Moodle E-learning Platform as a Complementary Tool in ICLHE Contexts

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ABSTRACT

Integrating Content and Language in Higher Education (ICLHE[2]), or English Medium Instruction (EMI), is the current focus of interest for many researchers nowadays. Some of theses studies aim at exploring learning and teaching processes and beliefs (Fortanet-Gómez, 2013, Jiménez-Muñoz & Lahuerta-Martínez, 2019) or at the effectiveness and satisfaction of Course Management Systems (CMS) (Chung & Ackerman, 2015; Damnjanovic, Jednak, & Mijatovic, 2015) but, as far as we know, no research to date involves the use of the activities and resources provided by Moodle in face to face ICLHE contexts. In classrooms today, teachers deal with both digital and traditional genres that have been digitalized and shared through diverse channels to reach their prospective audience. The main concern of this study is to analyse how ICLHE teachers in business-related degrees use Moodle. Our results may be conditioned by the fact that the research took place during the coronavirus crisis. Despite that, we hypothesize that ICLHE teachers may use the e-learning platform in a different way as compared to teaching in the students' L1 (Spanish/Valencian). We have analysed the Moodle platforms of 5 subjects (4 EMI and 1 English for Specific Purposes (ESP)) in business-related degrees, following our own taxonomy in order to classify the different resources and activities on the platform, and to define their purpose and use during the course. In this analysis, we have observed how teachers use the Moodle platform considering that these subjects are taught in English as an additional language. The analysis has been complemented by interviews with the teachers.

Keywords: Moodle, CMS, ICLHE/EMI, digital genres, business-related degrees.

RESUMEN

Hoy en día, integrar contenido y lengua en la educación superior o inglés como medio de enseñanza (Integrating Content and Language in Higher Education (ICLHE) o EMI (English Medium Instruction)) es el principal tema de interés para muchos investigadores. Algunos de estos estudios se centran en estudiar los procesos y las creencias de su enseñanza y aprendizaje (Fortanet-Gómez, 2013, Jiménez-Muñoz & Lahuerta-Martínez, 2019) o en la efectividad y satisfacción de Sistemas de Gestión de Cursos (SGC) (Chung & Ackerman, 2015; Damnjanovic, Jednak, & Mijatovic, 2015), pero hasta donde sabemos, ninguna investigación implica el uso de actividades y recursos incluidos en Moodle en contextos ICLHE de docencia presencial. Hoy en día, los docentes trabajan tanto con géneros digitales como con géneros tradicionales que se han digitalizado y usan diversos canales para hacerlos llegar a su público potencial. El principal objetivo de este estudio es analizar cómo los docentes de lengua y contenido en inglés en carreras afines a la empresa utilizan Moodle. Nuestros resultados pueden estar condicionados porque el estudio se realizó durante la crisis del coronavirus. A pesar de esto, nuestra hipótesis es que los docentes de lengua y contenido en inglés pueden usar la plataforma de aprendizaje electrónico de distinta manera a la que lo harían si estuvieran enseñando en la L1 de los estudiantes (español/valenciano). Hemos analizado la plataforma Moodle de 5 asignaturas de titulaciones afines a la empresa (4 de contenido impartido en inglés y una asignatura de Inglés para Fines Específicos (IFE)), siguiendo nuestra propia taxonomía para clasificar los diferentes recursos y actividades de la plataforma, así como definir su finalidad y uso durante el curso. En este análisis, hemos

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[2]   Though ICLHE and EMI are not exactly synonyms, for the purpose of this article they are considered as such.

observado cómo los docentes utilizan la plataforma Moodle teniendo en cuenta que estas asignaturas se imparten en inglés como idioma adicional. El análisis se ha complementado con entrevistas a los profesores.

Palabras clave: Moodle, SGC, ICLHE/EMI, géneros digitales, grados vinculados a la empresa.

1. Introduction

In the world we live in, we are surrounded by electronic devices that are useful for us not only because of their physical form, but because of what we can do with them. We refer to smartphones, tablets, and computers, which Redström and Wiltse (2019) call "fluid assemblages" (p.6). We may like their shape or colour, but it is what we can do with them, or through them, that is really important. With a smartphone, for example, we can search, talk, watch, browse, share, buy, listen, track, post, like, and many other actions. Moreover, we are "networked" through our devices, either physically or virtually (in the 'cloud', as it is known), with many other people.

These "fluid assemblages" have certainly influenced our everyday lives and have also inevitably entered the education system. One of the characteristics of these technological devices and of the virtual environments to which they allow access, is their constant evolution and, therefore, the permanent challenge they represent for users, in this case, students and teachers, who need to be regularly (or perhaps constantly) refreshing and extending their practical knowledge of the devices' functioning and capacity (Redströrm & Wiltse, 2019).

In this paper, we will deal with technological devices as learning tools and with how they can be used in higher education. Our focus is on the effect of the use of "fluid assemblages" and the role of the pedagogical resources selected and created by higher education teachers. More specifically, we will look into how higher education teachers employ the Moodle Course Management System (CMS) within ICLHE and ESP teaching contexts.

A CMS is a web application that runs on a server, which is usually located at an institution (e.g. a university) but can be accessed from anywhere and from any technological device using a web browser. A CMS provides educators with tools to create a course website and allows access only to enrolled students. Teachers and students can upload and share materials, hold online discussions and chats, distribute and answer quizzes and surveys, collect and mark assignments, and record grades, among other functions (Cole & Foster, 2008). Although there are various different programmes to do each of these activities, a CMS combines several of them in an integrated package.

Moodle is an open-source CMS created in 1999 by Martin Dougiamas, an Australian university educational researcher and practitioner, who wanted to improve the existing commercial software at that time and who had always supported Open-Source Software (Cole & Foster, 2008). The term Moodle has two meanings:

It is an acronym for Modular Object-Oriented Dynamic Learning Environment.

As a verb, it "describes the process of lazily meandering through something, doing things as it occurs to you" (Cole & Foster, 2008: ix).

It has been translated into over 70 languages, maintaining the same layout or appearance, and the number of activity modules offered to the administrator is always increasing. In the 3.7 version (Moodle, 2020) as used at Universitat Jaume I (UJI), it includes 7 resources and 15 activities (Table 1).

Resources		Activities
• File	• Assignments	• Group choice
• Folder	• Chats	• Lessons

Resources		Activities
• Label	• Choice	• Quiz
• Page	• Database	• SCORM package
• URL	• Dialogue	• Survey
• Videoclass	• Feedback	• Wikis
• IMS Content package	• Forum	• Workshop
	• Glossaries	

Table 1. Moodle resources and activities.

Some of these activity modules are very simple and lead directly to a product, as is the case of "Choice", where a teacher can ask a single question and offer a selection of answers in order to test students' understanding in a quick poll. It is similar to "Quiz", with a more extensive number of questions and answers. In contrast, other activity modules are far more complex, such as the Sharable Content Object Reference Model or "SCORM package", which contains a number of files displayed on several pages and users can navigate between them. These file activities include questions, multimedia content and animation, and can be useful in assessment tasks.

On the other hand, the resource modules allow files and folders to be uploaded and to connect the CMS to word processors and/or slide presentation documents, among other things. The module that grants access to Internet links (URL) increases the possibilities of networking not only with any website, but also with other complex resources. One of the most well-known and popular is Google Workspace for Education (previously G-Suite), an open-source package originally launched in 2006 for primary schools and higher education (Google, 2020). G-Suite has 13 applications that can be used on a computer or a mobile phone. Some of those most widely employed in higher education seem to be Google Meet for video conferencing, Google Drive to store and share files, Google forms to make simple surveys, and Google Docs, Sheets and Slides for collaboratively creating online documents.

There is not much research on the use of Moodle and Google Workspace for Educators in higher education. The few studies found deal with students' perceptions of its effectiveness (Damnjanovic, Jednak, & Mijatovic, 2015) and their satisfaction with its use (Chung & Ackerman, 2015), both of which tend to be positive. Wen and Yang (2020) review the use of Moodle in China for English language teaching on the basis of ten previously published studies. They conclude that Moodle is most often used as a platform or repository of materials for listening and reading comprehension. Some other studies have focused on the use of Moodle in online teaching (Correa Díaz, 2012) and in secondary education (Badía, Martín, & Gómez, 2019). Only one article, to our knowledge, has focused on the use of specific activities such as quizzes. Gamage, Ayres, Behrend & Smith (2019) analyse the use of Moodle quizzes for formative and summative assessment in engineering courses at an Australian university and conclude that they can be useful and effective for this kind of course. However, to our knowledge, there is no analysis on the use of Moodle resources and activities for face-to-face EMI teaching in higher education.

In parallel, in recent years there has been a tendency towards introducing English as the medium of instruction in some university courses with the objective of Integrating Content and Language Learning in Higher Education (ICLHE). There are several studies on the learning and teaching processes and teachers' beliefs about ICLHE (Fortanet-Gómez, 2013; Jiménez-Muñoz & Lahuerta-Martínez, 2019), but to date, we have no knowledge of any research dealing with the use of CMSs, and specifically Moodle, in this context.

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CMS and the technological tools they embrace have been used both in face-to-face teaching, and in blended and online learning (Pinto-Llorente, Sánchez-Gómez, García-Peñalvo, & Casillas-Martín, 2017), and learning how to use them is essential both for novice and experienced teachers, especially if they are teaching in a second language (Lotherington & Jenson, 2011). Although the present research was first designed to study the use of a Moodle CMS in face-to-face higher education teaching, the coronavirus crisis provoked a sudden move to online teaching in the middle of the second semester of the 2019-2020 academic year and to a hybrid teaching the following academic year (2020-2021), which may have affected the use of this CMS (Hodges, Moore, Lockee, Trust, & Bond, 2020). This circumstance will be taken into account in the research.

Since the 2004-2005 academic year, UJI has offered and encouraged the use of a Virtual Classroom, managed through the free Moodle CMS, for all its teaching activities. The objective is to supply a website to all teachers and students to organise materials, manage communication among participants, and develop online learning activities (CENT, 2020). It can be used for onsite teaching, as well as fully online teaching, and it is in general use by all teachers and students at this university (Consell de Govern, 2019).

To complement Moodle, UJI teachers are encouraged to use Google Workspace for Education and Microsoft Word 365. Google Workspace for Education was introduced as the main teaching tool in 2011, including not only Gmail, but also Drive, Google Docs, Google Forms, Spreadsheets, Presentations and Hangouts Meet (Servicio de Informática UJI, 2019). The university also has an agreement with Microsoft 365 to provide all teachers and students free access to a set of programmes, Word, PowerPoint, and Excel being those most often used.

In addition, it should be pointed out that at UJI, since 2008, 5% of the teaching hours on all bachelor's degrees must be taught in English. Each course's Academic Committee decides how to distribute these hours.

After reviewing the existing literature, the objective of the present research is to analyse the use teachers make of the Moodle CMS and its module activities and resources in 4 EMI and 1 ESP subjects in business-related degrees over the academic year 2020-2021. The research questions we intend to answer are the following:

> RQ1: Is there a similar use of activities and resources in all the courses analysed?
>
> RQ2: Which Moodle activities are used most often?
>
> RQ3: Which Moodle resources are used most often? Is there a relationship between these resources and other applications or programmes?
>
> RQ4: What pedagogical applications are made of the Moodle activities and resources?

2. Method

2.1. Instruments

The first instrument used in the study is an analysis of the Moodle Virtual Classrooms for the five subjects, to which the authors of this article were granted access as invited lecturers. Table 2 summarizes the characteristics of the subjects analysed. All of them are compulsory subjects and are taught in English. The main difference between them is the year of the course in which students take those subjects (second or third year). S1 and S5 are offered to all students in their third year, when the rest of their subjects are not taught in English. On the other hand, S2, S3 and S4 are only offered to second-year students who opted for the international degree, where

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100% of the subjects are taught in English during the first two years and 50% in the two following years. It should be noticed that the number of students in the international degree course is lower.

Subject	S1	S2	S3	S4	S5
Title	Macroeconomic Theory	Business Administration	Financial Management	Financial Accounting	English for Finance
Year	3	2	2	2	3
No. of Students	62 (all students on the Economics Degree)	28 (English language group)	20 (English language group)	26 (English language group)	65 (1 of 6 groups studying this subject)

Table 2. Subjects under analysis.

The second instrument was an interview with each of the lecturers about the subject under analysis. Several questions were asked about the reason why their subject is offered in English, about the difficulty of the subject for the students, how the subject is structured, and how often they communicated in English with the students. The answers to the interview questions helped in defining the subjects. The reason why these and not other subjects are taught in English is because there is a teacher who has the right level of English (C1 or equivalent due to years teaching in English) and is willing to teach in that language without any additional recognition (fewer hours of teaching, or extra remuneration). For some lecturers, teaching in English is not a difficulty, but for others, it is still a challenge even after several years of doing it. However, the main problems seem to be the students' level of English and their low participation in the classes and the use of the communication tools.

The third instrument was another interview with the teachers after the analysis of the Virtual Classrooms they had created in which we checked the validity of the taxonomy used as well as the nature and function of each of the resources and activities, and the reason why they were selected. In order to avoid misunderstandings, both interviews were conducted in Spanish and were audio-recorded to facilitate analysis. These interviews helped us to interpret the results obtained in the analysis.

2.2. Participants

To answer the above questions, we contacted five teachers from the Departments of Economics, Business Administration and Marketing, Finance and Accounting and English Studies at UJI. They all teach subjects in English on the three business-related degrees (Business Administration, Finance and Accounting, and Economics). Two are female and three are male and all of them are middle-aged teachers who have learned English as a Foreign Language, and who have a B2-C2 certified level in this language. They each have about 10 years of experience at the university and have been teaching their subjects in English at least for the past 5 years. These teachers were selected because of their involvement in the integration of content and the English language in their classes, and their willingness to collaborate with English language teachers.

2.3. Procedure

The Moodle Virtual Classroom (MVC) was analysed by comparing the units implemented by each teacher that were devoted to General Information and to Evaluation (Block 1), and those devoted to Content (Block 2), as we grouped the sections in each subject to facilitate the analysis. We investigated the number and characteristics of the activities and resources used. Some of the resources were linked to websites, to Google Workspace for Education or Microsoft 365 tools. The relation between Moodle and these programmes was also analysed. Then,

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we observed the actual use of the Virtual Classroom by the teachers. Finally, the results were presented to the five teachers in order to corroborate our interpretation of the data.

3. Results and Discussion

In this section, we will present the results and provide an interpretation of them on the basis of the research questions posed. In order to classify Moodle activities and resources according to their function, we created a taxonomy. The categories are summarized in Table 3.

Function	Acronym	Description
1. Essential for students to follow the classes	EfC	Material necessary for students to be able to follow the regular classes (e.g. slides used in class)
2. Support material to follow the classes	SMFC	Material to reinforce students' learning related to the material used in class (e.g. glossary)
3. Support material to complement the classes	SMCC	Material to support students' learning related to the contents seen in class (e.g. external links)
4. For students' work (obligatory)	SWOb	Additional material students are required to work on their own (e.g. tests) or in groups (e.g. some practical work)
5. For students' work (optional)	SWOp	Additional material students have available in case they need to revise or want to go deeper into certain issues (e.g. links to external material)
6. Informative for students	InfS	Explanation or description of certain tasks or activities, past or current
7. Communication T-Ss	CTS	Means to interact between teachers and students
8. Teacher material not shared	TM	Materials teachers upload but do not share (e.g. their own slides)

Table 3. Functions of the materials on the CMS.

Functions were labelled and defined according to the purpose of the activities and/or resources. Some were essential for students (and teachers) to follow the class (EfC), such as the PowerPoint presentations (PPT) or PDF files used as presentation slides. Then, students had some materials (SMFC) which include activities to be done in class, glossaries to understand the contents, or documents to use in class, which could help them to follow the explanations and understand the teaching/learning sessions, along with other materials to complement what is seen in class (SMCC).

Then, we divided the material students could use outside the class into obligatory or optional. The former (SWOb) refers to resources or activities which are required by the teacher in order to assess students' learning, such as tests, or practical work to be done in groups or individually. The latter (SWOp) deals with external links or files which expand on the content of the class, but which are not required or needed to understand the subject.

Finally, the last three functions are more generic. The first one (InfS) is purely informative, and such materials are used to inform students about any additional events that are occurring, e.g., their partial or final grades. The next one (CTS) refers to the various means for teachers and students to communicate with each other, usually through a forum or a dialogue. Finally, the last function (TM) refers to the files that teachers upload but hide from students and which may or may not be used, depending on the topic or the circumstances.

3.1. Use of Moodle activities and resources

Table 4 summarizes the use of activities as compared to that of resources in the five subjects. On the Moodle platform, teachers made use of a small number of activities (15%, n=73) and a greater number of resources

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(85%, n=430). As can be observed, the use of the Moodle activities is low compared to the use of resources, ranging from 10% of all the occurrences of Moodle modules to 21%. Sections 4.2 and 4.3 analyse the activities and resources most commonly used.

Subject	All courses	S1	S2	S3	S4	S5
Activities	73 (15%)	25 (14%)	9 (10%)	15 (21%)	8 (13%)	16 (14%)
Resources	430 (85%)	148 (86%)	76 (90%)	55 (79%)	54 (87%)	97 (86%)
Total	503	173	85	70	62	113

Table 4. Activities and resources used in the Moodle website.

3.2. Most frequently used Moodle activities

As explained in the introduction, the Moodle CMS offers teachers 15 different activities to use, although the results show that only a limited number are selected by teachers (just five of them). Table 5 shows the use of activities and their distribution (in percentages within each block). All subjects have between one and three units with general information about the subject, which we have included in Block 1: General Information, and the rest of the MVC includes activities and resources related to the content (Block 2: Content).

	Subject	S1	S2	S3	S4	S5
	Total	**25**	**9**	**15**	**8**	**16**
		3	*8*	*11*	*1*	*6*
	Dialogue	1 (33%)	0	1 (9%)	0	1 (17%)
Block 1: General information	**Forum**	1 (33%)	2 (25%)	2 (18%)	1 (100%)	3 (50%)
	Quiz	1 (33%)	6 (75%)	6 (55%)	0	0
	Assignment	0	0	0	0	0
	Choice	0	0	2 (18%)	0	2 (33%)
		22	*1*	*4*	*7*	*10*
	Dialogue	3 (14%)	0	0	0	0
	Forum	0	0	1 (25%)	0	0
Block 2: Content	**Quiz**	7 (31%)	0	0	7 (100%)	0
	Assignment	3 (14%)	1 (100%)	3 (75%)	0	10 (100%)
	Glossary	9 (41%)	0	0	0	0

Table 5. Distribution of activities in the Moodle platforms.

Although activities are more often used in the Content block for most of the subjects (44 vs. 29), it is significant, especially in S1, to observe the variation in the number of occurrences and the percentage with which they are found. The activities found in the General Information block are Forum, Dialogue, Choice, and Quiz (see Table 1), most of which have the function of "Communication T-Ss". In the case of Quiz, it is material for students' work (obligatory) (SWOb), as it corresponds to online test. In the interviews, teachers explained that it is not usual to give students online tests like this. It was the situation of the pandemic that obliged them to assess students online and the Quiz activity facilitated this (see Figure 1, as an example). However, other subjects like S1 and S4 used this activity to let students check their understanding of each unit after working on it. Despite that, most teachers mentioned in the interviews that they did not use so many activities because they were not familiar with them or because they preferred using other tools, such as those of Google Workspace.
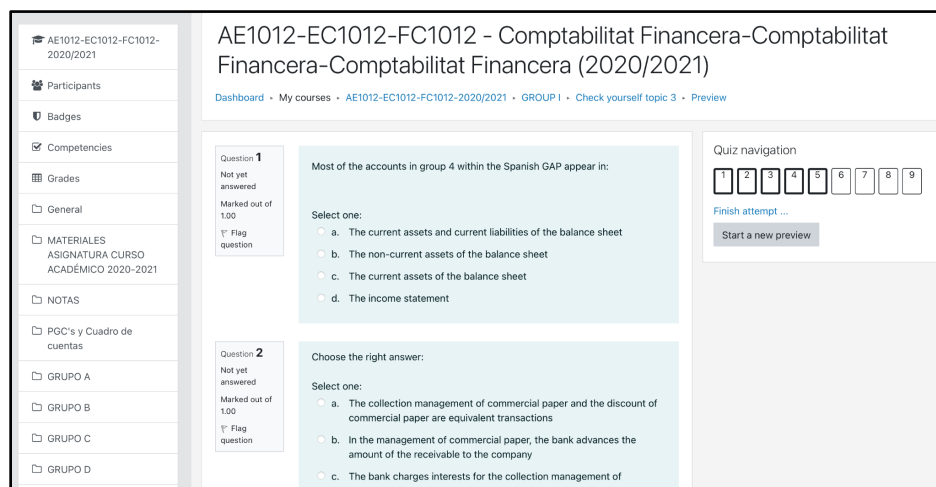
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Figure 1. Screenshot of a Quiz activity.

The Quiz was also used often in the Content block for these subjects, although it was meant to check students' understanding. Other Content activities were Assignment, used by students to submit their work, and Glossary. Some subjects placed the Assignment activity in the General Information block (S1), while others had it in each unit within the Content (S3, S5). Glossary was also used by one teacher (S1); in the interview, she explained that she used it to help students to understand the English terms as it was useful for students to follow the classes and to clarify terms when working on their own. She includes a glossary for each of the topics covered. Another teacher (S3) used this activity a few years ago, but she realised it was not a useful tool for her students and stopped using it. There is an important difference between courses S1 and S3; while S1 is offered to all students, S3 is only offered to the students who have selected the English track (international degree) and who generally have a higher level of English, which may be the reason why the teacher of S3 felt her students did not make use of or need the Glossary. In addition, in the interview, the teacher of S2 reported translating key terms into Spanish when they first appeared in order to help students to understand as well as to learn the term in their L1, as an alternative to the Glossary.

3.3. Moodle resources and their relationship with other applications or programmes

As observed above, in the Moodle platform, teachers made greater use of resources, corresponding to around 90% of the use of the Moodle, than activities. Table 6 shows the resources used in the General Information and the Content blocks. Among these resources, only two seem to be favoured by almost all teachers: File and URL. The main characteristic of these resources is their relationship with other applications and programmes.

	Subject	S1	S2	S3	S4	S5
	Total	**148**	**76**	**55**	**54**	**97**
		32	*12*	*20*	*8*	*16*
Block 1: General information	**URL**	15 (47%)	5 (42%)	3 (12%)	1 (12%)	4 (25%)
	Files	17 (53%)	7 (58%)	15 (58%)	6 (76%)	7 (44%)
	Label	0	0	2 (10%)	1 (12%)	5 (31%)
Block 2: Content		*116*	*64*	*35*	*46*	*81*

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Subject	S1	S2	S3	S4	S5
URL	50 (43%)	53 (83%)	0	6 (13%)	22 (27%)
Files	52 (45%)	11 (17%)	28 (80%)	19 (41%)	53 (65%)
Label	0	0	7 (20%)	21 (46%)	0
Pages	14 (12%)	0	0	0	6 (8%)

Table 6. Distribution of resources in the Moodle platforms.

As can be observed in Table 6, although all subjects are taught in one semester and they all have the same teaching hours, there is a wide variation in the use of resources. In total numbers, S1 is the subject that offers the students most materials in the form of URLs or Files, followed by S5 and, at some distance, S2. However, all subjects seem to heavily rely on these two resources. In the General Information section, PDF files include the syllabus and instructions about assignments and exercises, most of them "Informative for students", whereas URL links relate to Google Forms, to collect information about the students or to replace the Quiz as assessment. It should be highlighted that in S1 and S2, there are a number of URL links to Google Meet sessions or to recorded classes both in General Information and in Content blocks that, as teachers explained in the interviews, were a direct result of the COVID pandemic situation and the need to teach online. In the 20-21 academic year, all these subjects were taught using a hybrid scheme whereby half the students were physically present in the classroom and the rest were at home following the classes online. For that reason, the S1 lecturer explained in her interview that recorded classes were provided with a double function: "Support material to follow the classes" for those students attending the classes on-site and "Essential for students to follow the classes" for online students.

All the Virtual Classrooms offer PDF files containing the content of the teachers' slide presentation for each unit, which are "Essential for students to follow the classes". Some teachers also uploaded the PowerPoint presentation, which they used in class and hid it from the students. The reason for this is that teachers prefer to give students a document, the PDF, that cannot be easily modified. There are also PDF documents to describe how to do exercises or assignments or to provide the solutions to exercises. S5, the English for Finance subject, also includes a number of audio recordings, exclusive of this subject and related to the listening exercises students have to do.

Regarding the URL links, the main difference between those courses that make a more frequent use of this resource, S1 and S2, and the rest, is the links to websites and, especially to YouTube and science dissemination videos. However, while in S1 these videos tend to be "Support material to complement the classes", in S2 they are "Support material to follow the classes" or students need to watch them in order to do the obligatory exercises (SWOb). Figure 2 shows one of the videos used in S2, "Essential for students to follow the classes".
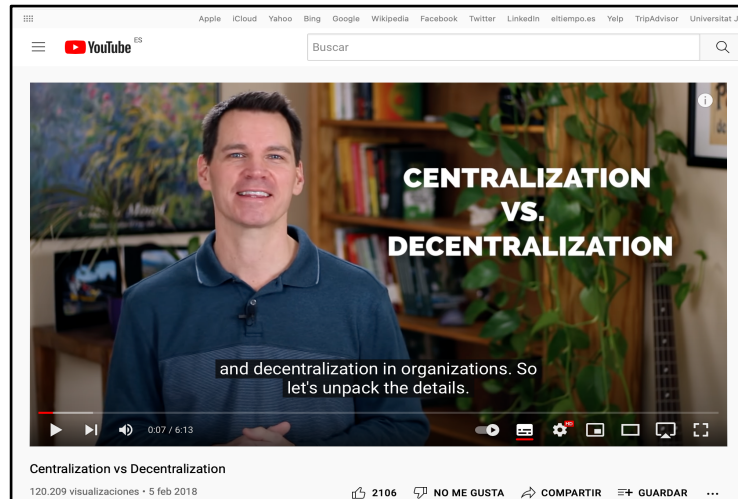
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Figure 2. Screenshot of a video linked to the Moodle Virtual Classroom through a URL link (https://www.youtube.com/watch?v=jviFsd4hhfE).

Finally, there is a notable use of two resources in some subjects, Pages and Label, which have the same use, to organise the materials in the Moodle, that is they are "Informative for students".

3.4. Pedagogical applications of the Moodle activities and resources

The results show that the most frequently used items on the Moodle sites analysed are resources (85%) rather than activities (15%). As seen in Table 3, there are 8 functions these Moodle tools can have. Table 7 shows this division and the total number of occurrences.

Functions	Activities	Resources	Total occurrences
Support material to complement the classes	3	52	55
Essential for students to follow the classes	0	68	68
Support material to follow the classes	10	69	79
For students' work (obligatory)	21	60	81
For students' work (optional)	21	53	74
Informative for students	0	98	98
Communication T-Ss	17	3	20
Teacher material not shared	1	27	28
Total	**73**	**430**	**503**

Table 7. Distribution of activities and resources and their function.

As can be seen, the most frequent function is "Informative for students". This function appears regularly in all Virtual Classrooms. The material mainly concerns the syllabus, and information about the exercises, exams, assignments and grades and is transmitted by means of links to the university's website or PDF documents. Next in terms of number of occurrences is the function "For students' work (obligatory)"; half of these occurrences (41) are found in the S2 Moodle. This is a very practical subject and the teacher makes frequent use of videos and other resources to ask students to do activities, which are part of the continuous assessment for the subject. There are two functions which together account for the great majority of all materials in the Virtual Classrooms, "Essential for students to follow the classes", which is regularly found in all subjects and consists mainly of the PDF or PPT slides for the presentations of each unit, and "Support material to follow the classes", which consists

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of data, websites and videos which complement the presentations. Table 8 provides a summary of the functions of the activities and resources by subject.

Functions	S1		S2		S3		S4		S5	
	A	**R**	**A**	**R**	**A**	**R**	**A**	**R**	**A**	**R**
Support material to complement the classes	0	27	0	6	0	0	0	6	3	13
Essential to follow the classes	0	14	0	16	0	4	0	13	0	21
Support material to follow the classes	10	35	0	12	0	0	0	4	0	18
For students' work (obligatory)	3	7	7	34	7	11	1	6	3	2
For students' work (optional)	9	35	0	1	0	2	6	0	6	15
Informative for students	0	22	0	5	0	27	0	25	0	19
Communication T-Ss	3	2	2	1	8	0	1	0	3	0
Teacher material not shared	0	6	0	1	0	11	0	0	1	9
Total	**25**	**148**	**9**	**76**	**15**	**55**	**8**	**54**	**16**	**97**

Table 8. Distribution of activities (A) and resources (R) and their function per subject.

We can also find a correlation between the use of the functions "Support material to complement the classes" and "For students' work (optional)". S1 includes the great majority of the activities and resources related to these two functions (27 for the former and 44 for the latter), almost all of them resources, followed at some distance by S5. This indicates that, apart from the obligatory materials to follow the classes and to do the obligatory tasks, students are provided with other materials to deepen or improve the knowledge they have acquired in class. This contrasts with S2, where resources for obligatory tasks rather than optional ones are the most common. This may be due to the characteristics of the subject and also to the teaching style of the lecturer.

Finally, there are a number of activities that fulfil the "Communication T-Ss" function, mainly consisting of Forums, which are scarce but regularly found in all subjects. In addition, some subjects, S3 and S5, include some resources (usually Files) hidden from students, which can be used in class or not, depending on the time or the circumstances.

Answering the research questions posed in this article, Moodle resources are found much more frequently than activities (RQ1), despite the fact that there are 15 activities offered by the platform at UJI and only 7 resources. Among the activities (RQ2), our findings show that the most frequently used were Forum and Dialogue (to communicate with students), Assignment (for students to upload their work), and Quiz (to check students' understanding or for assessment purposes), which is in the same line as the results obtained by Gamage, Ayres, Behrend and Smith (2019). Some teachers in this study acknowledge that the use of Quiz for assessment was temporary due to the COVID situation, as has been described by authors such as Hodges, Moore, Lockee, Trust and Bond (2020).

Among the resources, URL is the most often used followed by Files (RQ3). There is a clear relationship between these resources and other applications or programmes. The files uploaded are most often PDFs, with some PowerPoint and Excel documents created with Microsoft 365. Regarding the URL, there is a great variety; several teachers use Google Forms with similar functions to the Quiz activity, and Google Docs, to share documents. However, there seems to be a tendency to use websites and especially YouTube videos in some subjects with the aim of including real and visual materials that may be more attractive for students, as explained by some teachers.

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With reference to the pedagogical applications of Moodle, and answering RQ4, we have to understand that the CMS platform aims to support students' learning process, and it seems quite obvious that the materials required to follow the classes properly are fundamental to this learning process, as well as those involving tasks and activities for continuous assessment. The "Informative for students" function adds further explanation to what has happened in class, tasks to be carried out or basic information about marks or additional conferences, all issues mentioned in class but requiring a written reminder on the common web setting. However, there are significant differences between the use of Moodle in the subjects in this sample. Firstly, there are subjects that are more focused on providing all the information needed to the students (S3 and S4). As an alternative, teachers seem to communicate with students via email or personally in the classroom. Secondly, some subjects provide more materials to support and complement the teachers' explanations (S1 and S5). Thirdly, some subjects offer more materials to do obligatory tasks (S2), while others prefer to produce more materials for optional tasks or to complement the explanations (S1). These differences may be due to the characteristics of the subjects, the personal preferences of the teachers and/or the fact that in some subjects the teacher may have more freedom to design their own CMS than in others, in which there are several groups of students and teachers need to agree on the CMS.

4. Conclusion

The objective of the present research was to analyse the use teachers make of a Moodle CMS and its activities and resources in 4 EMI and 1 ESP subjects offered on business-related degrees over the 2020-2021 academic year. First of all, no significant differences were found between the EMI and the ESP subjects, except for the use of audio recordings uploaded as Files in the ESP subject.

Although there are differences in the way the CMSs are structured and the number of materials uploaded in the Moodle, all subjects use the platform to publish important information for students and to communicate with them, as well as to upload the support materials they need to improve or consolidate their understanding of the content units. In order to do this, there is a wider use of the Moodle resources, rather than activities. Only a few activities are used, and teachers are aware that they have a limited knowledge of Moodle activities and prefer to find alternative tools they are more familiar with, such as Google Workspace tools. The reason for this is the versatility and affordances of these alternative tools, and that they find Moodle activities too difficult to use. It seems recommendable that instructors and institutions pay more attention to the usefulness of the Moodle activities for teachers and provide training on them.

Regarding the functions of the materials in the CMS, in addition to the support materials to follow the classes, they seem to generally fall into three types: informative for students, for students' work (obligatory), and for students' work (optional). The main reason for selecting some of the materials is the characteristics of the subject, but also the personal choice and style of the teacher. According to the teachers' interviews, there does not seem to be much difference between the classes they teach in English and in Spanish.

The results of this research have been conditioned by the restrictions and special circumstances of the COVID pandemic situation, which obliged teachers to move their teaching online or to adopt hybrid teaching. Further research will be necessary to corroborate these results and to check the future effects of the emergency remote teaching.

One of the hypotheses we had before doing this research was that we would find some tools to help students in their understanding and use of English in these subjects. However, despite the fact that most teachers

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acknowledged in their interviews that some students may have difficulties in following the classes in English, only one teacher included a specific activity in order to facilitate this understanding, the Glossary. From our perspective, teachers should make further use of activities such as quizzes, wikis or lessons, or other external web resources to complement some of the materials with the aim of addressing the language difficulties students may have, but they may need some training to become aware of this need.

Finally, this article has shown the teachers' perspective on the use of the Moodle CMS. Further research should be developed in order to learn about the students' views, which may complement and maybe condition their EMI and ESP teachers' use of the Moodle CMS.

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