

Exploring Aspects of a Faculty Digital Learning Channel: The Case of Eclips

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Abstract—In recent years, video tutorials have become an important tool to enhance active student learning. They are considered to be an effective and efficient instrument to enhance the progression of students. In 2016, the Faculty of Business and Economics of the University of Antwerp formulated a vision on technology-enhanced learning, with a strong focus on the creation and the use of both course specific and integrative video tutorials. To make the tutorials available to students throughout their entire study career, the faculty started in 2017 with the development of a faculty-wide learning channel, called Eclips. The platform offers students the opportunity to prepare for a lecture, revise learning content and fill knowledge gaps across the curriculum. Besides enhancing the pedagogical project by means of the student channel, (sub)channels were defined in 2018 for two additional target groups: the pre-students and the alumni. This enables the channel to support two other aspects of the academic mission of a faculty: the dissemination of knowledge and the interaction with the broader environment.

Keywords—Technology Enhanced Learning; Blended learning; Digital learning channels.

I. INTRODUCTION

The importance of digital learning material has grown in recent years. The university and in particular the faculties Faculty of Business Economics (FBE) and Faculty of Medicine and Health Sciences (FMHS) focused on video tutorials used in education to address the heterogeneous incoming and ongoing students and to improve knowledge across the curriculum. The existing video tutorials were selected by the lecturers to make sure that the quality and the level were aligned with the final objectives of the programmes. These videos were used during the course or served to clarify certain topics of the course. Lecturers could also create their own videos in the recording rooms that have been available on the different campuses of the university.

However, there was no platform available to collect, group, and structure all this information. Therefore, the business and economics faculty decided to create a digital learning channel in order to provide the students and lecturers with a clear structure, where they can easily navigate through all the content that the students have learnt during their bachelor and master years. By creating the *Eclips Learning Channel*, the faculty wants to give the students the possibility to revise at their own pace and to consult educational video material (also used in previous study years) when they feel it is necessary to do so. It also gives lecturers a complete view on the study material that students are supposed to know.

In this paper, we use a case-based approach, based on the Eclips learning channel, to explore several key aspects of designing and organizing such a faculty digital learning channel. In Section 2, we give a brief literature overview of the possible power of video as a teaching medium, and present the way that the faculty decided to leverage this technology. The actual structure, content, and design of the Eclips Learning Channel is detailed Section 2. Section 4 gives an overview of the main realizations thus far, and presents the current and future efforts to broaden the reach of the learning channel. Finally, we present some conclusions in Section 5.

II. ACADEMIC VIDEO TUTORIALS

A. The Case for Video Tutorials

Apart from the great advantage of flexibility, video can be a very powerful teaching medium, as stated by Thomson et al.[1]. Video tutorials, often presented as screencasts, are short videos adopted by lecturers to stimulate active learning during the course. In the form of shorter mini-lectures, explanations of assignments or exam solutions, they can be used as supplementary resources when teaching a module [2]. Research, for instance by Morris and Chikwa [3], has confirmed that students prefer short screencasts that summarise lectures or delve in-depth into complex concepts. Lloyd and Robertson demonstrated positive learning gains in an undergraduate statistics course for students using a supplemental video tutorial [4].

Apart from being part of the lecturer's own module, video tutorials can also be used to cope with the heterogeneity of a student group by offering students the opportunity to refresh knowledge or to fill up knowledge gaps. Research by Pinder-Grover et al. showed that screencasts lead to demonstrable improvements in course performance, especially for those who enter with the least amount of exposure to the subject matter [5]. These hiatus frequently occur at the beginning of a study career, because of lack of background in a certain topic due to limited prior knowledge when entering university. Moreover, it is also manifest that students continuously need to refresh specific topics during their studies because of the inevitable process of knowledge evaporation.

B. Faculty Vision on Video Learning

At the Faculty of Business and Economics of the University of Antwerp, video tutorials tended to be part of a certain module, incorporated in the related Blackboard course only. To make video tutorials available for students during their entire

study career, the faculty set up a digital learning channel with permanent and mobile access. Students can watch the tutorials during their studies whenever they need to. Lecturers can refer to this channel in a cross-curriculum way.

The faculty has organised its courses based on so-called *Learning Tracks*, and leverages this structure to deal with various aspects or cross-cutting concerns of academic courses, such as internationalisation and examination forms [6]. Therefore, the digital *Learning Channel ECLIPS*, is being organised around these learning tracks: Business Economics, Economics, Quantitative Methods, Engineering, Information Systems, Business Communication, Research Methods and Broadening Subjects. The faculty also decided to adopt an hybrid model for its video tutorials, using both in-house produced tutorials and existing clips from external providers. The channel was implemented at the start of the academic year 2017-2018, and launched for first-year undergraduate students, i.e., first bachelor year. The main emphasis was on providing resources for this group of students. In 2018-2019, the focus moved towards the second bachelor year.

In order to support and encourage in-house made video tutorials, the faculty set up its own ECLIPS recording studio. When developing a video tutorial, different video production styles are offered to lecturers by the production team, such as screencasts and recording with glassboard or green screen. It is important to provide a variety in video production styles as standardisation of video production faces many limitations, as stated for instance by Hansch et al.: *It is important to match the video style to the instructor. There is not a one-size-fits-all approach* [7]. For the sourcing of the videos from elsewhere, the faculty relies upon their faculty staff to assess the quality and consistency of the selected videos. A quality checklist and a list of guidelines were developed to evaluate both in-house made and external videos.

III. THE ECLIPS LEARNING CHANNEL

In this section, we detail the actual development of the learning channel, including three main aspects: structure, content and design. But first, we discuss the approach to set up the concept, and gather people around it.

A. Approach

First of all, lecturers who showed interest in Digital and Blended Learning and Teaching (DBLT) before, were contacted to ask for input on the content of the learning channel. In order to ensure that the entire faculty was represented, these lecturers were spread across the various departments. Moreover, the content of the learning channel was discussed on the various department meetings. All this information was collected in order to get a good overview on the information that lecturers believed to be necessary for their own course. Since the students are the main target group, a workshop was organized in which a group of 21 students were asked to give their opinion on the structure, content and design of this learning channel. This feedback was taken into account during the further development of Eclips.

As with other pedagogical aspects or so-called cross-cutting concerns, the structure is based on the eight learning tracks within the faculty [6]. The project was initially defined for a three year period, during which the faculty envisioned to add content gradually. During the creation of the learning

channel, extra attention was given to the visual or graphical aspect of Eclips. To make adoption of the learning channel a success, the two target groups — students and lecturers — needed to be reached, informed and actively stimulated. As stated before, the focus during the first academic year was on the courses of the first year bachelor. Therefore, the main target group initially consisted of the first year's students who were informed in the information sessions at the beginning of the academic year. In their welcome package, they received for instance a pen with the Eclips logo. For the adoption by other students (Bachelor 2, Bachelor 3, Masters) the faculty is counting on the second target group to spread the word. This second group, the lecturers, was informed during the yearly meeting in the beginning of the academic year. They were also invited to take a look at the recording room containing the necessary supporting equipment to record video tutorials.

B. Structure

The learning channel is embedded in Blackboard and has a clear structure to navigate, both for students and lecturers. The Eclips Learning Channel presents video tutorials and digital modules according to the structure of the eight learning tracks within the curriculum. Each learning track decides on and defines their own substructure by mutual agreement within the learning track. Mindmaps are used to guide the students and lecturers throughout this structure.

The technology behind the channel structure is quite elementary and consists of two basic building blocks: the electronic learning platform Blackboard and a PowerPoint presentation to represent the mindmap structure, which is converted into a HTML5-package within Blackboard. The Eclips Learning Channel is made available in the list of courses within Blackboard, which is accessible to all students and lecturers of the faculty. Opposed to other courses, the learning channel will be visible during the entire academic life of both the student and lecturer. When the student or lecturer clicks on Eclips in Blackboard, he is presented with the main HTML5-mindmap of Figure 1. When navigating to a video

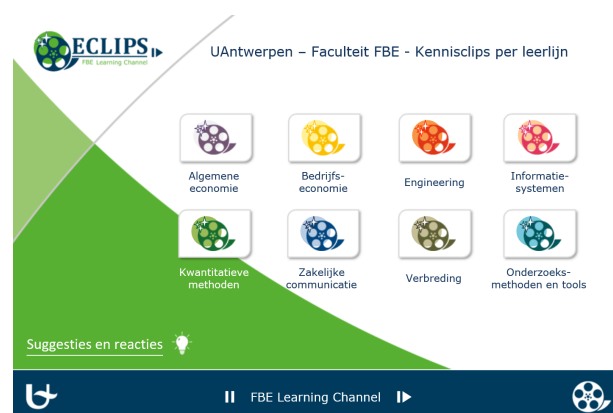


Figure 1. Main structure of the mindmap.

in the mindmap, an information sheet shows details about the author, the production date and duration of the video, the used platform or source, and a short description of the video content. Each information sheet has a unique identifier that refers to the video tutorial or digital module. The video starts by clicking on the play button in the right corner of

this information sheet, as represented in Figure 2. Hyperlinks

Figure 2. Example information sheet.

behind the icons in the mindmap ensure that the user can navigate through the different learning tracks to find the video tutorial or digital module he or she wants to consult. The technology used to create the HTML5-package ensures that users are able to navigate through the mindmaps and watch the videos on their mobile devices, a concern that was expressed during a workshop organized with the students.

In case a student has a suggestion to upload a video tutorial in the learning channel, or there is an error in the video tutorial, the student can contact the Eclips team through an interactive forum. Thanks to the unique identifier in the information sheet, the student can easily refer to the video tutorial.

C. Content

In the first academic year of the project, 2017-2018, the faculty focused on courses for the first year bachelor students. More specifically, the focus was on the courses with a low pass rate and the courses taken by a high number of students, i.e., Accountancy, Economics, Mathematics and Statistics. The lecturers of these subjects received technical support from the Eclips team members to create the video tutorials, which benefits the content in general and especially the pace at which the content of the learning channel is created. Even though these four subjects receive priority, other subjects are also invited to create video tutorials. In the second academic year, 2018-2019, the focus shifted to the courses of the second year bachelor, in order to finish the project in 2019-2020 with a focus on the third year bachelor. This time path ensures that the content of the learning channel gradually grows in a synchronous way with the students who started their academic life at the same time the learning channel was launched. The students can consult the learning channel during their entire academic career at the University of Antwerp.

The content of Eclips consists of both existing videos and in-house made videos. The existing videos are carefully selected by the lecturers, keeping the quality of the video tutorials in mind. These are video tutorials from websites like *Khan Academy* and *PatrickJMT*. The faculty provides a recording studio where lecturers can record video tutorials with the assistance of an Eclips team member. Various types of recordings are possible in order to realize a variety of content in the learning channel. Examples of these types are video tutorials making use of a glassboard, handwritten video tutorials, PowerPoint presentations, and green screen recordings.

The type of the recording depends on the preference of the lecturer and the topic of the video tutorial. The current number of available video tutorials for each learning track is shown in Table 1, and will be discussed in the next section.

D. Design

The visual aspect certainly plays a crucial role in encouraging students and lecturers to make systematic use of this video platform. Together with the graphical design team of the University of Antwerp, a logo, a set of icons, and a house style were designed. The icons are used in the mindmap in which the students navigate through the structure. The logo makes it possible to brand the in-house made video tutorials and the learning channel. Even though Blackboard is the platform that is used for the learning channel, the mindmap, logos and icons give it a refreshing and contemporary look.



Figure 3. Example introduction screen.

In order to be sure that the in-house made videos by the lecturers exhibit a uniform look and feel, the in-house made video tutorials start with the Eclips introduction screen, represented in Figure 3. To provide maximum support, a template for PowerPoint and Camtasia (a video editing program) were created. The main colour used in the templates is green, since this is the colour that represents the faculty. The various learning tracks have different unique colours.

IV. REALIZATIONS AND FUTURE PLANS

A. Content and Usage

A first realization is of course the mere fact that the faculty developed a dedicated, visually attractive learning channel, offering both in-house and external video tutorials and digital modules, and providing a clear structure in which the students can easily navigate. However, the actual realizations need to be expressed in terms of created content and student use of the video tutorials. Table I shows the number of video tutorials and

TABLE I. NUMBER OF VIDEO TUTORIALS OR DIGITAL MODULES IN ECLIPS.

Learning track	In-house	External	Total
Business communication	7	6	13
Research methods and tool	11	10	21
Quantitative methods	43	108	151
Business economics	58	0	58
Economics	15	0	15
Total	134	124	258

digital modules, that were available for each learning track in may 2018, less than one year after the launch of Eclips. Only the learning tracks that contain content are mentioned in Table I. In Figure 4 the growth in the different phases of the project are summarized. This figure shows that especially

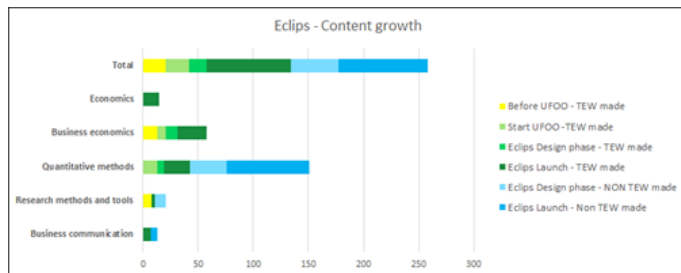


Figure 4. Eclips Content growth.

after the launch of the learning channel, the content in general and the production of in-house made video tutorials started booming. The highest growth rate can be found in the learning track quantitative methods. This is both logical and desirable, since the content of quantitative methods covers the core competences that are needed in other learning tracks.

Through the *Mediasite* of the university, the video platform in which the in-house made videos are uploaded, the lecturers can consult statistics on the views of their video tutorials. It gives an overview of how many students have watched the videos, which parts of the video have been watched the most, etcetera. In other words, it offers the lecturer a clear insight in the topics that students find more relevant and consult accordingly. These results are, up to may 2018 or less than a year after the launch of Eclips, summarized in Table II.

TABLE II. NUMBER OF VIEWS FOR THE VARIOUS VIDEO TUTORIALS.

Learning track	Number clips	Total views	Average views
Business communication	7	269	38
Research methods and tool	11	1232	112
Quantitative methods	43	8140	189
Business economics	58	59327	1023
Economics	15	2639	176
Total	134	71607	534

B. Synergies with Other Faculties

Since the launch of Eclips in 2017, two other faculties of the University of Antwerp started with the implementation of their own tailor-made ECLIPS Learning Channel. These additional faculty channels share the Eclips brand, including the concept and the design, but consist of videos which are specific to the domains offered in the degree programmes of these faculties. This interfaculty cooperation clearly offers multiple opportunities for the future. Such opportunities range from simple economies of scale for recording equipment, to the exchange and co-creation of videos and/or scripts.

The growth of Eclips into multiple subchannels also implies an increase in efforts to manage the Eclips channel(s). For instance, the regulations concerning copyrights should be taken into account. Using video excerpts or short videos

as educational resources without adding changes in a protected learning environment is allowed by Belgian legislation. However, referring or linking to the existing tutorials on the external channels should be done very carefully. Moreover, a growing learning channel consisting of three subchannels, needs permanent maintenance and monitoring. Due to the interaction with different parties delivering videos, this may become quite challenging.

C. Reaching Multiple Target Groups

It is part of a university mission to connect and interact with the outside world. In 2018, the faculty included the pre-students as second target group for the in-house produced tutorials. Three public subchannels were launched for pupils of secondary school and their teachers, in the domains of mathematics, statistics and accountancy. The tutorials are offered to provide this new target group with a tool to bridge possible knowledge gaps between secondary school and university before entering university. As such, these tutorials will help pre-students to assess their readiness, and function as a support instrument in their study orientation process.

As lifelong learning becomes and remains a crucial issue in our society, the faculty recently decided to address alumni as a third target group of the ECLIPS Learning Channel. Specialized expert knowledge, based on research being done by academics, will be transformed into video tutorials as well, serving both graduate students and alumni. Unlike the more accessible knowledge offered in the subchannel for pre-students, more advanced niche knowledge is targeted for the alumni subchannel. This channel is yet to be launched formally, but initial preparations have already begun.

Figure 5 presents a schematic overview of the various Eclips (sub)channels, based on the corresponding target groups, i.e., pre-students, students, and alumni. For every target group, the technological hosting platform and the type of content are included in the summary. As an illustration, the QR codes referencing the pre-student channels are also included.

V. CONCLUSIONS

The development of the Eclips Learning Channel proofs that a faculty can indeed build an efficient digital learning channel with limited human, i.e., three part time team members, and technological resources, i.e., Blackboard and PowerPoint. As the channel has only been launched a little more than one year ago, it would be premature to draw any hard conclusions about its added value and efficacy. An enquiry with both students and lecturers about the structure, the content and the design of the video tutorials is currently being organized.

However, based on the registered viewing statistics, we can already cautiously say that the learning channel is gaining momentum. Moreover, we are able to conclude that students consult the video tutorials more often when the lecturer explicitly refers to them. As the learning channel offers a better overview across various topics of the different courses, we expect that the learning channel will have a positive impact on the study process of the students, and the productive interaction between students and lecturers.

A clear indication of the (perceived) added value is that the Faculty of Medicine and Health Sciences, decided to replicate

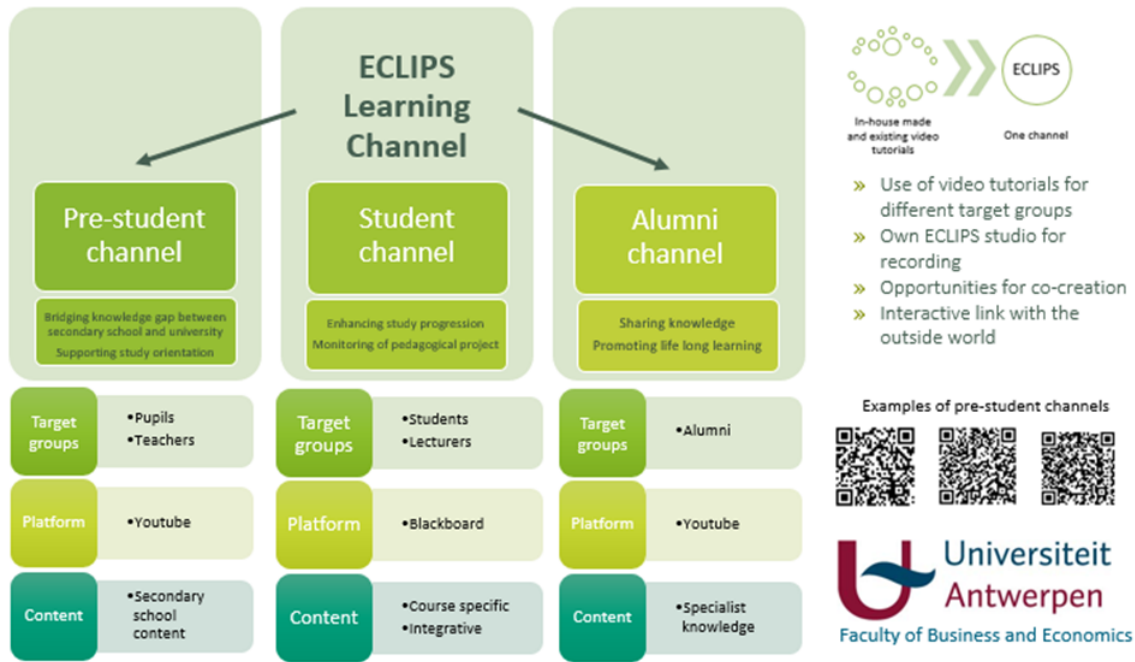


Figure 5. Schematic representation of Eclips (sub)channels and various target groups.

the entire concept of the Eclips learning channel, and adapted the mindmaps to make a logical structure for their own faculty.

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