

STUDENT ENGAGEMENT AND PERCEPTION OF *eRUBRIC*-BASED EVALUATION PROCESS

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IFOMPT Teachers Meeting, Glasgow – 3 July 2016



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INTRODUCTION

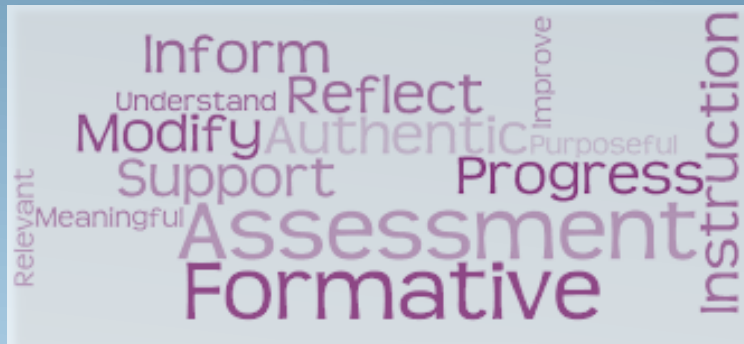
- Within the setting of **active learning methodologies** in higher education, **formative assessment** has gained special importance in the last years.

(Black & Wiliam, 2009; Wiliam, 2011)

- Assessment information is used to inform students about their progress and aid them in their development.

(Reddy & Andrade, 2010)

- The shift from teacher-centered learning to **student-oriented learning** gives more autonomy to learners, but also requires that they take more responsibility for their learning.



- **Rubrics** have a great potential of:

- **fostering SRL** and subject-specific competences.
- facilitate students' **self-assessment** and **assessment by peers** and teachers

(Zimmerman & Schunk, 2008)

INTRODUCTION

- Rubrics have become an essential instrument for formative assessment.

(Andrade & Valtcheva, 2009; Halonen et al., 2003; Jonsson & Svingby, 2007; Moskal & Leydens, 2000)

- Students are increasingly working in **technology enhanced learning environments** (TELEs).



Electronic rubrics (eRubrics)

- **Advantages of eRubric:**

- ✓ **easy to use**
- ✓ **feedback** can be given much more quickly
- ✓ **better self-regulate their learning** than would be the case in traditional learning environments.
- ✓ provide for **more interaction**
- ✓ help students to become **more autonomous** in evaluating their competences.

(Simon & Forgette-Giroux, 2001)



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OBJECTIVES

General Objective

- To analyze student's opinion on the experience of the use of rubrics.

Specific Objectives

- To describe and understand the satisfaction degree of the students with the *erubric* based assessment process.
- To obtain evidences of student's engagement through their own reflexion.
- To understand the advantages and disadvantages of the *erubric* expressed by the students.



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MATERIAL AND METHODS

STUDY DESIGN AND PARTICIPANTS

- N = 134 students
- 1st Course OMT Master's Programme
- 2015/2016
- 2 educational contexts:
 - University of Zaragoza
 - International University of Cataluña
- Subject → OMPT applied to the Cervical Spine (4 ECTS)
Practical examination



MATERIAL AND METHODS

MATERIALS

1. Rubric

	EXPERTO	AVANZADO	APRENDIZ	NOVEL	PESO
Posición del paciente	Nada que mejorar	Olvida pequeños detalles	El paciente está incómodo o la posición no es la más correcta para la técnica	Desconoce en qué posición colocar al paciente	20%
Posición del fisioterapeuta	Nada que mejorar (buena ergonomía y buen uso del cuerpo)	Puede mejorar en el uso del cuerpo para la técnica (buena ergonomía y colocación con respecto al paciente)	Sabe dónde y cómo colocarse pero no tiene buena ergonomía	Desconoce dónde y cómo colocarse; mala ergonomía y no es útil para la técnica	20%
Procedimiento	Nada que mejorar	Realiza bien la técnica pero debería mejorar algún aspecto específico (dirección toma, posición de reposo...)	Conoce la técnica pero no la realiza correctamente (no hace lo que dice); tomas incorrectas, dirección incorrecta, posición de reposo incorrecta...	Desconoce cómo realizar la técnica	20%
Efecto	El indicado para la técnica	Se consigue el efecto pero es mejorable mediante el ajuste de algún pequeño parámetro (Uso del cuerpo, dirección...)	Efecto indicado pero poco o incluso sin llegar al segmento/región/estructura diana	Ninguno (o contraindicado; e): grado III para alivio de síntomas...)	20%
Razonamiento Clínico	Conoce: <ul style="list-style-type: none"> - La presentación clínica - La indicación de la técnica - La adecuación de la técnica a la situación clínica - Cómo resolver problemas/incidencias con la técnica 	Falla únicamente en una de las siguientes: <ul style="list-style-type: none"> - La presentación clínica - La indicación de la técnica - La adecuación de la técnica a la situación clínica - Cómo resolver problemas/incidencias con la técnica 	Conoce la técnica sin problema pero no tiene buena resolución de problemas y tiene problemas con las indicaciones/detalles.	Incapaz de describir la técnica ni su uso o indicaciones. Desconocimiento de situación clínica ni tratamiento indicado.	20%

MATERIAL AND METHODS

MATERIALS

2. Questionnaire “Students opinion on rubric based assessment process”

(Martínez & Raposo, 2011)

SECTION 1

- 11 close items + 1 open item
- Agreement – Disagreement
- Likert scale
- Dimensions
 - **Rubric features**
 - **Modality of assessment**
 - **Assessment process**
 - **Learning impact**

(Alfa Cronbach 0.814)

SECTION 2

- 9 items
- 0-10 assessment scale
- Dimensions
 - **Student engagement**
 - **Global perception of assessment process**

(Alfa Cronbach 0.716)

MATERIAL AND METHODS

PROCEDURE

1. Rubric Configuration

	EXPERTO	AVANZADO	APRENDIZ	NOVEL	PESO
Posición del paciente	Nada que mejorar	Olvida pequeños detalles	El paciente está incómodo o la posición no es la más correcta para la técnica	Desconoce en qué posición colocar al paciente	20%
Posición del fisioterapeuta	Nada que mejorar (buena ergonomía y buen uso del cuerpo)	Puede mejorar en el uso del cuerpo para la técnica (buena ergonomía y colocación con respecto al paciente)	Sabe dónde y cómo colocarse pero no tiene buena ergonomía	Desconoce dónde y cómo colocarse; mala ergonomía y no es útil para la técnica	20%
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Razonamiento Clínico	Conoce: - La presentación clínica - La indicación de la técnica - La adecuación de la técnica a la situación clínica - Cómo resolver problemas/incidencias con la técnica	Falla únicamente en una de las siguientes: - La presentación clínica - La indicación de la técnica - La adecuación de la técnica a la situación clínica - Cómo resolver problemas/incidencias con la técnica	Conoce la técnica sin problema pero no tiene buena resolución de problemas y tiene problemas con las indicaciones/detalles.	Incapaz de describir la técnica ni su uso o indicaciones. Desconocimiento de situación clínica ni tratamiento indicado.	20%

RUBRIC



eRUBRIC



Alumno a evaluar *

Elige

Hallazgos Historia Clínica *

EXPERTO: Nada que mejorar
AVANZADO: Olvida pequeños detalles
APRENDIZ: Tan sólo recoge datos superficiales
NOVEL: No se exponen hallazgos sobre la historia clínica

Hallazgos Historia Clínica

Hallazgos Inspección estática y dinámica *

EXPERTO: Nada que mejorar: Inspección visual subjetiva completa
Mediciones objetivas
AVANZADO: Podría mejorar realizando alguna observación/medición que permitiera objetivar el progreso con el tratamiento
APRENDIZ: Tan sólo recoge datos superficiales

Hallazgos Inspección estática y dinámica

Hallazgos Test de Función *

EXPERTO: Nada que mejorar: Correcto esquema de valoración
- Toda la información correctamente detallada
AVANZADO: Falla ligeramente el esquema de valoración o falta una pequeña parte de la información
APRENDIZ: Conoce los test de función pero no están correctamente realizados o interpretados.
Insuficientes para llegar a un correcto diagnóstico en fisioterapia.
NOVEL: No se describen los tests de función ejecutados para llegar a un diagnóstico incorrecto en fisioterapia.

GoogleForm

MATERIAL AND METHODS

PROCEDURE

2. Practical Examination

- Groups → 1 teacher/8 students
- Students perform one technique on each other
- 3 assessments:
 - ✓ Peer-assessment
 - ✓ Self-assessment
 - ✓ Teacher assessment
- Immediate data processing to obtain mean values
- Automatic individual email sending with personalized comments



OMT15INTN1Prueba Práctica 1 EEII

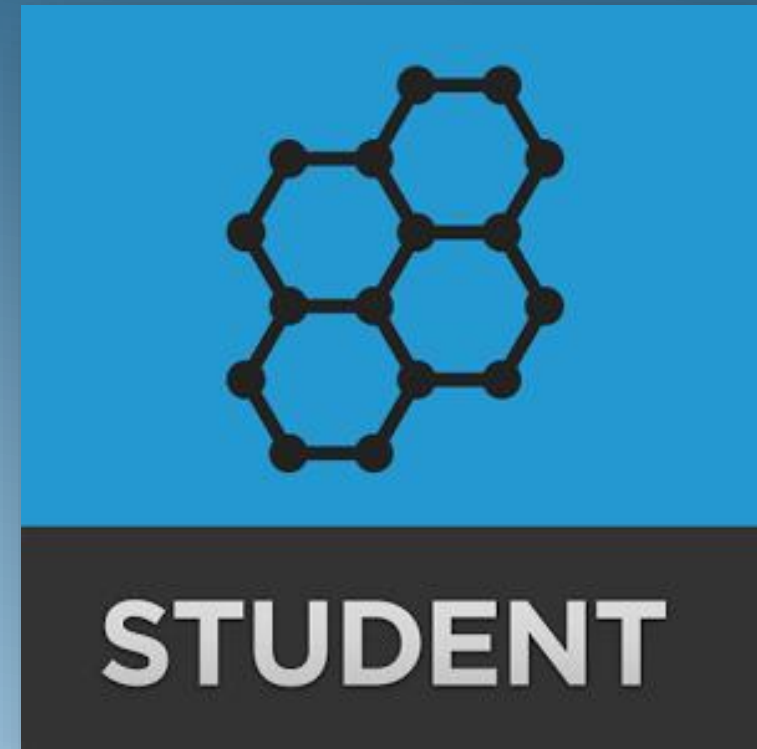
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Num	Alumno evaluado/Grupo	Numero de puntuaciones	Posición del paciente	Posición del fisioterapeuta	Procedimiento	Efecto	Razonamiento Clínico	Nota cuantitativa (ponderando solo el item más bajo)	Nota cuantitativa (ponderando la media ponderada de los ítems)	Comentarios del profesor
			20%	20%	20%	20%	20%		100%	
1	Alberto Bagardo Matiano	7	3,71	3	3,14	3,43	0	0	6,64	
2	Bergara Chiara	7	3,86	2,71	3,29	3,14	0	0	6,5	
3	Bianchi Barbara	7	3,17	3,43	3,43	3,29	0,29	0,73	7,01	
4	Buño Navarro Julio	7	3,86	3,14	3,29	3,14	0	0	6,72	
7	Buño Pineda Blanca Maribel	7	3,43	3,29	3,43	3,71	0	0	6,93	
8	Cabe Longas Alicia	6	3	3,33	2,83	3,17	0	0	6,17	
9	Carlos Perez Mica	7	2,86	3,14	2,43	2,86	0	0	5,65	
10	Colomo Carolina	7	3,29	3,29	3,43	3,43	0,29	0,73	6,97	
11	Coma Moran Pedro Martin	6	3,17	3,33	3,33	3,5	0	0	6,67	
10	Cruz Tomas Augusto Peru	7	2,87	2,43	2	2,29	0,33	0,25	5,29	
11	Delmo Anabelle	6	2,69	2,63	2,71	2,67	0,33	0,83	5,42	
14	Emmanuel Esteban Carlos	7	3,29	3,29	3,29	3	0	0	6,44	
15	Fernan Francisco	6	3,5	3,67	3,29	3,67	0	0	7,09	
16	Galbi Alberto	6	3,5	3,33	3,33	3,33	0	0	6,75	
17	Lafuente Chiara	6	2,5	2,83	2,67	2,5	-1	2,5	5,75	
18	Larrea Iago	7	2,86	3,14	3	3,57	0,37	1,43	6,25	
17	Marcosena Arribas Pablo	7	3,57	3,29	3,57	3,43	0	0	6,93	
18	Martin Abaito Andres	7	3,14	3	2,86	3,14	0	0	6,07	
21	Ochoa Maria	7	3,14	3	3	3	0	0	6,07	
20	Rivas Hernandez Angel	7	3,14	3,57	3,14	3,43	0	0	6,64	
21	Rodríguez Morante Ana	7	3,86	3,57	3,29	3,71	0	0	7,22	
24	Rodriguez Sevilla Sergio M*	7	3,43	3,57	3,14	3,43	0	0	6,75	
29	Romas Valls Julia	7	3,71	3,86	3,57	3,71	0	0	7,43	
26	Sanchez Hernandez Inaki	7	3,43	3,14	3,14	3,14	0,37	1,43	6,71	
27	Sola Trindade Andrea Carolina	7	3,71	2,86	3	3,29	0,29	0,73	6,58	
28	Sorozano Lamas Erik	7	2,71	3,71	2,86	3	0,29	0,73	6,29	
27	Talavera Helga	6	3	3	3	3,33	0,33	0,83	6,33	
28	Tanaka Nara	7	3,14	3,14	3,14	3,14	0	0	7,5	
29	Tanzer Diana	7	2,86	3,71	2,86	3,71	0,37	1,43	6,36	
30	Taylor Ivan	7	2,67	2,86	3,14	3,14	0,37	1,43	6,07	
31	Troiano Maria	6	2,88	2,88	3,38	3	0	0	6,07	
30	Ugueta Usua	7	2,86	3,43	2,71	2,71	0,37	1,43	6,14	
30	Varela Andrea	6	3,33	2,67	2,83	2,83	0,33	0,83	6,28	
34	Zaldu Miguel Victor	7	2,43	3,14	2,71	2,71	0,46	1,15	5,93	

MATERIAL AND METHODS

PROCEDURE

3. Filling in the Questionnaire “Students opinion on rubric based assessment process”



MATERIAL AND METHODS

PROCEDURE

4. Results Analysis

- SPSS 21.0 for MAC



RESULTS AND DISCUSSION

SAMPLE DESCRIPTION

- N = 134 students
- 46.3% men, 53.7% women
- Age → 25.85 years

1. Rubric features

2. Modality of assessment

3. Assessment process

4. Learning impact

5. Student engagement

6. Global perception

RESULTS AND DISCUSSION

1. Rubric Features

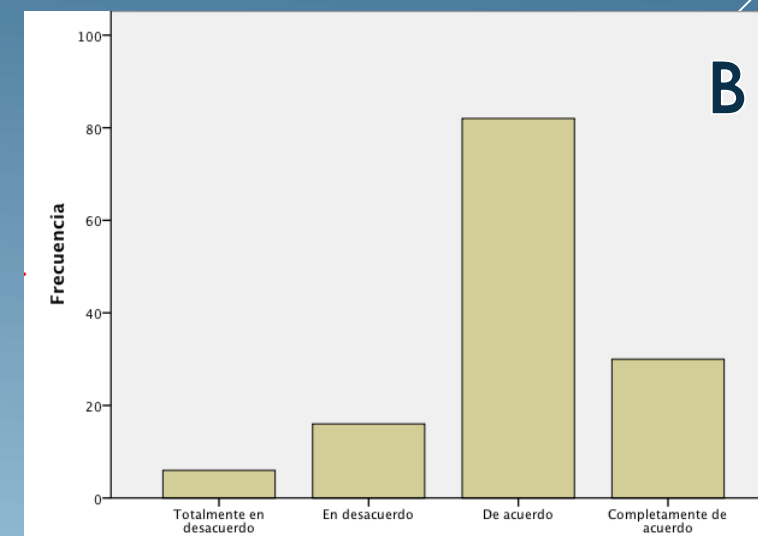
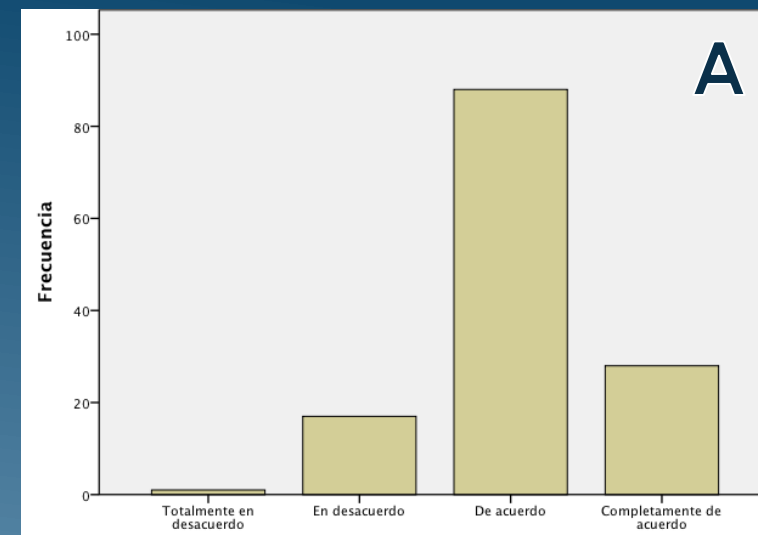
	Fully disagree	Disagree	Agree	Fully agree
A. The rubric allows to know what it is expected from examination	0.7%	12.7%	65.7%	20.9%
B. The rubric allows to verify the level of competence acquired	4.5%	11.9%	61.2%	22.4%

- Students claimed that they **better understood teacher expectations** when the assignment involved a rubric.

(Reynolds-Keefer 2010)

- **Students' anxiety (negative SRL) may decrease** when implementing long-term interventions with rubrics, which is probably due to the fact that students know what is expected of their work and how it will relate to their grades.

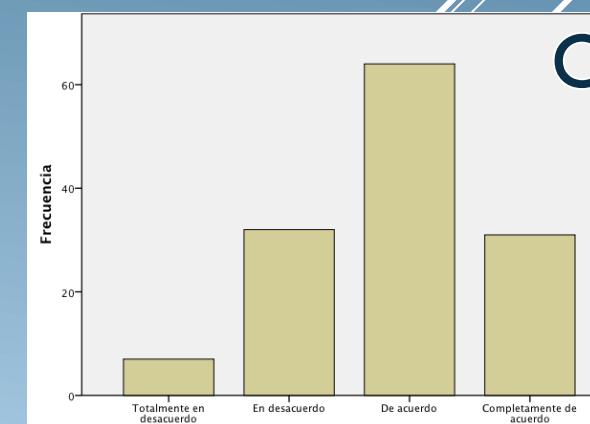
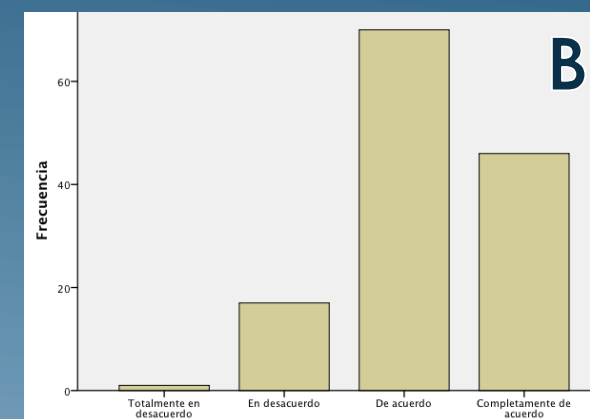
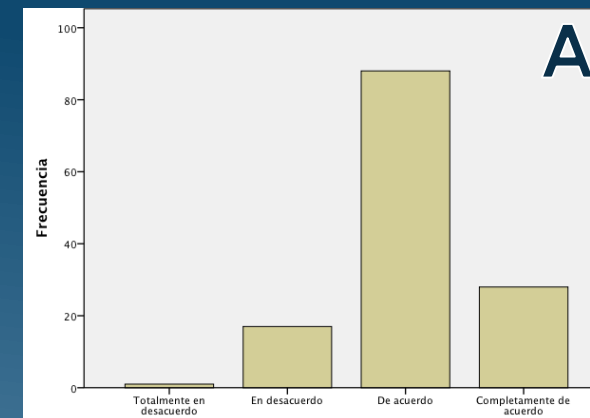
(Panadero, Alonso-Tapia, & Huertas 2012)



RESULTS AND DISCUSSION

2. Modality of assessment

	Fully disagree	Disagree	Agree	Fully agree
A. The rubric allows self-assessment	0.7%	12.7%	52.2%	34.3%
B. The rubric allows peer-assessment	0.7%	5.2%	60.4%	33.6%
C. The rubric allows to assess every group equally	5.2%	23.9%	47.8%	23.1%



- Self-assessment with eRubrics **facilitates students' understanding of their learning process**, contrasting their achievements against objective proof presented by eRubrics.

(Tella-González & Raposo-Rivas, 2013)

- Peer assessment count on **a wide literary tradition** that is enhanced by the use of eRubrics. This type of assessment **facilitates peer correction, information feedback and peer analysis** of the processes involved.

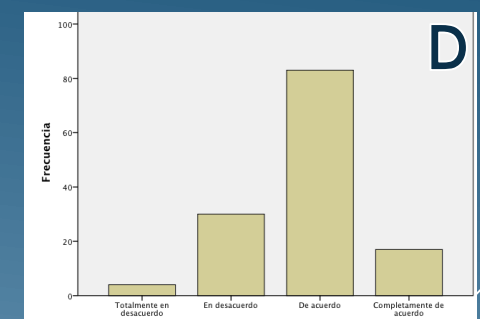
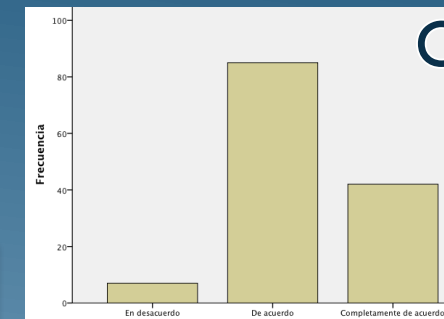
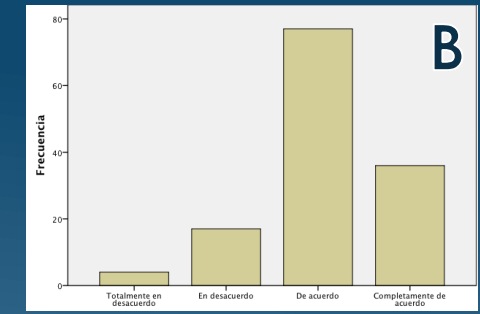
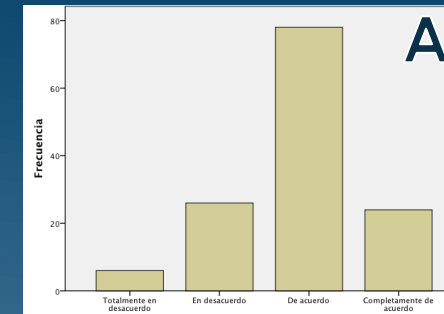
(Falchikov, 2005; Hargreaves, 2007; Bretones Román, 2008)

RESULTS AND DISCUSSION

3. Assessment process

- The **application of assessment criteria differs** according to whether it is interpreted by teachers or students

(Lapham, A. & Webster, R. 2003)



	Fully disagree	Disagree	Agree	Fully agree
A. The rubric allows a more objective assessment	4.5%	19.4%	58.2%	17.9%
B. The rubric makes teachers clarify the criteria	3.0%	12.7%	57.5%	26.9%
C. The rubric shows how we will be assessed	0%	5.2%	63.3%	31.3%
D. The rubric demonstrates the work done	3.0%	22.4%	61.9%	12.7%

- **Working together with students on criteria formation** and adoption will make students active in the process and **increase the success** rate of the peer assessment.

(Falchikov, 2001; Sahin, 2008)

RESULTS AND DISCUSSION

4. Learning impact

	Fully disagree	Disagree	Agree	Fully agree
A. The rubric provides feedback	1.5%	11.2%	61.2%	26.1%
B. The rubric help us understand the features the examination shall have	2.2%	6.7%	67.2%	23.9%

- Rubrics contribute to student learning by **aiding** the **feedback** process.

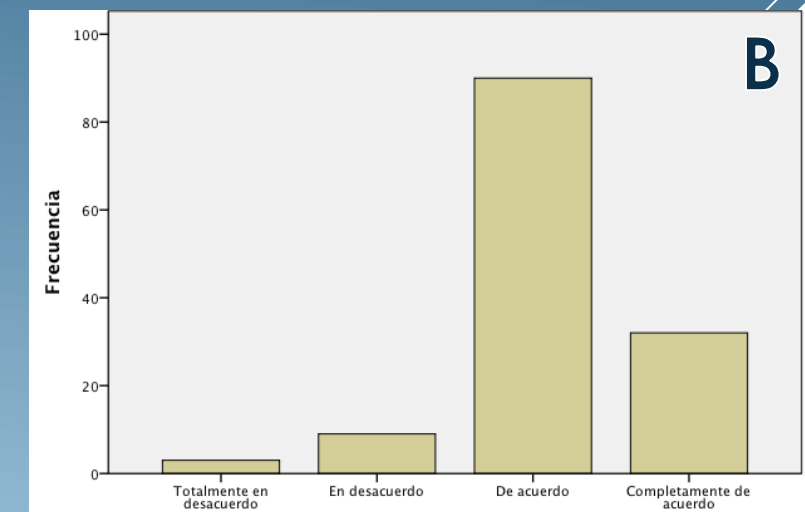
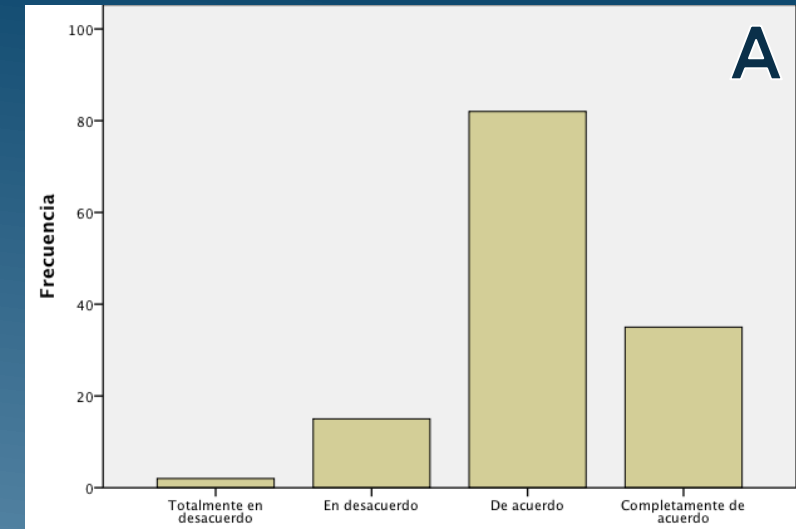
(Schamber & Mahoney 2006)

- Rubrics provide students with more **informative feedback** about their strengths and areas in need of improvement.

(Rosaline, 2011)

- The positive effects on learning may be due to student motivation and satisfaction with the **use of technology** in general.

(Panadero and Jonsson, 2013)



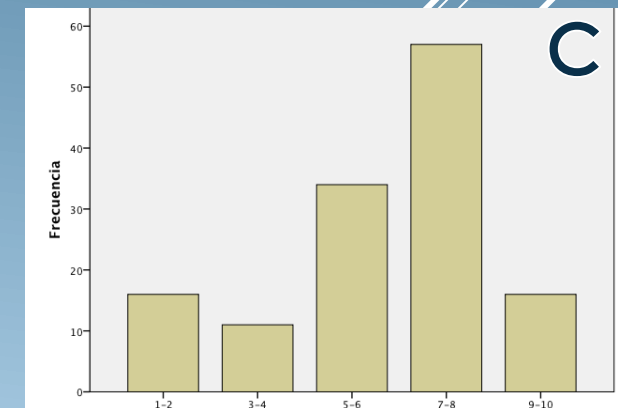
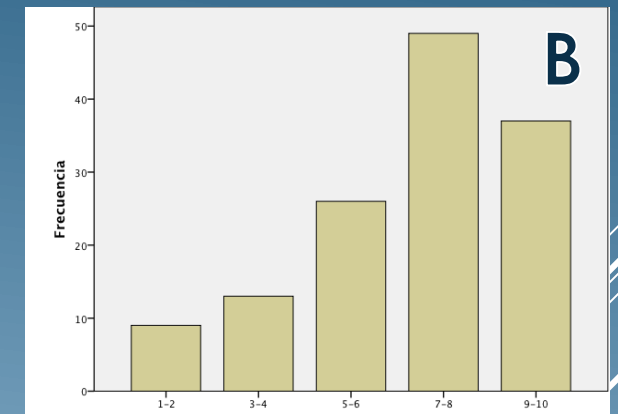
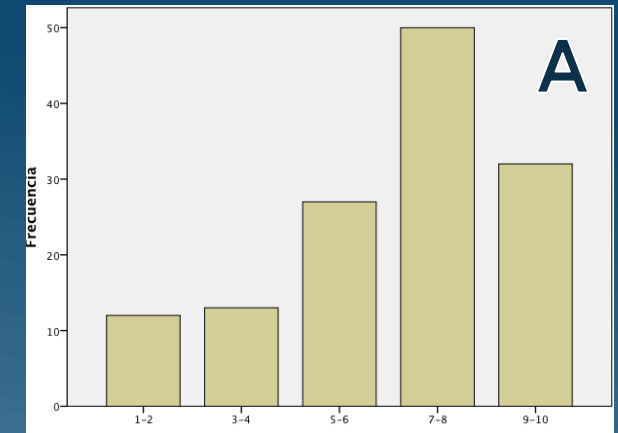
RESULTS AND DISCUSSION

5. Student engagement

	1-2	3-4	5-6	7-8	9-10
A. The rubric has motivated me	9.0%	9.7%	20.1%	37.3%	23.9%
B. The rubric has promoted participation	6.7%	9.7%	19.4%	36.6%	27.6%
C. The rubric has made me more responsible	11.9%	8.2%	25.4%	42.5%	11.9%

- Throughout the peer assessment process, students learn to **develop high levels of responsibility** and to focus on learning itself.
- Peer assessment also provides the learners with a context where they can **observe the role of their teachers** and understand the role of assessment.

(Hanrahan & Issacs, 2001)



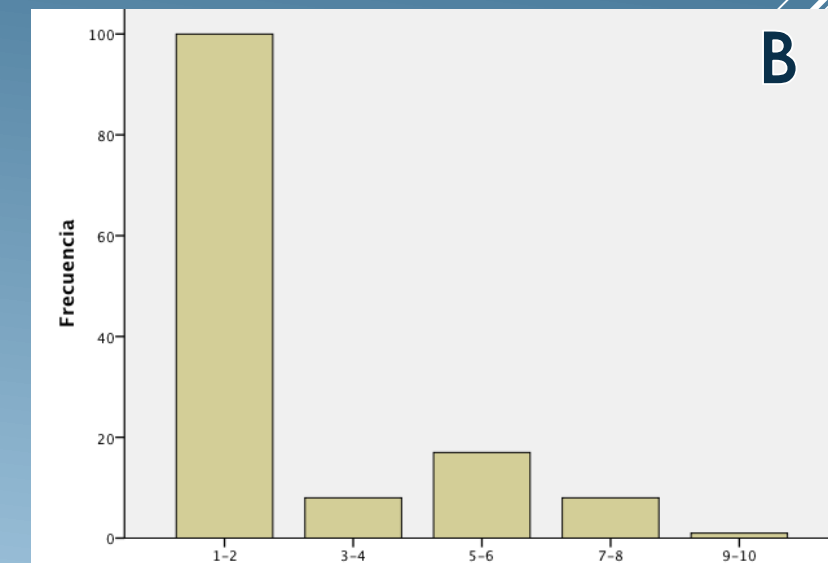
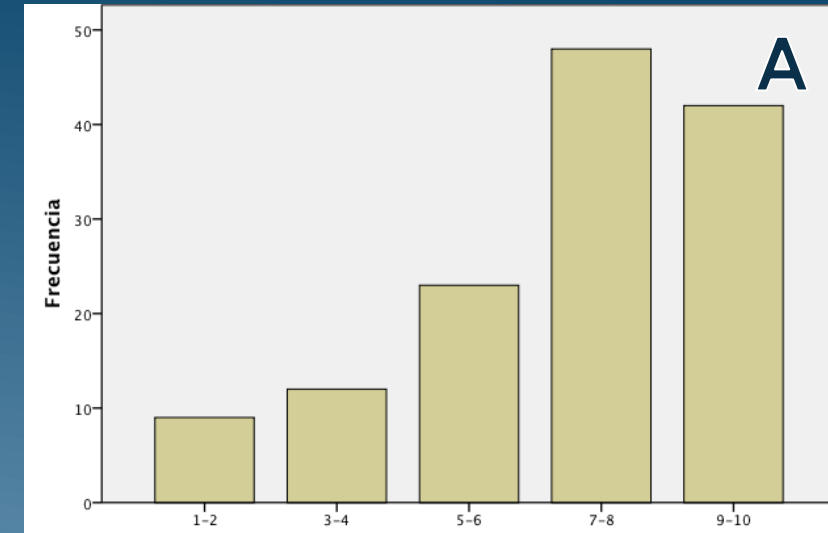
RESULTS AND DISCUSSION

5. Student engagement

	1-2	3-4	5-6	7-8	9-10
D. I have performed collaborative work within the group	6.7%	9.0%	17.2%	35.8%	31.3%
E. I have cheated	74.6%	6.0%	12.7%	6.0%	0.7%

- Students often have **negative attitude** towards peer assessment. Some students may not like the idea of having their work to be assessed by peers or assessing their peers' work

(Brown, 1998; Magin, 2001; Van den Berg et al., 2006)



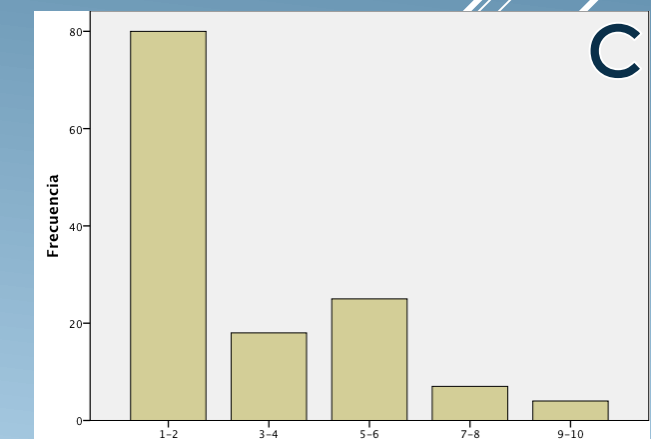
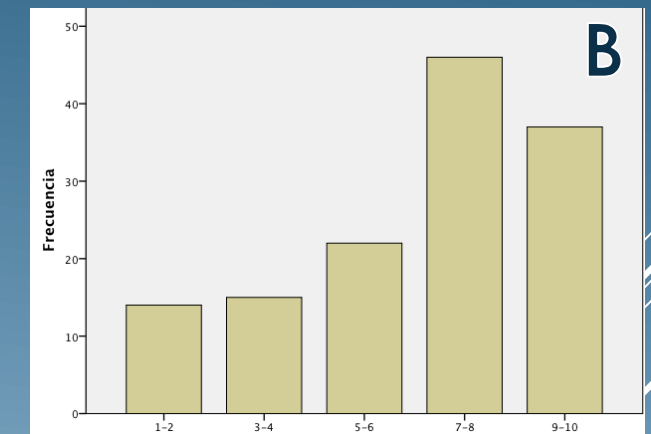
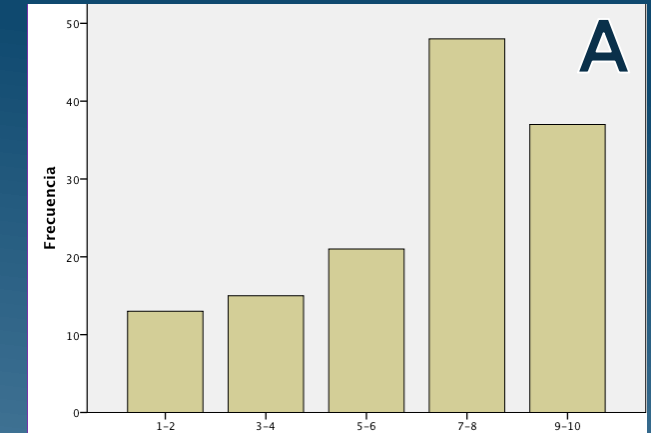
RESULTS AND DISCUSSION

6. Global perception of assessment process

	1-2	3-4	5-6	7-8	9-10
A. Peer-assessment with rubric “Has been very interesting”	9.7%	11.2%	15.7%	35.8%	27.6%
B. Peer-assessment with rubric “Has been very good”	10.4%	11.2%	16.4%	34.3%	27.6%
C. Peer-assessment with rubric “Is not useful”	59.7%	13.4%	18.7%	5.2%	3.0%

- It seems that teachers should explain the purpose of conducting peer assessment clearly at the very beginning of the exercise. In addition, sufficient training for peer assessors should be provided, so that they become more confident about themselves, as well as having more confidence in their peer assessors.

(Strijbos et al. 2010)



LIMITATIONS OF THE STUDY

- Use of rubrics in only one examination
 - in studies where the rubric was introduced during one period only, or where the students got only a couple of lessons in self-assessment, the effects reported are small and only partial.

(Andrade, 2001; Andrade & Boulay, 2003)

FUTURE LINES OF WORK

- CoRubrics GAFE 2.0
 - It allows to make comments while answering the rubric.
 - It allows peer-assessment, self-assessment and teacher assessment in the same rubric providing the differentiation in grading and feedback.

Número de puntuaciones	Aspecto a evaluar			Aspecto a evaluar			Aspecto a evaluar			Aspecto a evaluar			Aspecto a evaluar			Nota cuantitativa (contando solo el ítem más bajo)	Nota cuantitativa (usando la media ponderada de los ítems)						
	20%			20%			20%			20%			20%						100%				
Coav	Auto	Prof	Coav	Auto	Prof	Coav	Auto	Prof	Coav	Auto	Prof	Coav	Auto	Prof	Coav	Auto	Prof	Coav	Auto	Prof			
2	-	-	3,5	-	-	3	-	-	4	-	-	3	-	-	3,5	-	-	7,5	-	-	8,5	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<https://sites.google.com/site/corubricses/funcionamiento-corubrics-gafe>

CONCLUSIONS

- *E-rubrics* seem to have the potential to promote learning by making criteria and expectations explicit, facilitating feedback, self-assessment and peer-assessment.
- The importance of students in their own learning process requires their participation in the assessment task, fact that is globally appreciated by the students.
- Information analysis gathered by the instrument described has allowed to confirm that the learning experience has been considered interesting, motivating, it has promoted participation, cooperative work and peer-assessment.
- Transparency and clarity items seem to concern students, issue which is not solved by the use of an instrument.
- The use of erubrics increases engagement levels when attention is focused on their guidance and reflexion role.

THANK YOU VERY MUCH



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STUDENT ENGAGEMENT AND PERCEPTION OF *eRUBRIC*-BASED EVALUATION PROCESS

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