

Exploring Various Aspects of a Video Learning Channel: The Educational Case Study 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 developed a strategy 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. In this paper, the structure, design, and content of the learning channel are elaborated. As adoption is crucial for any new technology, various statistics about the content and usage during the first two academic years are presented. Finally, as e-learning technologies are often considered to be disruptive, some possible new value networks are explored, including other target groups and interactions with the broader societal environment.

Keywords—Technology Enhanced Learning; Blended learning; Digital learning channels, Disruption in learning.

I. INTRODUCTION

This paper extends a previous paper which was originally presented at the Eleventh International Conference on Mobile, Hybrid, and On-line Learning 2019 [1].

The importance of *e-learning* and *Technology Enhanced Learning (TEL)* has grown in recent years. Several scholars consider this as a crucial, and potentially even disruptive force in higher education [2]. While there is an ever growing supply of online e-learning tools and *Massive Open Online Courses (MOOC)*, universities are also encouraged, and even forced, to develop their own initiatives to support Technology Enhanced Learning. For instance, accreditation bodies like the *European Foundation for Management Development (EFMD)*, strongly advise universities to increase the use of TEL [3].

The University of Antwerp, in particular the faculties *Faculty of Business Economics (FBE)* and *Faculty of Medicine and Health Sciences (FMHS)*, has been focusing for several years on the use of video tutorials to address the heterogeneous incoming students, and to improve the long-term knowledge of students 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 *Faculty of Business Economics* decided in 2017 to create a comprehensive digital learning channel in order to create a clear and structured collection of content for both students and lecturers. This offering should enable the students to navigate in an easy way through all the content that they have learned during their bachelor and master years. By creating this integrated video platform, called the *Eclips Learning Channel*, the faculty wants to give the students the possibility to revise the subjects 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 have absorbed.

In this paper, we use a case-based approach, based on the *Eclips Learning Channel*, to explore several key aspects of the design, organization, and adoption of such a faculty digital learning channel. In Section II, we give a brief literature overview of the possible power of video as a teaching medium, discuss some aspects related to the adoption of technologies, and present the overall strategy of the faculty to leverage this technology. In section III, we refer to the literature related to the disruptive nature of e-learning technologies, and explore some possible implications for the learning channel. The actual structure, content, and design of the *Eclips Learning Channel* are detailed in Section IV. Section V is concerned with adoption, and gives an overview of the main realizations in terms of content development and student usage, distinguishing between an initial phase and a second phase. In Section VI, we explore some possible new value networks, discussing the current and future efforts to broaden the scope and reach of the video learning channel. Finally, we present some conclusions and limitations in Section VII.

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.[4]. 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, such as explanations of assignments or exam solutions, they can be used as supplementary resources when teaching a module

[5]. Research, for instance by Morris and Chikwa [6], 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 [7].

Apart from being part of the lecturer's own module, video tutorials can also be used to cope with the heterogeneity of student groups 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 students who enter with the least amount of exposure to the subject matter [8]. These hiatus frequently occur at the beginning of a study career, because of lack of background in a certain topic or limited prior knowledge when entering university. Moreover, it is also manifest that students continuously need to refresh specific topics during their study career, because of the inevitable process of knowledge evaporation.

B. Adoption of TEL and E-Learning

The adoption of an innovative technology is not a trivial thing, and has been extensively studied. In his seminal work *Diffusion of Innovations (DOI)* [9], Rogers described the lifecycle of innovations in terms of their adoption. In 1989, Davis proposed his *Technology Acceptance Model (TAM)* [10], stating that the individual adoption of a technology is primarily based on its perceived usefulness and its perceived ease of use. This model, which has been refined throughout the years [11], is considered to be an important reference model for the adoption of new technologies.

As e-learning technologies are innovative technologies that require a change in the behavior of both students and lecturers, the adoption of e-learning technologies in general and a faculty learning channel in particular is crucial. Therefore, in accordance with the *Technology Acceptance Model* [10], the perceived usefulness and the perceived ease of use were considered to be prime directives during the design and implementation of the *Eclips Learning Channel*.

C. Faculty Strategy on Video Learning

At the Faculty of Business and Economics of the University of Antwerp, video tutorials tended to be part of a certain course module, confined to the related course within the *Blackboard Learning Management System (LMS)*. In order to make video tutorials available for students during their entire study career, the faculty decided to set up a digital learning channel with permanent and mobile access. In this way, students can watch the tutorials during their studies whenever they need to, and lecturers can refer to this channel in a cross-curriculum way.

The faculty has organised its courses based on domains or 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 formats [12]. Therefore, it was decided to organize the *Eclips Learning Channel* based on these same 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.

When the channel was first implemented and launched at the start of the academic year 2017-2018, it was primarily targeted at first-year undergraduate students, i.e., the first bachelor year. The main emphasis was on providing video resources for this group of students. In the academic year 2018-2019, the focus moved towards the second bachelor year, in order to keep serving the original target group of students.

In order to support and encourage the in-house creation of video tutorials, the faculty set up a dedicated ECLIPS recording studio. When developing a video tutorial, different video production styles are offered to lecturers by the production team. Production styles include screencasts and recording with a 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* [13]. For the sourcing of the video tutorials from elsewhere, the faculty relies upon their faculty staff to assess the quality and consistency of the selected video tutorials. In order to support the quality control and assessment, a quality checklist and a list of guidelines were developed to support the evaluation of both in-house made and external video clips.

III. E-LEARNING AND DISRUPTION

The terms *disruptive technologies* and *disruptive innovation* were first defined and analyzed by Clayton Christensen [14]. It refers to an innovation that creates a new market and value network and eventually disrupts an existing market and value network, as opposed to *sustaining innovations* or developments that maintain existing value chains and incumbents. Christensen himself has argued that e-learning technologies are fundamentally disruptive [2][15], and will probably disrupt the educational landscape and value networks.

Though the notion of disruption features heavily at conferences on e-learning and learning technologies, industry experts like Peter Philips wonder whether we are really ready to embrace disruptive e-learning technologies, and ask who is going to drive the disruption [16]. And indeed, we can clearly see inertia in the application of e-learning technologies, as for instance *Learning Management Systems (LMS)* are still mainly used to publish *PDF files*, and lectures are often recorded from beginning to the end, year after year. Nevertheless, indications exist that education value chains may be overturned in the future by e-learning technologies. Consider for instance that students are already turning to online resources such as *Khan Academy* for assistance, or requesting to replace introductory courses by an online *MOOC* of a world leading university.

Therefore, academic faculties and institutions should actively look to participate in, and/or to establish new value networks in education. In order to gain knowledge of applying e-learning technologies and to participate in collaboration efforts, the faculty decided in the academic year 2016-2017 to participate in the collaborative development of an online course on *Research and Writing Skills for Projects and Dissertations* produced by *Epigeum* [17]. To emphasize the architecture of collaboration, this online course has been integrated in the *Eclips Learning Channel*. Moreover, it was decided to explore new partnerships and opportunities for new value networks during the development lifecycle of *Eclips*.

IV. DESIGN AND REALIZATION

In this section, we detail the actual development of the *Eclips* learning channel, including three main aspects: structure, content and design. But in accordance with our emphasis on the adoption of this innovative technology [10], we first discuss the approach to create an overall concept for the learning channel, and to gather people around it.

A. Approach

As a first step, lecturers who showed interest in *Digital and Blended Learning and Teaching (DBLT)* before, were contacted and asked for input regarding the content of the learning channel. In order to ensure that the entire faculty was represented, these lecturers were selected across the various departments. Moreover, the content of the learning channel was discussed on the department meetings of these departments. 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 the 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*, such as internationalisation and examination formats, the structure is based on the eight learning tracks within the faculty [12]. The project was initially defined for a three year period, during which the faculty envisioned to add content in a gradual way. In accordance with considerations for adoption [10], significant attention was given to the visual or graphical aspect of *Eclips* during the creation of the learning channel. In order to make the adoption of the learning channel successful, 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 was counting on the second target group to spread the word. This second group, the lecturers, was informed during the yearly staff 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 the Blackboard Learning Management System (LMS), 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 curricula of the various study programs of the faculty. For every learning track, the responsible lecturers decide and define their own substructure by mutual agreement within the learning track. Mindmaps are used to guide the students and lecturers throughout the entire structure.

The technology realizing the internal structure of the channel 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 an HTML5-package within Blackboard. The *Eclips Learning Channel* is made available as a separate course in the list of courses within Blackboard, and is accessible to all students and lecturers of the faculty. Opposed to other courses, the learning channel will be visible during the entire academic lifespan of both the student and lecturer. When the student or lecturer clicks on *Eclips* in Blackboard, he is presented with the main HTML5-mindmap, as represented in Figure 1.

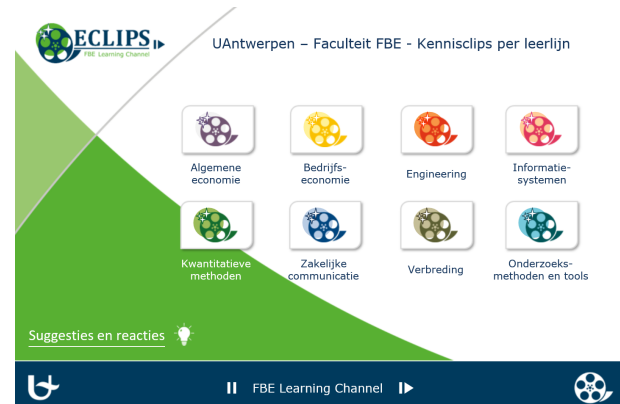


Figure 1. Main structure of the mindmap.

When navigating to a video tutorial in the mindmap, an information sheet shows details about the author, the production date and duration of the video, the hosting 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 can be started by clicking on the play button in the right corner of this information sheet, as represented in Figure 2. The use of hyperlinks behind

Figure 2. Example information sheet of a video tutorial.

the icons in the mindmap ensures that the user can navigate through the different learning tracks to find the video tutorial or digital module that 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. This concern was expressed during a workshop organized with the students, and is closely related to the perceived usefulness [10].

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. Using the unique identifier in the information sheet, the student can easily refer to a specific video tutorial.

C. Content

As mentioned before, 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/or 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. This turned out to be quite beneficial for the content in general and the pace at which the content of the learning channel was created in particular. Even though these four subjects received priority, lecturers of other subjects were also invited to create video tutorials. In the second academic year of the project (2018-2019), the focus shifted to the courses of the second year bachelor, in order to finish the main development part of the project in 2019-2020 with a focus on the third year bachelor. This time path was selected to ensure that the content of the learning channel would gradually grow 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 external video tutorials and in-house made videos. The external video tutorials are carefully selected by the lecturers, keeping the quality of the video tutorials in mind. These include video tutorials from websites like *Khan Academy* and *PatrickJMT*, and the above mentioned e-learning course from *Epigeum*. For in-house video tutorials, 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 types 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 I, and will be discussed in the next section.

D. Design

The user interface and experience are crucial with respect to the perceived ease of use, and therefore a critical success factor related to usage of this video platform by the students and lecturers. Together with the graphical design team of the University of Antwerp, a logo, a set of icons, and a comprehensive house style were designed. The icons are used in the mindmaps in which the students navigate through the structure. The logo makes it possible to brand both not only the in-house made video tutorials, but also the *Eclips* learning channel as a whole. Even though Blackboard is the platform that is used to publish the learning channel, the mindmaps, logo and icons give it a refreshing and contemporary look.

In order to make sure that the in-house video tutorials, made by different lecturers, exhibit a uniform look and feel, these in-house made tutorials start with the Eclips introduction screen, represented in Figure 3. To provide maximum support,



Figure 3. Example introduction screen.

a template for PowerPoint and Camtasia, i.e., a video editing program, were created. The main colour used in the templates is green, since this colour is used to represent the faculty within the university. The various learning tracks have different unique colours to identify them.

V. ADOPTION AND GROWTH

In this section, we present some data regarding the available content and usage of the learning channel. We distinguish between the initial phase, corresponding to the first academic year after the launch, and the second academic year.

A. Initial Content and Use

The main 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 success of the project is related to the adoption of the learning channel, and needs to be expressed in terms of content created by the lecturers, and usage of the video tutorials by the students. Table I shows

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

the number of video tutorials and 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 actually contain content are mentioned in Table I. In Figure 4, the growth of the offering in the different phases of the project is summarized. This figure shows that especially after the launch of the learning channel, the available content in general, and the production of in-house made video tutorials in particular, started booming. The highest growth rate is located in the learning track quantitative methods. This is both logical and desirable from a pedagogical point of view, since the content of quantitative methods covers the core competences that are prerequisites for other learning tracks.

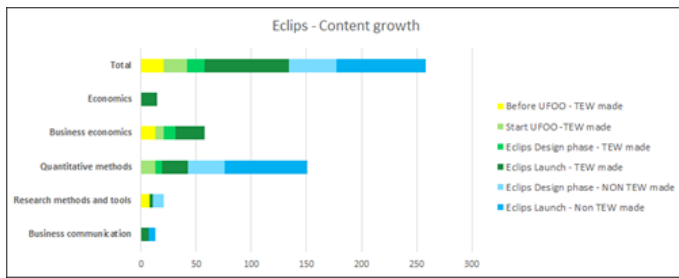


Figure 4. Eclips Content growth.

Through the *Mediasite* of the university, the video platform in which the in-house made videos are uploaded and made available, 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 therefore consult accordingly. These results are, up to May 2018, less than a year after the launch of Eclips, summarized for the various learning tracks 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. Continued Use and Growth

During the second academic year (2018-2019), the development of video tutorials continued. As mentioned before, the main emphasis was on courses for the second year bachelor, though tutorials for other courses were developed as well. An overview of the available video tutorials at the end of September 2019, and their distribution over the various learning tracks, is represented in Table III.

TABLE III. NUMBER OF VIDEO TUTORIALS IN SEPTEMBER 2019.

Learning track	In-house	Growth	External	Total
Business communication	8	+14.29%	6	14
Research methods and tool	31	+181.82%	10	41
Quantitative methods	49	+13.95%	113	162
Business economics	76	+31.03%	0	76
Economics	22	+46.67%	0	22
Total	147	+26.72%	113	260

The growth percentages for the in-house made video tutorials clearly show a positive evolution in the adoption of the learning channel from the side of the lecturers. Moreover, we see a very strong growth in the learning track for research methods and tools. This is in accordance with the strategy to

focus on the second year bachelor during this second academic year of the learning channel project, as that learning track exhibits no courses in the first year bachelor.

During this second academic year, it was also decided to create public channels on *YouTube* for three learning tracks, i.e., quantitative methods, business economics, and economics and to publish a number of video tutorials from these learning tracks on these public channels. Some numbers on the usage of these public channels are presented in Table IV. We make a distinction between the total amount of views on the *YouTube* channels (column 1 and 3), and the views originating from Blackboard and coming certainly from our students (column 2 and 4). Moreover, these figures are presented on a yearly basis ('Y', column 1 and 2) for the 12 months leading up to September 2019, and on the basis of monthly averages ('M', column 3 and 4).

TABLE IV. NUMBER OF VIEWS ON YOUTUBE SEPTEMBER 2019.

Learning track	Total-Y	Student-Y	Total-M	Student-M
Quantitative methods	20524	4684	1710	390
Business economics	58335	18019	4861	1502
Economics	288	29	24	2

Table IV shows that the adoption of the learning channel from the side of the students is evolving in a positive way as well. In order to gain more insight in this adoption by students, a survey was performed at the end of the examination in a number of courses, i.e., European Environment, Marketing Policy, Economics (both for Business Administration and Social Economics students), Macro-Economics, and Mathematics (for Business Engineering, Business Administration, and Social Economics students). The students were asked whether the

TABLE V. RELATIVE AWARENESS AND USE OF ECLIPS BY STUDENTS.

Course	Known	Unknown	Often	At all	Never
European Environment	76,7	23,3			
Marketing Policy	79,7	20,3			
Economics (BA)			11,1	23,3	65,6
Economics (SE)			24,3	34,5	41,2
Macro-Economics			1,5	15,7	82,7
Mathematics (BE)	95,9	4,1	15,8	57,5	26,7
Mathematics (BA)	83,2	16,8	5,3	26,4	68,3
Mathematics (SE)	80,4	19,6	19,4	42,4	38,2

Eclips learning channel was either *Known* or *Unknown* to them, and/or whether they viewed video tutorials from the learning channel *Often*, *At all*, or *Never*.

Once again, these results, presented in Table V, were quite satisfactory from an adoption point of view. It is also worth noticing that the highest adoption rate is found in the course on *Mathematics*. As this is a difficult course with a low pass rate, it seems that Eclips is certainly perceived to have an added value during the study process. Moreover, the adoption rate is the highest for the *Business Engineering* students, who are widely considered to be the top students of the faculty.

VI. TOWARD NEW VALUE NETWORKS

As e-learning technologies are often considered to be disruptive [2], they have the potential of disrupting existing value chains, and can therefore be threatening to academic faculties and institutions. However, this disruptive nature entails opportunities as well, as it could enable academic faculties to develop new value networks. In this section, we discuss some synergies and collaborations that have been developing as part of the *Eclips* project.

A. Synergies with Other Faculties

Since the launch of *Eclips* in September 2017, two other faculties of the University of Antwerp started with the implementation of their own tailor-made learning channel. These additional faculty channels share the *Eclips brand*, including the concept and the graphical design. Moreover, these channels exhibit the same structure and navigation based on learning tracks. In general, they offer parts of the content from the original channel, i.e., mainly in the quantitative methods learning track, but contain one or more additional learning tracks with video tutorials dedicated to specific courses 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 video tutorials and/or scripts. An additional benefit is that the mere fact that the channel is being replicated in other faculties, has a positive impact on the *perceived usefulness* of the channel, and therefore on the adoption [10].

The development of the *Eclips* initiative into multiple learning channels for several faculties 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 video tutorials, this may become quite challenging.

B. Reaching Multiple Target Groups

It is part of the mission of any university to connect to 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, i.e., in the domains of mathematics, statistics and accountancy, were launched on *YouTube*. This was done to increase the *perceived ease of use*, and to connect to pupils of secondary schools and their teachers. The video tutorials are offered to provide this new target group with a tool to bridge possible knowledge gaps between secondary school and university before entering the university. As such, these tutorials will help pre-students to assess their readiness, and function as a support instrument in their study orientation process.

An additional benefit of these public channels is that they are also being consulted by students of other universities. Individual students have told us in interviews multiple times that friends of them, studying at other universities, view video tutorials on these public channels as well. Without doubt, the

students showed a sense of pride while telling this, which will definitely have a positive impact on the *perceived usefulness*, and therefore on the adoption [10].

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 used to create 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, with their the corresponding target group, i.e., pre-students, students, and alumni. For every individual target group, the technological hosting platform and the type of content are included in the summary as well. As an illustration, the QR codes referencing the different pre-student channels are also included in the representation.

C. Possible Future Collaborations

Reaching out to pre-students and alumni could both lead to collaborations with other organizations, and therefore new value networks. The interaction with pre-students in secondary schools for instance, could lead to more formal collaborations with these secondary schools and their teachers. Several secondary school teachers have already confirmed to be interested in producing their own dedicated video tutorials. This would allow them to take advantage of the facilities and competencies offered by the *Eclips* team and platform, and to collaborate on the content with other secondary schools that are part of the university network.

The interaction with alumni on the other hand, could lead to more formal collaborations with their employers. Organizations could for instance be interested to tap into video tutorials for basic courses that are relevant for certain groups of their employees. Another type of possible content partners are the spin-off companies of the university. A few spin-off companies have already expressed an interest to build upon university research video tutorials, in order to develop e-learning content for some of their products which are actually based on research that was performed at the university.

VII. CONCLUSIONS

In this paper, we have given an overview of the design, development, and initial adoption of the *Eclips Learning Channel*, providing video tutorials for the students of the *Faculty of Business and Economics* of the *University of Antwerp*. This development proves that a single faculty can indeed build a digital learning channel with a perceived added value, using limited human resources, i.e., three part time team members, and elementary technological resources, i.e., Blackboard and PowerPoint. It also proves that taking into account upfront issues related to the adoption of such *Technology Enhanced Learning* techniques, can indeed foster a controlled and positive adoption of such a learning channel.

We have shown data on content and usage, indicating a clear positive evolution in the adoption of the *Eclips* learning channel at both sides of adoption, i.e., lecturers and students.

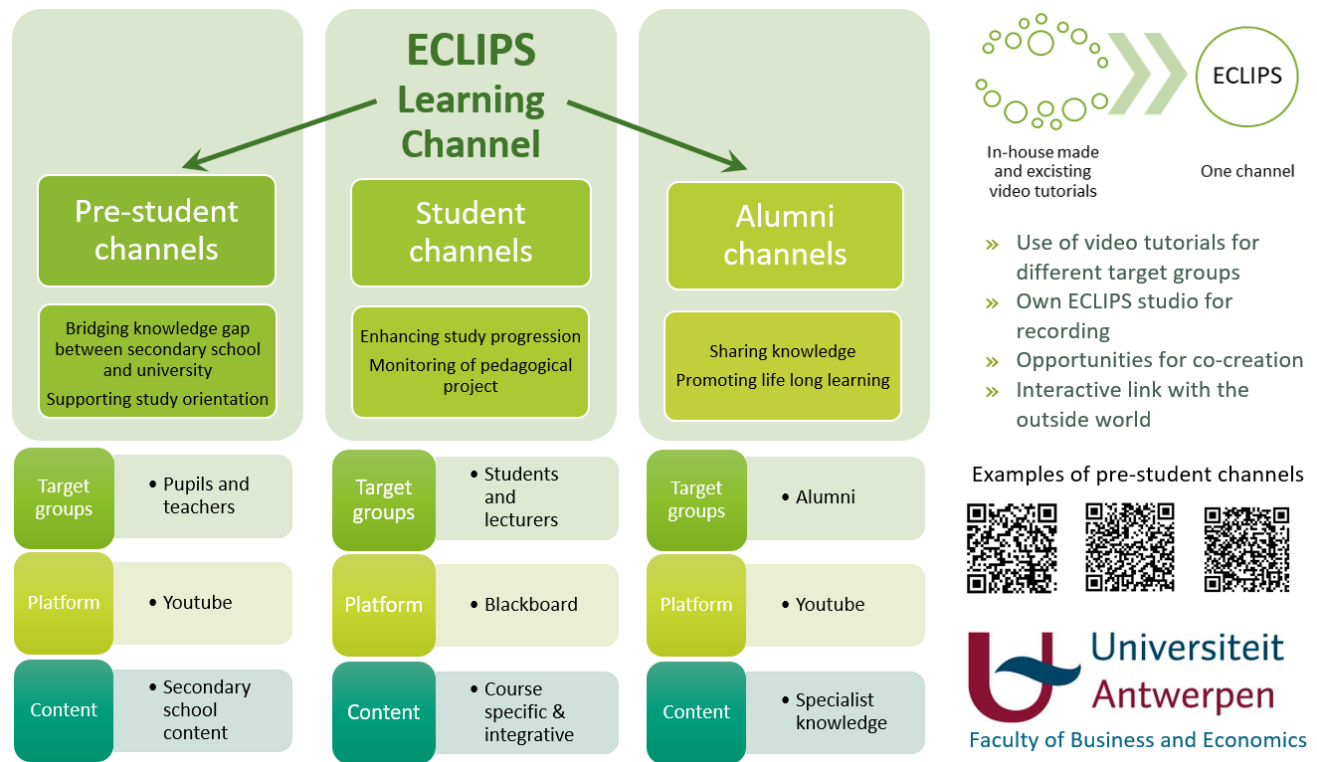


Figure 5. Schematic representation of Eclips (sub)channels and various target groups.

From the side of the lecturers, this adoption can be seen in both the amount of video tutorials produced in the initial phase, and the continued growth during the second academic year. At the side of the students, several numbers indicate a positive adoption of the learning channel as well. The number of views during the first academic year was clearly satisfactory, and continued to improve during the second academic year. Moreover, a survey has demonstrated that both awareness and usage of the learning channel by students is good to very good.

Another realization of the learning channel is that it is being adopted from two external parties at different adoption sides. First, two other faculties of the university decided to replicate the entire concept of the Eclips learning channel, and adapted the mindmaps to make a logical structure for their own faculty. Second, we have evidence that a number of students from other universities use the video tutorials while studying their courses. Both instances of external adoption contribute to the perceived usefulness of the initiative, and should therefore create an additional positive impact on the adoption.

Two academic years after it has been launched, there is ample evidence that the learning channel continues to gain momentum. However, the ultimate goal of the learning channel is of course to improve the study efficiency and results from the students. Though there are some preliminary indications that the learning channel has a positive impact on the student efficiency, such as informal conversations and the increased usage, there is no conclusive evidence yet for this. Therefore, we are planning to perform in the near future a quantitative study to gather evidence for a positive correlation between the use of the learning channel and the study results.

Finally, we have stated that e-learning initiatives like the *Eclips* learning channel, should take advantage of the potentially disruptive nature of e-learning technologies to establish new value networks. Though we have only just started to reach out to other target groups, i.e., pre-students and alumni, we have already explored some possible collaborations with secondary schools and (spin-off) companies.

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