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Podcasts, Microcontent & MOOCs

The Integration of Digital Learning Formats into HEI Lectures

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Covid-19 poses major challenges to the higher education landscape. Junior professors from the Computational Neuroscience department at Charité – University medicine Berlin and a small team of developers from the AI Campus learning platform saw this as an opportunity to develop digital learning formats in modular, interactive and participatory form that can be integrated into university teaching. While elements from the AI Campus learning opportunity “Dr. med AI” were integrated into the formal seminar setting, an accompanying podcast was to support the learning process in an entertaining way and embed the learning content in a coherent narrative by using exciting and engaging application scenarios of AI used in the different fields of medicine nowadays.

The workshop aims to explore the needs to be considered when designing, developing and implementing a multimedia learning format, how to implement processes of quality assurance in the development process, and how to include students in this process to ensure that a user-centered design is created. The workshop will take place in an online course on the AI Campus platform. By this means participants will have the opportunity to review provided content in the course regarding instructional design aspects and quality of the content. Based on the review results, participants then create interactive formats hands-on by using an interoperable open-source authoring tool. Finally, the core learnings of the workshop will be reflected, discussed and formulated.

1 Setting the frame: A Holistic Learning Approach

1.1 Smart and Digitally Enhanced Learning

Digital learning has recently been facing a boost due to the Covid-19 pandemic. No matter what part of the educational system – primary school, secondary school or higher education – every institution has been affected by the immense changes and had to adapt quickly to the new situation. Although higher education institutions in Germany, namely Universities and Universities of Applied Sciences, were comparably well equipped concerning technical devices and broadband internet access, students and academic lecturers had to solve the problem of a 100 percent distance learning setting for all students and departments from one moment to the next [4].

In the light of the above, a small team consisting of lecturers from the Charité – University medicine Berlin and developers from the AI Campus – the digital learning platform for Artificial Intelligence was faced with the question of how to get medical students excited about the topic of AI in this exceptional situation of a pandemic lockdown using digital learning formats. A seminar-accompanying online course (Micro-MOOC) was to offer the opportunity to learn the content and develop competences in a self-paced way, including interactive tests and quizzes. Individual formats and components (learning nuggets) from the online course should be embeddable into the live setting of the seminar (blended learning). Finally, a non-formal learning format should be developed that matches learners' usage habits and which is interconnected with the course/seminar narrative.

Following the holistic approach of creating a smart learning environment [6], the overarching instructional design framework consists of the modularity of the digital learning elements, different ways of accessing the learning content (course setting, online course, podcast provider platforms), the combination of formal and non-formal learning ((virtual)seminar, online course, podcast), and various opportunities forms of participation (seminar setting, discussion forums, virtual collaborative learning spaces).

1.2 Learning Content Packaged in Two Formats

With this framework in place, the conception and development of “Dr. med. AI” began – a learning offering composed of an interactive online course and a podcast. While the online course depicts the formal setting in which learners expand knowledge and competencies based on clear learning outcomes, the podcast offers the opportunity to learn the content casually in everyday life. Expert talks on exciting practical examples and application scenarios of AI in different fields of medicine

forms the basic storyline which can be imagined as a medical journey with focus on AI innovation. This problem-based approach establishes a direct connection to the study contexts and everyday realities of the learners and thus acts as a door opener to the deeper technical content of the seminar in a low-threshold form. Both the use cases of the podcast and, for example, the learning videos of the online course can in turn be embedded in the seminar context, as they are aligned (Constructive Alignment) with its content and learning outcomes, thus enabling a qualitative embedding in the blended learning scenario [3, 2, 5]. In addition to the seminar setting, learners were given the opportunity to exchange ideas in expert discussion forums with eTutors from the AI Campus and with other learners in chat forums. The mutual exchange creates the opportunity for reflection and a deeper understanding of the content, as it has a motivating effect that additionally evokes a sense of belonging among the learners which is seen as a crucial aspect for the learning success [1].

The holistic approach of “Dr. med. AI” goes beyond classical learning settings in digital contexts by complementing formal learning content with non-formal learning, while formats for personal exchange offer the opportunity to develop competencies together on a communicative level. Thanks to the modularity of the different formats other Higher Education Institutions are able to embed learning nuggets, for example, while creating overarching teaching and learning scenarios. How to best meet upcoming challenges within the development process of such a learning opportunity will be the central topic of the workshop.

2 The Workshop Setting

The workshop will take place in a virtual setting by using a conference tool and a workshop course prepared on the Learning Management System (LMS) of the AI Campus learning platform. Breakout rooms will be provided during different stages of the workshop to give participants the opportunity to work in small agile groups. The workshop follows three basic goals: (1) Participants should be able to distinguish between non-formal and formal digital learning formats and understand their core features out of a learner-centered perspective. This includes the ability to distinguish between the special case of a learning podcast in contrast to an entertainment format. In this context, advantages and disadvantages of different podcast settings are highlighted (interview style, expert talk etc.). (2) The participants understand how learning nuggets can be integrated into virtual and offline teaching scenarios based on the use-case of Dr. Med AI. Furthermore, they (3) gain development and implementation experience by developing different types of learning nuggets within four different workshop teams.

Following an exploratory approach, the workshop provides the opportunity to explore the offered content (podcast snippets, learning videos, interactive quiz formats, etc.) and identify the key features of the different formats through experience. Prepared question sets are used to pre-structure the discussions in the plenary phases, allowing key learnings to be defined afterwards.

One key aspect of the workshop design is to keep the periods where participants act as recipients as short as possible. For this reason, the planned activities will be offered in an online course on the Learning Management (LMS) of the AI Campus. The learning nuggets to be explored and assessed, the questions to be answered and the space for developing content will be provided in this way.

To achieve the goals of the workshop, participants work in different social forms. While the provided learning nuggets are explored, classified and assessed individually, content is developed in small agile teams. For presentation and discussion phases, the exchange takes place in the plenary round.

2.1 Intro: Activation & Assessment (30 min)

In the activation phase, participants have the opportunity to get to know the individual formats and content types of Dr. med. AI in the prepared online course on the LMS of the AI campus. They can listen to excerpts from podcast episodes, work through learning videos with integrated quizzes, or go through knowledge quizzes to make this setting hands-on, engaging and interactive. During this initial phase the participants have the opportunity to familiarize themselves with the content and formats at their own pace. A short query on the learning nuggets is then made in order to structure the exchange in the subsequent plenary phase and to steer the learning in the right direction. One main goal of this approach is to identify specifics of formal and non-formal learning. Furthermore, participants take on the role of learners who engage with new content and formats. This change of perspective will be crucial during the subsequent content development phase.

2.2 Input: Use Case & Learner-Centered Content Development (20 min)

During this part, Kerstin Ritter – the junior professor from the Charité – describes in the virtual setting i.e. via Big Blue Button concrete scenarios for embedding the learning nuggets, which are intended to make the seminar setting more varied and entertaining and to facilitate competence development. In this way, a picture of a more comprehensive learning design is to be created, which can be conceptually mapped, for example, in the form of storyboards. The AI Campus team concludes

by outlining how learner-centered instructional design can be established as part of the iterative content development.

2.3 Production: Agile Content Development (1.15 hour)

In this stage, the previously acquired knowledge is applied collaboratively in breakout rooms provided for different content teams. The development processes in each team are moderated and guided by the developers of the AI Campus team. Like in a real world settings each agile team can consist of 5 to 8 people.

Content Team 1: Micro Podcast Production

Based on a given topic and content, the podcast team develops a 3–5-minute podcast episode. A product owner appointed by the team decides which setting (interview, expert talk etc.) is chosen and moderates processes like the definition of learning outcomes. The team records and implements the podcast after a brief onboarding by an AI Campus learning designer. The recording is done using the Zencastr recording tool for podcasting (<https://zencastr.com/>), while the implementation will be in the workshop course on AI Campus.

Content Team 2: Learning Video Production

Based on a given topic and content, the learning video team develops a 3–5-minute learning video. A product owner appointed by the team decides which setting (presentation, talk, discussion etc.) is chosen and which learning outcomes need to be defined. The team implements the learning video after a brief onboarding by an AI Campus learning designer. The recording is done using the Zencastr recording tool for video podcasting (<https://zencastr.com/>), while the implementation will be in the workshop course on AI Campus.

Content Team 3: In-Video Quiz Implementation

The video quiz team develops and implements 2–3 different quiz types into an embedded course video. A product owner appointed by the team decides which learning outcomes need to be defined and moderates the quiz development process. The team develops the quizzes after a brief onboarding by an AI campus learning designer. The H5P authoring tool (<https://h5p.org/>) is used for quiz implementation.

Content Team 4: Implementation of Gamification Elements

The gamification team develops varied exercise formats based on a given topic and content. The formats should support learning in an entertaining way instead of merely testing and assessing knowledge. A product owner appointed by the

team decides which learning outcomes need to be defined and moderates the quiz development process. The team develops the quizzes after a brief onboarding by an AI campus learning designer. The H5P authoring tool (<https://h5p.org/>) is used for quiz implementation.

2.4 Presentation: Product Pitch and Quality Assurance (35 min)

After the implementation phase, the respective product owners present the learning nuggets. They describe briefly the development process and name learnings and possible challenges. Afterwards, the workshop participants have the opportunity to explore and review the content created by the content teams similar to the initial phase of the workshop, which provides a basic quality assurance process.

2.5 Discussion: Formulating the Key Learnings (20 min)

Finally, the results from the review process are discussed in plenary and the key learnings are extracted from them. The key points are recorded in the workshop course. The course remains open to participants in order to guarantee access to the materials and results of the workshop. Furthermore, it offers the possibility afterwards to share one's future experiences with the workshop participants in the forum.

Due to the complexity of the workshop design, 3 hours are scheduled for the workshop. We consider the target group to be educators, instructional and learning designers, and all education enthusiasts interested in innovative and open education.

3 Why Is This Workshop Relevant For the EMOOCS 2021?

While digital education technologies continue to evolve, comparatively little is happening in the field of instructional and learning design [7]. MOOCs are still largely monolithic events which have little curricular modularity, a limited interaction design in terms of exercise and assessment variety, a video design largely in presentation style and basic exchange formats, partly because they are tied to the functionalities of an LMS. By adding and integrating additional tools and features (authoring tool, programming environment, chat tool, podcast provider, etc.) to the LMS, we pursue a more open approach. A more complex Smart Learning Environment provides the opportunity to extend the instructional and learning de-

sign, allowing learners to achieve learning outcomes based on individual student journeys by using a variety of applications for different scenarios. The workshop will provide perspectives and potentials on how a new form of digital content can be developed using the expanded feature set. Here the focus is on a high variety of exercises and assessment, engaging audio and video formats, different forms of social learning and last but not least an open access to all of the content.

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