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DEVELOPING A PROTOCOL FOR MEASURING GOOD TEACHING PRACTICES IN HIGHER EDUCATION

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Abstract

The best teaching practices, an issue of particular relevance in determining the quality of higher education, requires different forms of measuring design. A big part of good practice in teacher performance corresponds to behaviors developed by the teacher in the classroom, which can be measured and analyzed using observational methodology. The study evaluates ten teachers from the University of La Laguna (Spain) and seven from Guadalajara (Mexico). Their behavior was coded using a rating scale and the behavioral interaction patterns with students were coded using the Observational Protocol of Teaching Functions (Protocolo de Observación de Funciones Docentes, PROFUNDO_UNI). The lag sequential analysis extracted significant patterns related to the feedback given to questions from the students, the reinforcement and the encouragement given to the students for their participation.

Keywords: best practices; teacher evaluation; observational methodology

Introduction

The term *good practices* has been coined to explain the adequate performance of the professional in various work areas, being applied in very diverse activities and acquiring various uses. It refers to developing an activity,

normally innovative, that has been experimented and evaluated, proving its success (Cid-Sabucedo, Pérez-Abellás, & Zabalza, 2009).

In the educational field, good educational practices are understood as actions related to the care, teaching and guidance of other people, configuring themselves as strategic knowledge, knowledge of knowledge and motivations (Gimeno, 1999; cited in Gaitán, Campos, García, Granados, Jaravillo & Manquera, 2005).

Bain (2006) carried out an interesting study, where the observable and non-observable characteristics of the good practices of teachers considered by the author as extraordinary for being successful in helping their students to learn, exerting a positive influence on their way of teaching, are analyzed and collected. think, act and feel. They were observed in the classroom and in the laboratory, interviews were carried out with the selected teachers and their students, various documents (programs, course materials, assignments, etc.) and the results of the students' evaluations were consulted. As a result of the study, they are considered *good practices*aspects such as what the teacher knows and how he prepares classes, the way he teaches classes, the attitude and respect towards the students, his style - stimulating, interesting and involving the students, as well as encouraging their participation and responding to questions. questions that are asked. The way of evaluating is also considered important, to the extent that it is considered a part of learning.

Marqués (2002) distinguishes three moments in the application of good teaching practices determined by the educator's behavior: a) before the teaching intervention, a moment in which group and individual characteristics of the students are taken into account, the objectives are set. , the specific contents to be treated, the design of strategies for carrying out activities and the teaching

methodologies to be used; b) in the teaching intervention, which can be linear, with the teacher's presentation, personalized tutoring or advice, or polygonal or networked, such as group work or discussions among everyone in class; and c) after the teaching intervention, when the teacher proceeds to prepare a reflection to improve future educational interventions.

Imbernón (2013) points out that good teaching practices include standing during the presentation of content, approaching the students, speaking at an appropriate pace (neither slow nor fast), making notes on the board in clear and visible handwriting—preferably in capital letters—to guarantee it can be read from any point in the classroom, erasing what has been written previously so that previous content is not mixed with new content. Multimedia presentations should have little text, font and visible colors, so that they can be read and do not depend on the brightness of the room. Indicators of bad practices are sitting at the table, turning your back to the students - either by walking around while explaining or by talking by writing on the blackboard, since it makes it difficult to be heard -, reading,

Some aspects of good practices can be captured through instruments created for this purpose (Gaitán, Campo, García, Granados, Jaramillo, & Panqueva, 2005). When it comes to analyzing behaviors, the observational methodology is the most indicated (Anguera, 2008), since it allows establishing the existence of behaviors and evaluating the interaction between agents (in this case, the teacher and his students), this can be measured with a sequential analysis (Bakeman & Quera, 1996)

The objective of this research is to describe observational indicators of good educational practices, as well as behavioral patterns exhibited in the classroom while teachers carry out their teaching work.

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Method

Participants

Through intentional sampling of typical cases, eight professors and two professors from the University of La Laguna (ULL) were selected, two for each branch of knowledge (Architecture and Engineering; Arts and Humanities; Sciences; Legal and Social Sciences; Health Sciences). , aged between 49 and 61 years (mean = 52.8; SD = 4.8) who teach subjects of various types (basic branch, compulsory or optional), with teaching experience between 15 and 32 years (mean = 23.1; SD = 4.9). Five male and two female professors of the Psychology program at the University of Guadalajara (UdG), Mexico, were also selected, two of them younger (25 and 27 years old) and with a teaching experience of less than one year, the remaining They are in an age range between 50 and 57 (mean= 54; SD= 3.

Instruments

Rating scale

To record the resources used and the behaviors developed in the classroom, a rating scale was used where the observer marked the appearance of a resource used (for example, multimedia presentations or use of the blackboard) or the behavior carried out (for example, posture when teaching class, calling students by name). The aspects collected are presented in Table 2 .

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TABLA 2.
Materiales y comportamientos del profesorado

Profesores ULL	1	2	3	4	5	6	7	8	9	10
Materiales										
Power Point	x	x	x	x	x	x	x	x	x	x
Notas	--	--	x	x	--	--	--	--	x	--
Puntero láser	x	--	--	--	x	--	--	--	--	--
Pizarra	--	--	--	--	--	x	x	--	--	x
Otros materiales	--	--	--	--	--	--	--	--	x	x
Lee de apuntes o portátil	--	--	x	--	--	--	--	--	--	--
Posición										
De pie	x	x	x	x	x	x	x	--	--	x
Se desplaza	--	--	--	--	--	x	x	--	x	--
Sentado	--	x	x	--	--	--	--	x	--	--
Mirada										
Al alumnado	x	x	x	x	x	x	x	x	x	x
Otros sitios	x	--	x	x	x	--	--	--	--	--
Llama por el nombre	--	--	--	--	--	x	--	--	x	--

Profesores UdG	1	2	3	4	5	6	7
Materiales							
Power Point	x	--	x	x	--	--	x
Exposición estudiantes	--	--	--	--	--	x	x
Notas	--	--	--	--	--	--	--
Pizarra	--	--	--	x	--	--	--
Materiales	--	--	x	x	--	--	--
Lee	x	--	--	x	--	--	--
Dispositivos no docentes	--	--	--	--	--	x	x
Posición							
De pie	x	x	x	x	--	--	--
Se desplaza	--	x	--	x	--	x	--
Sentado	x	--	--	x	x	x	x
Mirada							
Al alumnado	x	x	x	x	x	x	x
Otros sitios	--	--	--	x	--	--	x
Llama por el nombre	--	--	--	x	x	x	--

Fuente: elaboración propia

Observation instrument

For the coding of the recorded sessions and in order to obtain behavioral patterns, the observation protocol for university teaching functions was used (PROFUNDO_Uni, v3; Rodríguez, Cadenas & Díaz, 2011), designed to evaluate the behavior of the teaching staff in their teaching performance in the classroom.

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Table 1 presents the functions and their definition, the operationalization in directly observable codes and the coding abbreviation. In the instrumental category , behaviors that do not correspond to teaching functions are included: *Other behaviors :* , 2011).

Tabla 1.
Protocolo de observación de funciones docentes en universidad (PROFUNDO_UNI), versión 3

Funciones docentes	Códigos	
Organización: Estructuración del contexto, disposición del material didáctico, establecer la normativa, determinar el tiempo de las tareas, etc.	Planificación académica	PA
	Del contexto	OD
	Del alumnado	OA
Comunicabilidad docente: Explicación de contenidos de forma comprensible para el alumnado	Explicación del profesor	EP
	Respuesta al alumno	RA
Motivadora: Estimular el aprendizaje del alumno.	Refuerzo	RF
	Fomento participación	FP
Control comportamental o regulación del grupo: Gestión del orden en el aula	Contingencia negativa	CN
Orientación y asesoramiento: Directrices para el desempeño de las tareas del alumnado	Guía	GU
	Revisión no verbal	RN
Interacción del estudiante: Intervenciones del alumnado por iniciativa propia o respondiendo al docente	Participación del estudiantado	PE
	Responde al profesor	RP
Interacción disruptiva: Conducta del alumnado que impide el desarrollo de la clase	Disrupciones del alumnado	DA
Interacción general: Comentarios con contenidos ajenos a las explicaciones de esa clase	I. Generales del profesor	PIG
	I. Generales del alumnado	AIG
Categorías instrumentales	Otros comportamientos	X
	Inobservable	Y
	El profesor sale del aula	Z

Fuente: elaboración propia

Recording instruments

The sessions were recorded at the ULL with two video cameras, SONY DCR-SR58E and JVC GZ MG750, and at the UdG with a SONY HDR CX100 Handycam.

Methodology and design

An observational methodology was used with a nomothetic follow-up and multidimensional design (Anguera, Blanco & Losada, 2001).

Procedure

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Following data protection regulations in both countries, teachers and students agreed to be recorded with informed consent. Before data coding, the observers were trained according to a standardized procedure (Cadenas, Rodríguez & Díaz, 2012; Rodríguez-Naveiras, 2011), ten observers at the ULL, nine women and one man, between 23 and 40 years old and eight at the UdG, six women and two men, aged between 22 and 34 years, with their degrees being Master's or Bachelor's in Psychology or Early Childhood Education and Master's, Psychology and Speech Therapy students.

10 to 12 hours of teaching were recorded for each teacher. Practical classes were included in the ULL teaching staff. To counteract possible reactivity, the first recorded sessions were discarded. The selection of sessions to be coded was done following the procedure of Blanco, Castellano and Hernández Mendo (2000).

The coding instrument used in the ULL was the AUGEN v.δ software (Montero & Montero, 2012), developed for the development of this research. At the UdG, due to technical difficulties in accessing the program, traditional pencil and paper coding was chosen.

Statistical analysis

Reliability between observers was calculated through generalizability theory (TG) and behavioral patterns through sequential lag analysis, with the SDIS-GSEQ program, v. 5.1. (Bakeman & Quera, 1996).

Results

Two reliability sessions were carried out corresponding to 20% of the coded sessions, following the criteria of Patterson (1982), calculating it using the TG, obtaining in both cases optimal values (generalizability coefficients in the first session between 0.89 and 1, and in the second between 0.93 and 1).

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As a first approach to indicators of good practices, the teachers were observed in their performance in the classroom, collecting through a rating scale the resources used and the behaviors shown by them, which are presented in table 2 . In it, the use of a resource or the behavior carried out is indicated with a cross.

Teachers rely on different materials to teach their classes: multimedia presentations, notes, use of the laser pointer to point, the traditional blackboard, or additional materials specific to the content of the teaching they are developing, especially in practical classes.

In the ULL teaching staff, everyone uses multimedia presentations. This is facilitated by the provision of multimedia resources in all classrooms. Teachers make varied use of the space, some move around the room, others stand, sit or combine these possibilities. Everyone looks at their students when they explain, although some also focus on the presentation or their notes.

UdG teaching staff use multimedia presentations to a lesser extent; classrooms generally do not have this provision. Some teachers focus the class on the students' presentation. Sometimes they use their cell phones for purposes other than teaching. The position in which classes are taught does not present a general pattern as occurs with the teaching staff of the Canary Islands university. Likewise, everyone usually looks at the students and almost half of the teachers address them by name. This practice is promoted by the obligation to take attendance at the beginning of class.

The directly observable indicators of good practices are not limited to aspects such as those outlined above; they also involve behavioral patterns such as giving feedback when answering students' questions, reinforcing their

participation or, after explaining the content, encouraging the participation of their students.

When evaluated using the sequential delay analysis of Bakeman and Quera (1996), the observational methodology allows the detection of behavioral patterns (Sackett, 1979) that reflect a continuum in an orderly manner over time, highlighting the focal person under study. —in this case the teacher—, as well as the interaction with his students. The temporal contingency relationships between behaviors are analyzed, allowing the rules that regulate their internal mechanics to be revealed, which determines how the probabilities of the occurrence of behaviors change depending on others that have occurred previously, capturing statistically significant patterns of behaviors.

In the delay sequence analysis, an antecedent behavior is chosen from which the times that the other so-called consequent behaviors follow it in order for the first delay are counted. In this study, any behavior with a relative frequency greater than 0.02 was considered as criterion behavior, taking as criterion any behavior with a frequency greater than zero.

The behavior of both the teacher and his students is recorded.

Behavior pattern referring to feedback to students

When the student intervenes, adequate feedback from the teacher is an indicator of good practices. Two behavioral patterns are collected in this study. When the student participates on his or her own initiative, *student participation* (PE), followed by the teacher's response, *student response* (RA); and when the teacher comments on the student's response as a reply to the teacher's question, corresponding to the pattern *respond to the teacher* (RP) - *response to the student* (RA). These patterns are presented in Table 3 in which the digit on the

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left indicates the times that the consequent behavior follows the antecedent, and the digit on the right indicates the times that the consequent is emitted.

TABLA 3.
Patrones relativos a la retroalimentación dada por el profesor

Participación del estudiante (PE) - Responde al alumno (RA)										
ULL										
Profesor	1	2	3	4	5	6	7	8	9	10
Teoría	4/6	4/7	5/5	3/11	11/21	13/27	--	7/12	122/133	45/51
Prácticas	27/36	--	24/29	6/13	3/10	2/4	84/107	16/26	43/50	74/80
UdG										
Profesor		1	2	3	4	5	6		7	
		20/34	28/35	34/45	59/66	15/19	14/26		21/22	
Responde al profesor (RP) - Responde al alumno (RA)										
ULL										
Profesor	1	2	3	4	5	6	7	8	9	10
Teoría	--	--	--	6/11	--	11/27	4/6	--	--	--
Prácticas	--	2/2	--	6/13	7/10	--	--	--	--	--
UdG										
Profesor		1	2	3	4	5	6	7		
		--	--	--	--	--	10/26	--		

Fuente: elaboración propia

As you can see, whenever the students make an intervention, be it a question or comment, all the teachers, without exception, respond. Participation can be very high, as in the theoretical classes of professor number 9 of the ULL, or small (theoretical classes of professors 1, 2 and 3 of the ULL). There is only zero participation in the theoretical classes of professor number 7. At the UdG all the professors respond to the answers of their students, the pattern of behavior being more homogeneous, which indicates that student participation is more common at this university .

As expected, the second pattern is less frequent than the previous one, because while in the first case the teacher responds to a student's intervention, the pattern that is being analyzed here is less relevant in terms of feedback, since it does not involve the reply to a question but an additional comment.

Patterns related to reinforcing student participation

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The patterns related to the issuance of reinforcements are also of two types: when students intervene on their own initiative or as a response. All teachers reinforce the participation of their students on their own initiative or in response to the teacher, both in theoretical and practical classes. Now, the number of reinforcements issued differs significantly: from 3 to 78.

TABLA 4.
Patrones relacionados con el refuerzo del profesor (ULL)

ULL										
Participación del estudiante (PE) - Refuerzo (RF)										
Profesor	1	2	3	4	5	6	7	8	9	10
Teoría	--	4/7	2/4	3/5	--	7/64	--	2/3	--	--
Prácticas	6/8	--	12/16	--	3/10	--	--	13/19	--	13/25
UdG										
Profesor		1	2		3	4	5	6	7	
		7/17	4/14		16/30	--	3/8	3/6	5/10	
Responde al profesor (RP) - Refuerzo (RF)										
ULL										
Profesor	1	2	3	4	5	6	7	8	9	10
Teoría	--	--	--	2/5	27/31	48/64	31/42	--	58/78	60/82
Prácticas	--	3/3	--	6/7	--	--	54/66	6/19	53/68	12/25
UdG										
Profesor		1	2		3	4	5	6	7	
		8/17	5/14		--	20/40	--	--	--	

Fuente: elaboración propia

In the case of the UdG teachers, they all apply reinforcement, although its frequency is not very high, there does not seem to be a difference in the reinforcements for these two types of behaviors, except for teacher 4 who is the one who reinforces the most, but only the students' responses to their questions, and in teacher 3 who, on the other hand, reinforces the student's participation on his own initiative.

Patterns referring to the promotion of participation

Another indicator of good teaching practices is that the teacher encourages his students to participate in class as a consistent behavior, where this follows the previous behavior with a probability greater than that expected by chance, in the

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patterns explained by the teacher *(* EP) - *promotion of participation* (FP) and in *response to the teacher* (RP) - *promotion of participation* (FP). Also as an antecedent behavior, forming part of the pattern *promoting participation* (FP) - *responds to the teacher* (RP). As can be seen in table number 5, the promotion of participation follows in most cases the explanation given by the teacher, which constitutes a clear example of good practices because it encourages student participation. On the other hand, promotion of participation only appears after the behavior of the student *responds to the teacher* (RP) in 4 of the 10 professors at the ULL, and in all cases of the UdG teaching staff. It can be said that there is dynamism in the classes, since the promotion of participation is almost always followed by the response of the students.

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TABLA 5.
Patrones relativos a promover la participación del alumnado

ULL										
Explicación del profesor (EP) - Fomento de la participación (FP)										
Profesor	1	2	3	4	5	6	7	8	9	10
Teoría	--	22/50	--	--	50/124	117/172	32/69	2/3	79/239	74/251
Prácticas	--	--	--	--	20/55	--	61/179	10/26	36/72	49/91
UdG										
Profesor	1		2		3	4	5	6	7	
	89/206		41/127		25/75	45/162	38/106	54/162	20/82	89/206
ULL										
Responde al profesor (RP) - Fomento de la participación (FP)										
Profesor	1	2	3	4	5	6	7	8	9	10
Teoría	--	--	--	--	--	--	37/42	--	26/239	--
Prácticas	--	--	--	--	5/10	--	38/179	11/26	25/169	--
UdG										
Profesor	1		2		3	4	5	6	7	
	69/206		35/127		18/75	56/162	40/106	56/162	17/82	
ULL										
Fomento de la participación (FP) – Responde al profesor (RP)										
Profesor	1	2	3	4	5	6	7	8	9	10
Teoría	--	4/4	--	6/10	5/21	135/152	53/60	--	172/183	138/150
Prácticas	5/12	--	3/9	16/20	30/36	--	148/161	23/26	119/131	45/46
UdG										
Profesor	1		2		3	4	5	6	7	
	163/179		114/116		62/71	123/139	82/87	141/145	49/51	

Fuente: elaboración propia

Discussion

Quality policies play a relevant role in education at all levels, especially in higher education. This entails the search for indicators that allow us to show the existence of said quality, as well as the wide range of procedures that allow it to be measured in one way or another (Martínez, 2013).

Good teaching practices constitute a way of understanding quality and present clear indicators; it has a multimodal perspective, as can be seen from how the authors who have dedicated themselves to studying it characterize it (Bain, 2006; Imbernón, 2013; Marqués, 2002). . Some indicators are verified with the contents that the teacher teaches, others correspond to attitudinal aspects, such

as faith in 'good work' and the responsibility of the students, others have to do with evaluation. A large number of good practice indicators are behaviors that are carried out in the classroom and are therefore directly observable.

Quality necessarily entails evaluation; it requires checking that the indicators of such quality are present. For this reason, it is essential to create measurement procedures that allow us to determine whether teachers carry out good teaching practices or not. As presented in this study, some indicators are very simple and can be collected with a simple observation through a rating scale, indicating whether a certain aspect, which indicates good or bad practice, occurs.

The greater emphasis on educational models where the students are the protagonist of their training, the teaching-learning approach prevails, this means that the teacher's behavior cannot be isolated, the interaction he maintains with his students matters substantially. The use of observational methodology with specific analyzes allows us to capture both the behavior of the teaching staff and—and this is especially relevant in the case of good practices—their way of interacting with students. Sequential delay analysis is an analytical instrument that allows great precision. Furthermore, to the extent that it clearly determines behavioral patterns, it serves the objectives of a productive evaluation, that is, it makes it possible to recommend clearly objective improvements.

With the instrument presented here you can study some indicators of good teaching practices. Others that are not directly observable require the use of different methodologies, such as self-assessments by teachers and students. However, there are behaviors that are also observable, that cannot be collected with this instrument, such as the way in which the teacher addresses the student, showing acceptance, respect or the opposite. It will therefore be

necessary to continue creating measurement instruments, scales or observation instruments that allow good teaching practices to be studied exhaustively.

On the other hand, the sample that has been studied here, although it includes two different educational environments, is small, as is usual in observational methodology, so it is necessary to carry out similar studies with other samples of university teachers. However, the measurement procedure presented allows us to clearly objectify teaching interaction behaviors that indicate good teaching practices and behaviors that need improvement. In one way or another, it allows good teaching practices to be analyzed and modified, if appropriate.

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