happy to finally close the semester.

Low Loi Ming is a lecturer at the College of Computing & Informatics, Universiti Tenaga Nasional, Malaysia. She graduated with a Master's in Information Technology (majoring in Science and System Management) from Universiti Kebangsaan Malaysia. She has more than

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fifteen years of teaching experience in higher education institutions. Her research interest is concerned with how ICT affects the learning patterns and styles among higher education institutions' students.

Resources

On the ALIEN portal: [ALIEN webinar on teaching S&T through active learning on-line 18/2/2021 – Active Learning in Engineering Education (projectalien.eu)](#).

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ALIEN webinar "Active Learning at the Technical University of Gabrovo", February 18, 2021

Summary

The webinar will present experiences from the deployment of active learning in courses at the Technical University of Gabrovo. It will demonstrate how active learning and the ALIEN solution were deployed in diverse subjects that range from cutting tools to English for engineering. It will further highlight multiplier effects of the project by showing how the ALIEN experience was integrated in a follow up project that focuses on the development of soft skills in VET, companies, chambers of commerce, and universities.

Speaker

Irena Rashkova is a senior lecturer in English at the Technical University of Gabrovo. She teaches English for specific purposes, technical and business, and Project Management. She develops curricula and teaching/learning activities, both printed and for mobile learning. Her scientific interests focus on education, social, and business issues. She is active in several research project funded by EU programs.

Resources

On the ALIEN portal: ALIEN webinar Active Learning at TUG, 25/3/2021 12.00 EET – Active Learning in Engineering Education (projectalien.eu).

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FINAL CONFERENCE

The final conference was an international event that had 6 hour duration, spanned 7 time-zones from Portugal to Malaysia, and involved 10 speakers from 9 countries. The event took place on April 9, 2021. It was moderated by University Tenaga Nasional in Malaysia by Dr. Hazleen Aris and her team of researchers. The event was opened by Dr. Aisha Abu Bakar, a senior researcher from the University of Malaya.

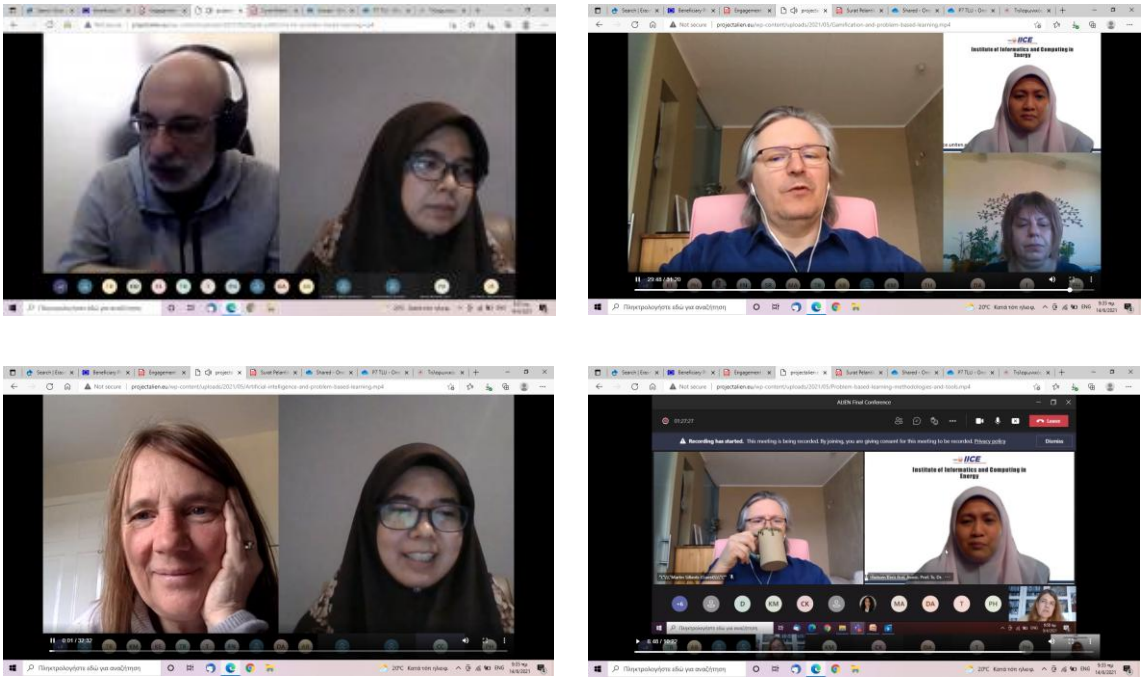

Figure 60. Speakers present at the ALIEN project final conference, April 9, 2021.

It was a great opportunity to showcase the results of the ALIEN project through partner presentations on areas of expertise related to problem-based learning, such as methodologies and tools, gamification, AI, and more.

It further showcased partners experiences from applying the ALIEN problem-based learning approach at their institutions in different countries, such as Nepal, Pakistan, Malaysia, and

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Vietnam. Participants had the opportunity to exchange experiences from the deployment of problem-based learning and to discuss special issues such as effectively engaging large groups of students. Approximately 50 individuals participated in the event through MSTeams®, which was also broadcasted live through Facebook® (additional attendance is not calculated). More on the conference is available at ALIEN final conference – Active Learning in Engineering Education (projectalien.eu).

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CONCLUSIONS

This document presented a summary of community building events organized by the ALIEN project. A total of 11 webinars were organized and over 50 regional community building events that helped reach over 5.000 individuals, exceeding the proposal target of 1.250. The community building events had positive impact, promoting ALIEN project objectives, activities, and outcomes beyond the consortium organizations to external universities, associations, companies, and authorities.

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