COMPETENCE ASSESSMENT USING RUBRICS AND SOCIAL NETWORKS AND BRINGING YOUR OWN DEVICE (BYOD)

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Abstract

The European Higher Education Area (EHEA) promotes the competence-based assessment using varied, diverse and innovative assessment tools. In this sense, in previous teaching innovation projects we have developed rubrics to align the evaluation with the competences that the student need to acquire. Moreover, we have explored how to strengthen the G15 competence of critical thinking using social networks because we observed is the competence that our students need to reinforce most. However, we have observed in our agricultural engineering students, that if they forgot to bring their device to the center, did not usually have alternative digital resources, and others did not have any account on social networks. Despite the young people in Spain recognize an intensive use of electronics, the 90% of them own 2-5 electronic devices, they little use them for learning purposes. Taking into account that digital resources and social networks are tools increasingly used by companies, we consider the need to explore bring your own device teaching method. BYOD (Bring Your Own Device) or BYOT (Bring Your Own Technology) initiatives allow students to bring their own mobile devices (laptops, netbooks, tablets, smartphones, etc.) to their centers, and connect them to a Wi-Fi network, to access institutional and educational applications and services. This experience can be a good preparation for the working context that the students will face soon. The aim of this teaching innovation project was to use BYOD initiatives to evaluate, using e-rubrics and social networks, the competences that students need to acquire. The methodology included i) the creation of a subject practice using social media to strengthen the critical thinking competence, ii) the design of a rubric using CoRubrics to assess the practice, iii) the teacher evaluation of the practice and self- and co-evaluation by the students and iv) the analysis of the results and of the teaching-learning process. The results show that high school students had the least access to mobile devices. Undergraduate and master's students in Agronomic Sciences initially brought their devices when requested and with the progress of the course, they brought it regularly. Not all students use social networks regularly and they value their use in the practice that brings them closer to the professional sector. The teachers concluded that the project provides varied, diverse and innovative assessment tools aligned with the competence-based assessment promoted by EHEA.

Keywords: teaching innovation project, competency-based assessment, Agronomic sciences, ICT, ECTS.

1. Introduction

The European Higher Education Area (EHEA) promotes the competence-based assessment using varied, diverse and innovative assessment tools (EACEA, 2014). In this line, there is unanimity in the scientific community on the need to improve the quality of the assessment, revising and revamping the evaluation (Zabala and Arnau, 2007). In doing so, the rubrics are assessment tools that align the evaluation with the competences that the student needs to acquire (Reddy and Andrade, 2010). The rubrics allow align the assessment with the Higher Education teaching-learning model, the assessment by all the participants involved in the teaching-learning process, the students' self-assessment of their progress and promote their own responsibility in the learning process with the self-assessment of the quality of their work and the ways they could improve (Panadero and Jonsson, 2013). Therefore, in previous teaching innovation projects we have developed rubrics to align the evaluation with the competences that the student need to acquire. Moreover, we have explored how to strengthen the G15 competence of critical thinking using social networks because we observed is the competence that our students need to reinforce most (Urbano et al., 2019). G15 competence of critical thinking needs to be strengthen in Agriculture students at University of Valladolid in Spain and activities are required in the

teaching-learning process in order to strengthen the G15 competence. We proved that social networks and ICT, due to students' familiarity and interest created students' own innovative recommendations and critiques and improved students' critical thinking (Urbano et al., 2020). However, in these previous experiences we have observed that in Agronomic Sciences, when some students forgot to bring their device to the center, they did not have alternative digital resources, and others did not have any account on social networks. In this vein, the study developed by Aid against Drug Addiction Foundation, Google and BBVA in the framework of the Connected Project (Proyectoconectados.es, 2019) shows that the 90% of the young people in Spain own 2-5 electronic devices, standing out smartphone in the first position (89.9%), followed by laptop (76%) and tablet (69%). Most of them recognized an intensive use of mobile telephone (83.6%) despite they do not use them for learning purposes. The most popular social media are, Facebook with 2,271 million users in 2019, Youtube with 1,900 million, WhatsApp with 1,500 million and Instagram with 1,000 million (marketing4ecommerce, 2019). Taking into account that digital resources and social networks are tools increasingly used by companies due to their contribution the development of employee skills and leadership (Garcia, 2011), we consider the need to explore bring your own device teaching method (BYOD) because this initiative can be a good preparation for the working context that the students will face soon. Authors highlighted how digital resources and social networks improve in companies the cooperation and internal communication (Felix et al., 2017), the integration, loyalty and commitment of employees to the company (Jacobs et al., 2016), the creation of informal relationships, the identification of mentors, the facilitation of teleworking and the development of social activities (Garcia, 2011). BYOD (Bring Your Own Device) or BYOT (Bring Your Own Technology) initiatives allow students to bring their own mobile devices (laptops, netbooks, tablets, smartphones, etc.) to their centers, and connect them to a Wi-Fi network, to access institutional and educational applications and services (INTEF, 2016). Additionally, the use of devices in the center by students facilitates pedagogical innovation and increases opportunities to learn through exploration and investigation. It increases the degree to which teachers can provide differentiated activities, adapted to the individual needs of students, students and their learning styles. It helps to improve students' motivation, especially that of those students who are not too involved and feel unmotivated and it helps students with less prepared to use ICT.

2. Objectives

The aim of this teaching innovation project was to use BYOD initiatives to evaluate, using e-rubrics and social networks, the competences that students need to acquire.

In doing so, the specific objectives of the teaching innovation project are:

• Objective 1: Develop e-rubrics that allow students and teachers to evaluate competences in agricultural studies, considering all the participants involved in the evaluation and align with the EHEA model and using initiatives to bring your own devices (BYOD).

• Objective 2: Design a subject practice using social networks and bringing students closer to the sector in which they will develop their future work using to bring their own devices initiatives (BYOD).

• Objective 3: Implement the model of e-rubrics and practices with social networks for the evaluation of competences in six Undergraduate and Master studies in Agronomic Sciences at the CEI Triangular E^3 using initiatives to bring your own devices (BYOD).

• Objective 4: Analyze and disseminate the e-rubrics that allow online evaluation of competences and practices with social networks in Agronomic Sciences and the evaluation of initiatives to bring your own devices (BYOD).

3. Methodology

The teaching innovation project followed a linear methodology. In a first step, the competences need to be acquired by the Agronomic Sciences students were identified. Three competencies were considered to be assessed, i) C1: Critical thinking, ii) C2: Ability to synthesize and iii) C3: Ability to express in expert and non-expert forums, along with the competence G15: Critical thinking using social networks. In a second step, we developed a subject practice solving companies' problems using social networks in order to strengthen the G15 competence of critical thinking. Then, rubrics were design to complete the evaluation and implemented in students of the Degrees and Masters of Agronomic Sciences

at the University of Valladolid, including a group of students from the High School Excellence Program at the University of Valladolid. The rubric was deliver to the students at the beginning of the semester using the University of Valladolid Moodle platform. Students were invite to bring their own devices (BYOD) to the center to complete the subject practices and the evaluation with e-rubric. Once, the students presented their subject practices to the classroom, all the students and the teachers were invite to give marks using CoRubrics tool using their own devices. CoRubrics tool output the students' co-evaluation and the teacher's evaluation for each student. CoRubrics is a digital tool that allows, i) create the rubric, ii) launch it to students and teachers by mail for evaluation, iii) data gather from students self-evaluation, teachers-evaluation and students co-evaluation, iv) assign a weight to each item measured and v) get the weigh averages of the students self-evaluation, teachers-evaluation and students co-evaluation. Finally, the evaluation and dissemination of the results was conduct.

Table 1. Sample of students that implemented the teaching innovation project `Competence assessment using rubrics and social networks and bringing your own device (BYOD)´ by level, subjects, semester and number of students during the academic year 2021-2022 at the University of Valladolid.

Degree/Master/Program	Course	Semester	Subject	Students
Degree Enology	4	1	Wine Marketing	8
Degree Agricultural Engineering	4	1	Agrarian Commercialization	9
Degree Agrifood Industries	2	2	Commercialization	10
Master Agricultural Engineering	1	2	Marketing	3
Master International Cooperation	1	2	Rural Development	3
Master in Food Quality	1	1	Marketing	19
High School Excellence Program	4	1	Excellence	21

4. Results and discussion

The results of the initiative of bring your own device (BYOD) to the center (Table 2) show that high school students had the least access to digital devices. Undergraduate and master's students in Agronomic Sciences initially brought their devices when requested and with the progress of the course, they brought it regularly (Table 2). Not all students used social networks regularly and they value their use in the practice that brings them closer to the professional sector. The teachers concluded that the project provides varied, diverse and innovative assessment tools aligned with the competence-based assessment promoted by EHEA.

Table 2. Results of the initiative "Bring your own Device (BYOD)" by subjects, sessions, students cases, devices and percentage of students with positive response during the academic year 2021-2022.

Degree/Master/Program	Subject	Sessions	Cases	Devices	%
Degree Enology	Marketing	3	22	Computer+mobile	100%
Degree Agricultural Engineering	Commercialization	2	17	Computer	100%
Degree Agrifood Industries	Commercialization	3	40	Computer+mobile	100%
Master Agricultural Engineering	Marketing	5	15	Computer	100%
Master International Cooperation	Rural Development	2	6	Computer	100%
Master in Food Quality	Marketing	4	75	Computer+tablet	93%
High School Excellence Program	Excellence	2	40	Mobile phone	8%

The implementation of the model of e-rubrics and practices with social networks for the evaluation of competences in six Undergraduate and Master's in Agronomic Sciences of the CEI Triangular E^3 using initiatives of bring your own devices (BYOD) shows the co-evaluation gave higher marks than the self-evaluation. It is concluded that the students' self-assessment with the rubrics promote their own responsibility in the learning process within the self-assessment of the quality of their work and the ways they could improve.

Table 3. Results of the implementation of the model of e-rubrics and practices with social networks for the evaluation of competences in six Undergraduate and Master's degree subjects in Agronomic Sciences during the academic year 2021-2022.

Competence/Social Networks	Co-evaluation	Self-evaluation	Teacher evaluation
C1: Critical thinking: Economic solution	3.63	3.49	3.21
C2: Ability to synthesize: Technical solution	3.66	3.47	3.39
C3: Ability to express in expert and non-expert forums	3.7	3.54	3.17
G15: Critical thinking: Social networks	3.71	3.68	2.87

The results confirm that the students gave higher marks than teachers. In the case of the differences in the social media analysis, the results could be explain due to students' perception of their knowledge and expertise of social media skills whilst the competence that was assessed by the teacher was the student critical thinking and their innovative recommendations and critiques as it was exposed above. The higher marks along with the comments of the students towards the subject practice using social networks confirm their satisfaction with the use of ICT in the learning framework. The differences in the expression competence could be explain due to the students' perception of their ability to communicate in experts forums that are relatively unknown for them by now. In their oral presentations, the terms used by students were sometimes very colloquial, lack of content, with many changes of direction and evading the core of the topic.
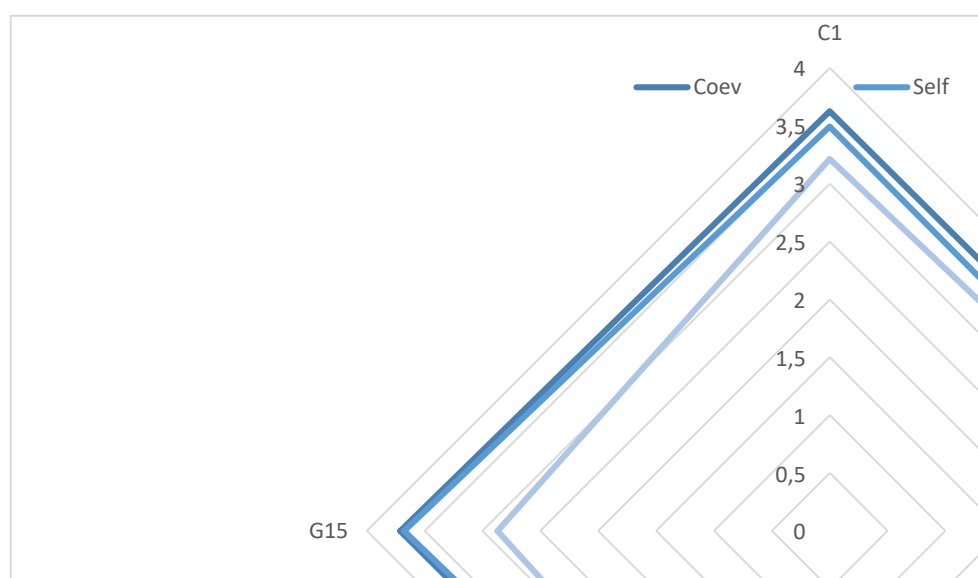
Figure 1. Comparison of co-evaluation, self- and teacher evaluation of competences using e-rubrics and practices with social networks during the academic year 2021-2022.

5. Conclusions

This teaching innovation project implemented BYOD initiatives to evaluate using e-rubrics and social networks the competences that students need to acquire, and concluded that:

1. High school students have the least access to digital devices.
2. Not all students use social networks regularly and they value their use in the practice that brings them closer to the professional sector.
3. The co-evaluation gives higher marks than the self-evaluation promoting students own responsibility in the learning process within the self-assessment of the quality of their work and the ways they could improve.
4. The students give higher marks than teachers' marks.
5. The higher marks along with the comments of the students towards the subject practice using social networks confirm their satisfaction with the use of ICT in the learning framework.
6. The teachers concluded that the project provides varied, diverse and innovative assessment tools aligned with the competence-based assessment promoted by EHEA.

Acknowledges

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