

Good practices inside the consortium

Summary and Analysis



EMERGING MEDIA EXPLORATION



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Project Consortium: University Babelsberg KONRAD WOLF (Germany); Tampere University (Finland); Tampere University of Applied Sciences (Finland); University of Lincoln (United Kingdom); University of Central Lancashire (United Kingdom)

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Summary and Analysis

Martyn Thayne, University of Lincoln, United Kingdom

With contributions from:

*Lena Gieseke, Film University Babelsberg KONRAD WOLF, Germany;
 Angela Brennecke, Film University Babelsberg KONRAD WOLF, Germany;
 Björn Stockleben, Film University Babelsberg KONRAD WOLF, Germany;
 Pierre Depaz, Film University Babelsberg KONRAD WOLF, Germany;
 Stephen Fisher University of Lincoln, United Kingdom; James Field
 University of Lincoln, United Kingdom; Carita Forsgren, Tampere University
 of Applied Sciences, Finland; Kirsi Karimäk, Tampere University of Applied
 Sciences, Finland; Tuomo Joronen, Tampere University of Applied Sciences,
 Finland; Markku Turunen, Tampere University, Finland;
 Onno Baudouin, University Central Lancashire, United Kingdom;
 Pierre Simmons, University Central Lancashire, United Kingdom;
 Olli-Pekka Salli, YLE, Finland; Annette Wilson, Rundfunk Berlin-
 Brandenburg, Germany*

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Introduction

The initial research phase of the Emerging Media Exploration (EMEX) project set out to identify existing 'good practices' within the consortium by inviting representatives from each partner to provide information on how they are addressing emerging media across a variety of contexts. The aim was to gain insights from our current practices by examining the recommended tools, processes, competencies and existing challenges for studying emerging media, as well as examples of previous student-industry collaboration.

Methodology

An open-ended survey was circulated amongst the consortium partners (via Google Forms) as a means of eliciting authentic and expansive data. Open-ended surveys have been shown to be extremely useful in helping to explain or gain insight into organizational issues by addressing the different perspectives and experiences of a range of respondents (Sproull, 1988; Jackson & Trochim, 2002). The survey questions [Fig. 1.] centred around two core topics: 1) previous and existing applications of emerging media within the consortium; and 2) examples of student-industry collaboration.

By using Google Forms, the data was automatically collated into a spreadsheet; this data was then extracted as individual transcripts for further review. Qualitative content analysis was undertaken via an inductive approach in order to code the verbatim survey responses into a meaningful set of categories

The application of emerging media	Examples of student industry collaboration
<ul style="list-style-type: none"> ● How are you using and addressing emerging media technology in your teaching? ● How are these examples embedded in the curriculum? ● Do you have any preferred tools or methods, particularly for supporting project-based blended learning with emerging media? ● What challenges have you encountered? ● In your opinion, what key competences should a university module on Emerging Media address? 	<ul style="list-style-type: none"> ● Please provide examples where your students have collaborated on projects with industry partners? ● What were the profile of these students? ● How has this been facilitated / how do industry partners collaborate with your students? ● What were the intended benefits for your students within these projects? ● What were the intended benefits for the Industry Partners within these projects?

Figure 1. The open-ended survey questions circulated to EMEX partner

(Lavraka, 2008), where the indexing and categorisation of the data emerged in relation to the transcripts. An inductive approach is appropriate when prior knowledge regarding the phenomenon under investigation is limited or fragmented (Cho & Lee, 2014: 4). Rather than starting with preconceived codes or categories, as found in the deductive approach to content analysis, the inductive approach draws codes, categories, or themes directly from the data (Cavanagh, 1997; Cho & Lee, 2014).

There were 15 respondents in total [Fig 2], with representatives from each of the partner universities - Film University Babelsberg Konrad Wolf (FUB), University of Lincoln (UOL), Tampere University of Applied Sciences (TAMK), University of Tampere (UT) and University of Central Lancashire (UCLAN). Two of the respondents were representatives from our consortium industry partners, Rundfunk Berlin-Brandenburg (RBB) and Finnish Broadcasting Company (YLE). The range of respondents included lecturers, professors and learning advisors from a variety of media contexts (including media production, media studies, animation, creative technologies, new media and emerging media production), while the industry partners provided a professional perspective from their backgrounds in production development and project innovation.

Name	Partner Institution	Role/Position	Reference Key
Lena Gieseke	Film University Babelsberg Konrad Wolf	Professor, Visual Media Technologies	LG FUB
Angela Brennecke	Film University Babelsberg Konrad Wolf	Professor, Audio & Interactive Technologies	AB FUB
Björn Stockleben	Film University Babelsberg Konrad Wolf	Professor, New Media Production	BS FUB
Pierre Depaz	Film University Babelsberg Konrad Wolf	Research Associate	PD FUB
Stephen Fisher	University of Lincoln	Learning Advisor, Digital Media	SF UOL
James Field	University of Lincoln	Senior Lecturer, Media Production	JF UOL
Martyn Thayne	University of Lincoln	Senior Lecturer, Media Production & Media Studies	MT UOL
Carita Forsgren	Tampere University of Applied Sciences	Senior Lecturer, Emerging Media Production	CF TAMK
Kirsi Karimäk	Tampere University of Applied Sciences	Senior Lecturer, Emerging Media Production	KK TAMK
Tuomo Joronen	Tampere University of Applied Sciences	Lecturer, Animation	TJ TAMK
Markku Turunen	University of Tampere	Professor, Interactive Technology	MT UT
Onno Baudouin	University Central Lancashire	Senior Creative Technologist	OB UCLANn
Pierre Simmons	University Central Lancashire	Course Leader, School of Journalism, Media & Performance	PS UCLAN
Olli-Pekka Salli	Finnish Broadcasting Company	Development Producer / Financial Producer	OPS YLE
Annette Wilson	Rundfunk Berlin-Brandenburg	Head of Innovation Projects	AW RBB

Figure 2 - Respondents to EMEX consortium survey

The application of emerging media within the EMEX consortium

The first set of questions sought to understand how emerging media technology and practices are currently being addressed by the EMEX partners in their study programmes. The responses suggest that emerging media are being applied in three principle contexts: 1) curriculum content, 2) curriculum delivery, and 3) extra-curricular projects. The responses to these first set of questions have been further categorised into four main themes, with a number of related sub-themes [Fig. 3].

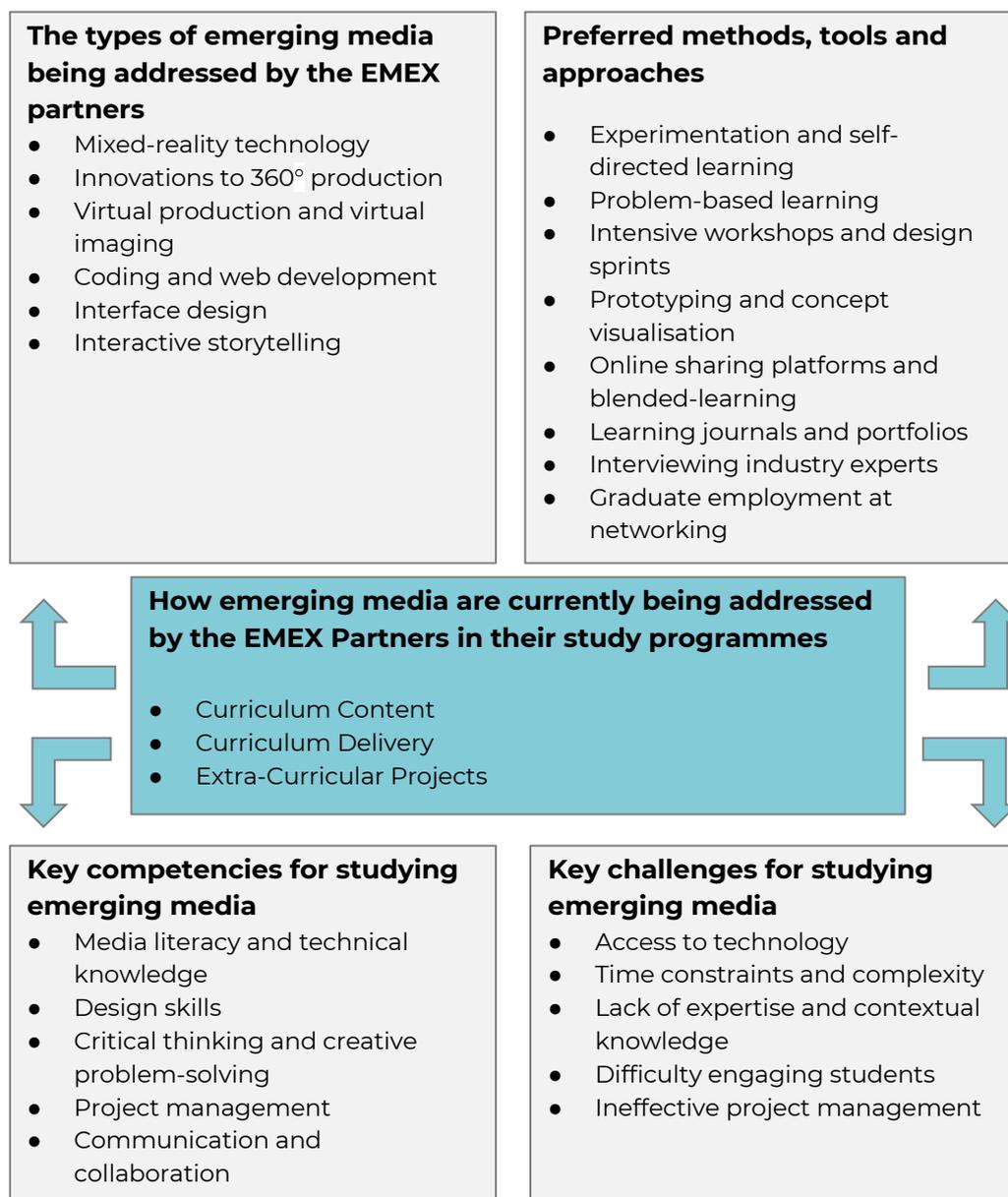


Fig. 3 - Categorising the application of emerging media technology within the EMEX consortium

Curriculum content and delivery

Emerging media is currently being addressed by all the University partners, although the degree to which this can be considered the central focus of study programmes does vary. For TAMK, emerging media is a key component of their minors for Visual Design, Animation and Emerging Media, where they both 'use and teach emerging media technology' [CF TAMK]. Emerging media is likewise

considered 'integral' for those teaching human-technology interaction at UT [MT UT]. Emerging media practices are being explored at length throughout these courses, with lecturers and teaching staff developing the necessary expertise in order to deliver this content.

Elsewhere, emerging media is a regular focus of lectures and student projects, where students are provided instructions on how to use different tools and then tasked with acquiring further independent knowledge [LG FUB]. UCLAN, for example, has a number of modules where the rudiments of coding are taught alongside the study of emerging media, where students are required to research a range of technological developments [PS UCLAN]. Students at the partner universities are also often required to produce prototypes and concept visualisations in a variety of emerging media contexts [BS FUB; MT UOL]. Annette Wilson notes that RBB addresses emerging media in an educational setting too, as they run the Electronic Media School (EMS) in Potsdam. EMS facilitates media training programmes for journalists who 'learn and gather experience in how to prepare content for new and emerging media' [AW RBB]. Emerging media tools are also employed to manage the delivery and accessibility of course material across the consortium. For example, FUB has created custom software for presentations during classes, while web technologies are often used to organise class activities and readings [PD FUB; AB FUB]. This was echoed by Onno Baudouin, who has previously made advanced technology available to students by providing user-friendly (beginner) interfaces [OB UCLAN]. At UOL, emerging media equipment and materials have been adopted in support of teaching and learning, as well as being embedded into the curriculum itself [SF UOL; MT UOL]. It was suggested that the very nature of teaching and studying digital media requires a curriculum that is 'responsive' to technological developments as they emerge [JF UOL]. Addressing emerging media in the curriculum is therefore considered essential for ensuring students are prepared for industry once they graduate.

Extra-curricular projects

In addition to addressing emerging media within the delivery of curriculum content, the EMEX consortium also facilitates various extra-curricular activities (which are often the site for collaboration with industry). These projects tend to be positioned as optional activities that enable students to earn extra credits towards their studies [MT UT; BS FUB], or they are masterclasses, tutorials, or creative projects that students can engage with on a voluntary basis [SF UOL; MT UOL; BS FUB]. These extra-curricular activities tend to take on a more exploratory approach, where staff and students have the opportunity to experiment with emerging media in a non-academic context. The methods, tools and approaches piloted in these optional activities often inform curriculum development [JF UOL; MT UOL].

The types of emerging media being addressed by the EMEX partners

This category covers the various forms of emerging media that are currently being addressed by the EMEX partners in their study programmes. The sub-themes are categorised with regards to the specific types of emerging media discussed by respondents throughout the survey. Many of the related technologies, skills and practices can be considered interrelated and transferable.

Mixed-reality technology

Mixed-reality (XR) is being addressed across 'numerous courses in different ways' [MT UT]. By mixed-reality, we refer to both augmented reality (AR) and virtual reality (VR), as well as hybrid uses of these technologies. Topics like VR storytelling and user-experience design for mixed-reality are being addressed across a number of taught modules [BS FUB; KK TAMK; CF TAMK]. The consortium also facilitates optional workshops and 'XR challenge events' [TJ TAMK], which bring together students to produce VR experiences, AR tools and mobile mixed-reality applications [BS FUB; SF UOL; MT UOL]. These types of projects are often situated in a professional context, with students producing bespoke XR solutions for companies, artists and broadcasters [KK TAMK; BS FUB; PD FUB].

Innovations to 360° production

The consortium has addressed a number of innovations to 360° production in their study programmes, including working with 360° cameras and post-production processes [MT UOL; BS FUB]. TAMK has particular experience in this area, exploring 360° rendering, stitching and drawing in their courses [TJ TAMK]. Such approaches are also being explored by our industry partners, with RBB and YLE both exploring 360° for web-based news and journalism. This is another area that has fostered student-industry collaboration, as students are often commissioned to work for RBB on 360° productions [AW RBB].

Virtual production and virtual imaging

A growing area of interest amongst the consortium is modes of virtual production and virtual imaging, with real-time 3D graphics and game-engine technologies being addressed in a variety of contexts [MT UOL]. Software packages like Unity, Blender and Unreal Engine have become increasingly popular for developing emerging media projects, with a number of consortium partners introducing these tools into the curriculum [JF UOL; TJ TAMK; BS FUB]. Beyond the development of game prototypes [BS FUB], these tools are also considered 'creation engines' that can 'conquer the live TV, VFX, product design and architectural visualisation industries' [JF UOL]. YLE in particular has begun to innovate in this area by developing a motion capture studio: 'YLE has a unique open virtual production environment in Tampere, where you can create virtual sets with the help of virtual imaging technology based on top-of-the-line game engines' [OPS YLE].

Virtual production, therefore, represents an exciting and expansive field that is disrupting forms of media storytelling and existing production workflows.

Coding and web development

Coding and web development is prominent across the consortium, with HTML and CSS being taught alongside the study of emerging media at a number of the partner universities [AB FUB; LG FUB; PS UCLAN; MT UOL]. This includes web-based technologies, forms of data visualisation, and Integrated Development Environments (IDE's). Web technology is also often applied in the effective delivery of these courses. As Lena Gieseke notes, 'I really like teaching coding with Jupyter Notebooks as it gives you the option to merge a script or better text and images with executable code' [LG FUB].

Interface design

Often synonymous with the previous sub-theme, interface design is being addressed across the consortium in a number of contexts [OB UCLAN; AB FUB; MT UOL; KK TAMK]. Students learn about user-experience design, user-interface design, human-computer interaction, and interaction design, with these approaches being applied in the development of virtual interfaces, mobile applications, audio-visual tools and prototypes for digital systems.

Interactive storytelling

The consortium has explored various modes of interactive storytelling [MT UOL; BS FUB]. Students at FUB, for example, have developed prototypes for interactive TV and interactive web documentaries [BS FUB]. Innovations to televisual content have also been addressed by RBB. RBB were partners on a previous Horizon 2020 project that developed the 'Multi Platform Application Toolkit' (MPAT) and a range of interactive TV applications (visit mpat.eu for more details).

Preferred methods, tools and approaches

This category relates to the preferred methods, tools and approaches that have been adopted across the EMEX consortium in the context of project-based learning with emerging media. As was the case above, these methods are often inter-related.

Experimentation and self-directed learning

The EMEX partners emphasise the importance of providing opportunities for practical, 'hands-on' experimentation, which they suggest can support self-directed and discovery-based learning [SF UOL; LS FUB; TJ TAMK; CF TAMK; MT UOL; BS FUB]. Tuomo Jorenen calls this process, 'learning by doing', which often leads to students acquiring further knowledge on their own [TJ TAMK; LS FUB].

A 'guided exploration' approach is advised, whereby students are acquainted with emerging media before being encouraged to discover novel applications and uses of the technology [BS FUB; CF TAMK; SF UOL]. This emphasis on experimentation can foster a 'fail fast' mentality (MT UOL). It can also empower students to become more 'self-driven' [TJ TAMK] by taking ownership of the direction of their research and practice [MT UOL]

Problem-based learning

Having students respond to a particular 'real-world problem' can be a useful way to engage them in emerging media projects [OB UCLAN]. This can be considered a form of problem-based or scenario-based learning (see Errington, 2010; Gorghiu, et al. 2015), where the focus on a specific brief, challenge or provocation presents the opportunity for students to immerse themselves in the situation [MT UOL]. This approach can engage learners in processes of creative problem-solving, decision making and critical thinking, as well situating practice in relation to the assumed roles, responsibilities, dilemmas and challenges of the professional culture (Errington, 2010). Problem-based learning can therefore provide a more authentic and professional context, particularly when project briefs and challenges are set by a broadcaster or similar commissioning editor [BS FUB].

Intensive workshops and design sprints

It was suggested that intensive modes of teaching can be particularly useful for supporting problem-based learning projects, with intensive workshops [MT UOL], masterclasses [SF UOL], and 'design sprint' approaches [TJ TAMK; CF TAMK; KK TAMK] being adopted across the consortium. For example, UOL has organised a number of 'collaboration labs', which typically run for 3-5 days. These workshops bring together staff and students from different disciplines to experiment with emerging media and address critical issues in contemporary digital culture. FUB has also adopted intensive teaching in the form of one-day workshops, production weeks and 'hackathons' [BS FUB]. TAMK, meanwhile, has experience with 'design sprints', where students create emerging media concepts and turn them into mockup demos [TJ TAMK].

Prototyping and concept visualisation

As alluded to above, prototyping and concept visualisation are considered important factors for studying emerging media, especially in the context of self-directed, problem-based learning. A range of user-centred design processes are explored across the consortium, with 'design thinking' [MT UOL], 'extreme exploration' (BS FUB), 'user-experience design' [KK TAMK] and 'SCRUM' methods [CF TAMK] being adopted to support the iterative development of emerging media prototypes. Getting students to produce these prototypes can help situate creative skills like sketching, wireframing, storyboarding and production planning [MT UOL; BS FUB; KK TAMK; TJ TAMK]. It can also help

students understand the potential limitations and opportunities of emerging media [OB UCLAN].

Online sharing platforms and blended-learning

A variety of online sharing platforms, production tools and blended-learning approaches have been adopted by the EMEX partners in support of both synchronous and asynchronous learning activities. The consortium utilises web-based tools in the context of project management, collaborative research, ideation and co-production [MT UOL; OB UCLAN; TJ TAMK], with some novel uses of sharing platforms being proposed. For example, FUB uses 'online pinboards', where students can share photos of their paper sketches to generate discussion and encourage peer-feedback [BS FUB]. 'Flipped learning' approaches have also been integrated across the consortium as a way of making curriculum content more engaging [JF UOL].

Learning journals and portfolios

It was suggested that learning journals and digital portfolios can represent an effective method for assessing emerging media projects. Students at UCLAN and UOL, for example, are required to write regular journal entries or blog posts, which either have an accumulative value for the final overall grade [PS UCLAN], or which act as a repository for research, practice and analysis [MT UOL]. By providing a space for students to document their works-in-progress, critical reflection and evaluation, portfolio-based assessment can be considered a useful approach for evidencing student engagement throughout a project. Compiling a learning journal 'during' rather than 'after' a project can also enable students to receive formative feedback from their tutors and peers [MT UOL].

Interviewing industry experts

Due to the 'cutting edge' nature of emerging media, with new technologies and practices being regularly introduced, the EMEX consortium advocates a number of independent research approaches as a way of students keeping up to date with the latest trends and developments. In particular, it was suggested that providing opportunities to research emerging technologies and interview media professionals can enhance student knowledge and preparation for industry. By interviewing 'start-ups' and industry experts, students can learn directly about their role, their company and any new developments within the sector [MT UOL]. This is especially beneficial for projects that require students to 'develop their own business models outside the classical frame of a film and TV production company' [BS FUB].

Key competencies for studying Emerging Media

This category addresses the key skills, abilities and competencies that the EMEX partners consider essential for studying emerging media. These skills are reflective of broader 21st century competencies, life-long learning skills and digital literacies (see Jenkins, et al., 2006; Gewertz, 2017; Trilling & Fadel, 2009)

Media literacy and technical knowledge

Studying emerging media requires students to have a good level of ICT proficiency and technical knowledge [MT UOL], with media literacy being addressed across the consortium. This includes an awareness of what emerging media technology can do, its limitations and possibilities, as well knowledge of 'what has already been done; a sense of history of the field' [CF TAMK]. Since they are required to engage with a variety of tools, platforms and production workflows [LG FUB], students should have a working knowledge of 'common media forms' [MT UT], as well as a basic understanding of interaction, data processing, coding and programming [TJ TAMK; AB FUB]. Students also need to be open-minded and adaptable with regards to 'future tech, mobile marketing, e-commerce, rich media, search techniques, communication especially via social networking' [PS UCLAN].

Design skills

Closely related to the previous sub-theme, it was suggested that studying emerging media requires a good knowledge of design principles. As we have discussed already, this includes modes of visual design, audio design, interaction design, speculative design, user-experience design and user-interface design [CF TAMK; MT UT; MT UoL; KK TAMK]. These skills are essential for the types of project-based learning being addressed by the consortium.

Critical Thinking & Creative Problem-Solving

Critical thinking and creative problem-solving are important factors for studying emerging media, with students required to use their initiative to develop solutions in response to a range of cultural issues and technological developments [MT UOL]. Students need to be forward-thinking and competent in both research and practice, informing the ideation of their projects by addressing the social and ethical impacts of emerging technologies [PS UCLAN; SF UOL]. They should also be able to 'self-theorize' and draw parallels to existing media, making this often implicit process visible and using it in the context of more targeted 'action research' [BS FUB].

Project management

It was suggested that project management skills like flexibility, organisation, leadership and productivity are beneficial for undertaking emerging media projects [MT UOL]. Students need to embrace an 'agile' approach in order to adapt to changing circumstances and develop effective solutions [OB UCLAN].

Given that these projects increasingly take place online, the ability to work remotely and manage projects virtually has become particularly important. [LS FUB]

Collaboration and Communication

Team management skills like collaboration, networking and interpersonal communication are also considered essential for studying emerging media, especially in the context of virtual teamwork [LS FUB; MT UOL]. These types of applied social skills, or 'soft skills' (Gewertz, 2017) are crucial for ensuring effective team management, with the ability to interact and co-create being central to project-based learning across the consortium [OPS YLE; OB UCLAN]

Key Challenges for studying Emerging Media

This category explores the various challenges that have been encountered by the EMEX partners in the delivery of their study programmes and emerging media projects.

Access to technology

One of the key challenges facing both educators and students when addressing emerging media is the uneven accessibility and availability of the related technology. Emerging media, by their very nature, are 'still somewhat unstable' [TJ TAMK], and it is often difficult to access 'proper robust enough technologies' [MT UT]. Since these tools are not always easily available, 'people cannot simply play with them, unless we talk of open software projects. If you have to deal with proprietary software or special hardware, things get complicated' [BS FUB]. This tends to result in a wide range of emerging tools and technologies being adopted in different contexts, which 'usually slows down workflows and efficiency' [AB FUB].

Time constraints and complexity

Given the complexity and broad range of skills that students are introduced to in emerging media projects, there is usually a 'steep learning curve' and it can often take a while to become familiarised with the technology [LG FUB]. This becomes even more challenging when considering the limited time that is usually allocated to deliver these study programmes. Emerging media projects are normally really challenging and one semester is too short to learn the technologies and apply them effectively [KK TAMK]. Students are often only introduced to basic skills and practices, so it can be tricky to explore things in detail or develop prototypes to an advanced level [MT UOL]. As James Field highlights:

My biggest challenge is that because I only have effectively 9 hours of delivery per student group, there is only enough time to learn how to use the interface and create scenes with ready-created props and materials.

To learn the full pipeline to make these skills useful requires a huge time investment that I don't see my programme in its current format being able to accommodate. [JF UOL]

Lack of expertise & contextual knowledge

Another challenge encountered across the consortium is the fact that students have a 'very wide gradient of previous knowledge and interest' [OB UCLAN], with a general lack of understanding and inability to perform basic tasks often hindering emerging media projects [PD FUB]. Expertise in the new technology is still relatively low [OPS YLE], with students often lacking contextual knowledge of the related hardware, software, and practices. Students also tend to lack an awareness of existing trends and content, which can severely limit creativity and innovation. When students are tasked with developing new ideas and concepts for using emerging media, 'they often come up with things that have been done many times already, or they propose VR/AR variations of the same video games they are playing' [CF TAMK].

Difficulty engaging students

Although one might assume that students would be wildly interested in emerging media technology, it is often difficult to foster student engagement with these projects [CF TAMK]. Some students struggle to adapt to the new skills they are being introduced too, or they demonstrate a lack of interest in a particular set of tools and practices [OB UCLAN]. It is also often a challenge to engage students in extra-curricular projects, and it can take some effort to get participants to sign-up to optional activities [MT UOL]

Ineffective project management

Given that students are normally required to work collaboratively on emerging media projects, it can be difficult to ensure effective project management, particularly in the context of virtual teamwork. Students often struggle to communicate productively with their peers outside of the classroom during remote learning activities [MT UOL]. As Björn Stockleben explains:

Still one of the greatest challenges is to take creative decisions online. People are not good at taking these decisions in a time-constrained online meeting and usually procrastinate important decisions to the next physical session if there is one. It is key to prepare meetings well and to outline criteria and arguments asynchronously before the meeting, if possible. [BS FUB]

Previous Examples of Student-Industry Collaboration

The second set of survey questions was designed to provide an insight into the types of student-industry partnerships that have previously been initiated by the EMEX consortium. The responses to these questions suggest that collaborations between students and industry typically feature the following approaches: 1) the industry partner provides a specific brief or challenge; 2) the industry partner provides guidance or support on student projects; or 3) students are hired or work on an internship basis for the industry partner. The survey responses have been further categorised in order to identify what both the students and industry partners might gain from participating in these types of collaborative projects [Fig 4]. As we expand upon below, these projects represent a form of knowledge transfer that can be considered mutually beneficial for all partners.

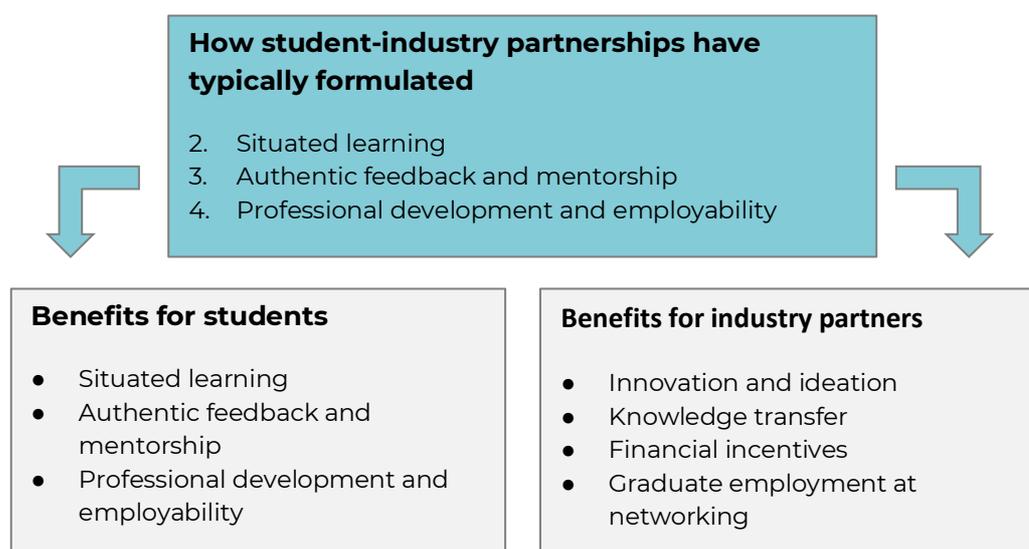


Fig. 4 - Categorising the examples of student-industry collaboration within the EMEX consortium

Industry briefs and challenges

One of the most common forms of collaboration between students and industry across the consortium has been for students to develop solutions in response to client briefs or tasks set by companies [TJ TAMK; JF UOL]. Industry partners are often invited to demonstrate emerging media technology and pose real-world problems for the students to address in their practice [MT UOL]. UT, for example, have organised numerous 'Demola innovation projects', where multidisciplinary teams of university students and industry experts work together on innovation challenges set by the company (visit demola.net for more information). At FUB, project briefs tend to be set by a broadcaster or similar commissioning entity, with students being tasked with pitching a number of concepts to the industry partner, which they can choose to licence or co-produce with the students [BS FUB].

Industry guidance on student projects

Another way that student-industry partnerships have been formulated across the consortium is for the industry partner to provide guidance and support on student projects [MT UOL]. TAMK has organised projects where the industry partner meets with student teams 3-5 times to tell them about their needs and provide feedback on their work [CF TAMK]. Industry partners are also often invited to 'comment on' student pitches [BS FUB], provide 'editorial and technical knowledge' [AW RBB], or 'monitor results' of student projects [MT UT].

Student internships and paid positions

The final most common form of collaboration between students and industry involves students being hired by an industry partner. This either takes the form of paid positions like 'student research assistant' [BS FUB], or they work for the industry partner on an internship basis. RBB, for example, offers internships for students of the Electronic Media School, which often leads to them being offered a temporary position at RBB after the successful completion of the course [AW RBB]. UOL, meanwhile, has set up an 'industry outreach provision called New Media Lincs that acts as a facilitator connecting incoming requests for paid work with students capable of producing it' [JF UOL] (see newmedialincs.com/ for more information).

Benefits for students

This category explores the key benefits for students that have taken part in student-industry partnerships across the consortium.

Situated learning

Student-industry partnerships tend to provide a 'very realistic working experience' [BS FUB], where students get the opportunity to test their skills in real projects' [OPS YLE]. Students are situated in the real-world contexts of collaborative research and practice [MT UOL], where academic skills and concepts are applied to 'real-world tasks' [MT UT; KK TAMK]. This can be considered a form of 'situated learning', as students get to experience authentic situations and learning is 'embedded in the social and physical context within which it will be used' (Brown, *et al.* 1989). Students gain first-hand experience of planning, producing and distributing across various platforms [AW RBB], and are often exposed to emerging media tools, solutions and workflows 'not typically available to HEI's' [PS UCLAN]. This type of 'real-world experience' can help students gain a 'deep understanding of modern media' [AW RBB], as well as realising 'the limits of commercial pressures vs quality solutions' [OB UCLAN].

Authentic feedback and mentorship

Similar to the previous sub-theme, these projects present the opportunity for students to receive authentic feedback from commissioning editors and media practitioners [OPS YLE; BS FUB; MT UOL]. By taking part in student-industry projects, students are exposed to expert knowledge [AW RBB] and a 'higher level of evaluation' from industry professionals [PD FUB]. The industry partners also provide mentorship and advice to the students in a variety of contexts [MT UOL; AW RBB].

Professional development and employability

Student-industry projects are particularly beneficial for students in terms of professional development and employability, as they are able to 'place real client work on their CV' [JF UOL], build their portfolios [MT UT], or get their emerging media formats commissioned [BS FUB]. As we have discussed, students often receive payment or 'monetary compensation' [MT UT] for taking part in these projects. It can also result in students gaining further employment, trainee positions, internships and free-lance work [MT UOL; CF TAMK; AW RBB; KK TAMK].

Benefits for Industry Partners

This category explores the ways in which collaborating with students on emerging media projects can be considered beneficial for industry partners.

Innovation & Ideation

The major benefit for industry partners in these types of projects is the opportunity to deploy students in the development of fresh ideas and new concepts [BS FUB; CF TAMK; KK TAMK; TJ TAMK; MT UT; AW RBB]. This often results in 'new innovations, workable prototypes and new format visualisations' [MT UOL], where the industry partner 'walks away with something tangible and implementable' [OB UCLAN]. Students also contribute to the prototyping and user-testing of existing projects in development, leading to low cost solutions and new possibilities [PD FUB].

Knowledge transfer

By collaborating with students and academics from a range of disciplines, the industry partner can benefit from a 'substantial' and 'intense' transfer of knowledge [MT UOL; BS FUB]. These projects represent an opportunity for companies to get the latest know-how on emerging media [OPS YLE], with students often contributing new knowledge and technical solutions [AW RB; KK TAMK]. This can lead to massive contributions that neither party could have intended [OB UCLAN].

Graduate employment & networking

The possibility to work with students on emerging media projects is beneficial for companies as they are able to 'get to know' [CF TAMK] and network with emerging new professionals [OPS YLE]. These projects therefore represent an ideal opportunity to identify talented graduates and potential future employees [OPS YLE; TJ TAMK; AW RBB].

Financial incentives

There is often a financial incentive for companies to participate in student-industry partnerships, as they are able to ideate, prototype and test without significant investment [PD FUB]. Given that student labour can be implemented at a reduced cost [MT UOL], the industry partners are sometimes motivated by saving money [BS FUB]. While this can be considered a little exploitative [JF UOL], these projects are normally mutually beneficial for the students (as we have discussed above). There is also often a grant or funding budget attached to working with universities on these types of student-industry partnerships [MT UOL]. For example, RBB is a 'partner to several EU funded research projects, as well as looking for national funded projects' [AW RBB].

Summary of key findings

Emerging media is currently being addressed in both the content and delivery of study programmes at each of the partner universities, in addition to a variety of extra-curricular and student-industry projects. A range of technologies and practices have been adopted across the consortium; most notably: AR, VR, 360° production, real-time imaging, interactive storytelling, coding, web development and interface design. It was suggested that the key competences for studying emerging media include technical knowledge, ICT proficiency, media literacy, design skills, critical thinking, creative problem-solving, project management skills and the ability to collaborate, communicate and co-produce.

A variety of online sharing platforms, production tools and blended-learning approaches have been employed across the consortium, with the EMEX partners proposing a number of methods and approaches for supporting emerging media projects. It was suggested that providing opportunities for practical, 'hands-on' experimentation can support self-directed learning. Intensive workshops and 'design sprint' approaches have proved particularly useful in this regard, with students producing prototypes or concept visualisations in response to specific briefs or challenges. Providing opportunities for students to interview industry experts and research emerging technologies are considered effective approaches for enhancing student knowledge and professional development. It was also suggested that learning journals and digital portfolios are effective assessment methods for documenting student engagement with emerging media projects.

One of main difficulties for facilitating these types of projects is the uneven accessibility and availability of the related technology. This is often exacerbated by timetable constraints and a lack of student engagement, particularly when

there is a 'steep learning curve'. It can also be a challenge to ensure effective project management and collaboration.

The EMEX consortium provides regular opportunities for students to engage with industry on emerging media projects, with industry partners either setting a specific brief or challenge for students to respond to, or they provide feedback on student projects. Students are also often hired or work on an internship basis for industry partners on a variety of emerging media projects. For the students, these projects represent an authentic learning environment, where emerging media skills and knowledge is situated in a more professional context. Not only do students learn how to respond to a client brief, they also have the opportunity for mentorship and support. The industry partner, meanwhile, has the opportunity to network with talented students, putting them to work (usually at a reduced financial cost) to help with the ideation and innovation of emerging media projects.

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