



European Congress on Physiotherapy Education  
Estoril, 4/5 November 2004



## Clinical education grading: using rank order to converse assessment into grades


Rui Macedo  
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Portugal



## Assessment in education

“Assessment in education can be thought of occurring whenever one person, in some kind of interaction, direct or indirect, with another, is conscious of obtaining and interpreting information about the knowledge and understanding, or abilities and attitudes of that other person”


Rowntree 1987 2



## Types of assessment in education

- Norm referenced
  - The standard attributed to the performance of a student is a function of that performance attributed to the performance of other comparable students
- Criterion referenced
  - The standard to be reached is measured against some pre-specified criteria


Stengelhofen 1993 3




## Student Clinical Competence Evaluation at ESTSPorto

- 4 six week full time clinical placements
- Assessment with:
  - Clinical Competence Evaluation Scale
- Final grades /marks = average of placements grades/marks
- Grades/marks - numeric from 0 to 20


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## Clinical Competence Evaluation Scale

- A **critierion referenced** instrument
- 27 items covering cognitive, psychomotor and affective domains
- Each item with several (2 to 4) levels of behaviour from least to most desirable.
- Behaviours level's grades/marks 
  - Least desirable – negative grades/marks
  - intermediate behaviour – 0 – (when apliable)
  - Most desirable - positive grades/marks

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## Observed Phenomena

- Only top 2- 3 behaviours where systematically recorded (few exceptions)
- Marks systematically above 16 in a 20 degree scale (few exceptions)

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### Possible causes

- High performance of students ?
- Poor discriminative ability of scale ?
- Student fit into grade phenomena ?
  - Assessment affects and is affected by students relationship with the placement teacher \*
- The use of quantitative references in the scale ?
  - Placements are not comparable \*
  - Profile of work load (patients)\*\*

\* Saxton; Ashworth 1990 \*\*Stengelhofen 1993

## METHODS AND MATERIALS

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### Subjects

- 30 students of third/final year that attended clinical placements
- 17 females
- 13 males
  
- 2, males excluded – scale wasn't used in all placements

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### Methods and materials 1


Material

- Clinical Competence Evaluation Scale (new version)
  - Blindness of marks both for students and clinical educators 

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### Methods and materials 2

Procedures

- For each item all Students assessments where counted.
- Grade A behaviours were considered to be absolute merit and marked 100%
- Grades B,C,D and E where considered to be relative merit and marked accordingly to its relative frequency 
- Mean item's marks produced clinical placement mark
- Mean placement's marks produce final evaluation
  
- Final and placement grades/marks compared with grades/marks produced by old version

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### Methods and materials 3

- Statistical analysis
  - Frequency of grades/ marks for analysis
  - Mean as central measure, standart deviation
  - Kurtosis and Skewness for curve analysis
  - Kolgomorv Smirnov for distribution normality
  - Paired sample t-test for comparing means

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# Results

**Table 1 : Frequency and percentage of grades of all students for each clinical placement (module)**

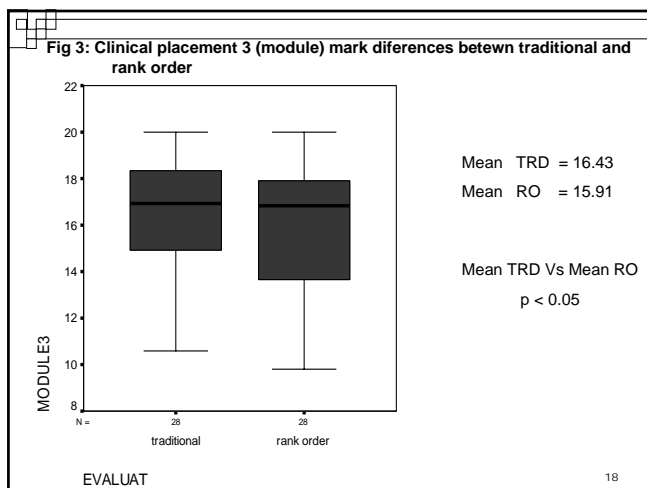
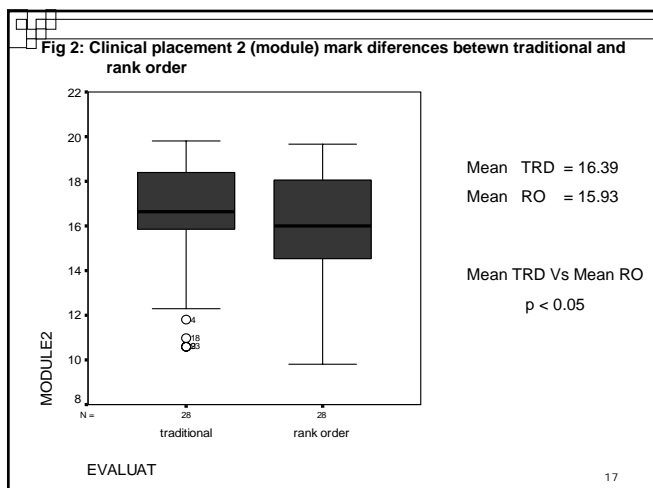
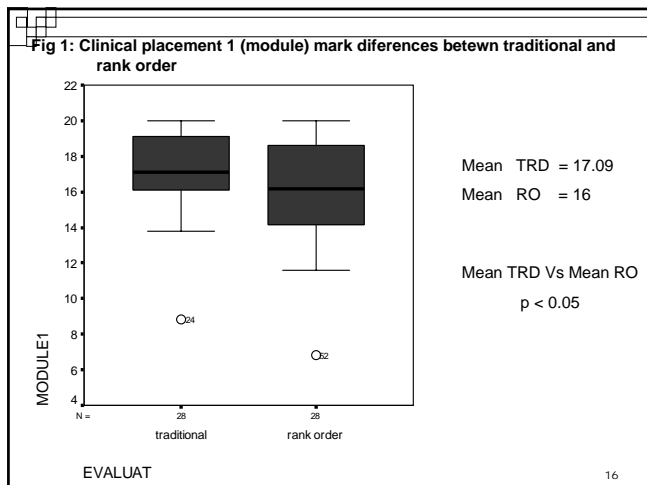
	A	B	C	D	E
Module 1	freq 461	260	30	3	0
	% 61	34	4	0,4	0
Module 2	freq 469	233	22	0	0
	% 65	32	3	0	0
Module 3	freq 469	233	20	0	0
	% 65	32	2,8	0	0
Module 4	freq 493	229	19	0	0
	% 67	31	2,6	0	0

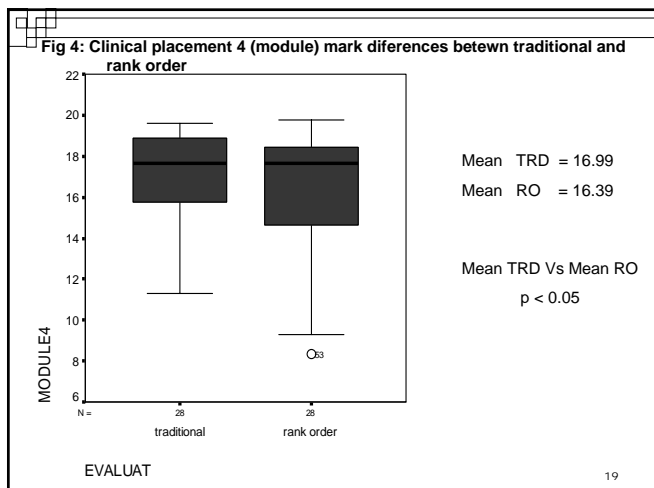
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**Table 2 : Descriptive Statistics of traditional (TRD) and Rank Order (RO) marks for each clinical placement (MOD)**

	N	Mini	Max	Mea	Std. Dev	Vari	Skewness	Std. Error	Kurtosis	Std. Error
MOD1TRD	28	8,80	20	17	2,46	6,05	-1,4	,44	3,40	,86
MOD1RO	28	6,82	20	16	3,06	9,38	-,99	,44	1,35	,86
MOD2TRD	28	11	20	16	2,82	7,98	-,92	,44	-,12	,86
MOD2RO	28	9,83	20	16	2,67	7,15	-,58	,44	-,48	,86
MOD3TRD	28	11	20	16	2,68	7,20	-,83	,44	-,15	,86
MOD3RO	28	9,78	20	16	2,80	7,82	-,53	,44	-,65	,86
MOD4TRD	28	11	20	17	2,34	5,46	-,11	,44	,30	,86
MOD4RO	28	8,31	20	16	2,98	8,88	-,12	,44	1,17	,86
FINALTRD	28	14	19	17	1,42	2,01	,07	,44	-,67	,86
FINALRO	28	12	19	16	1,81	3,26	-,35	,44	-,52	,86

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## Conclusion

Range of grades is small  
Range of marks increased  
Mean decreased

**Rank order had a corrective effect on overestimating clinical abilities**

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THE END

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Clin.Comp.Eval.Scale - samples

1.2 RELATIONSHIP ATTITUDE WITH PATIENTS	
A) ABILITY TO COMMUNICATE WITH PATIENT, FAMILY AND OTHER PROFESSIONALS.	
- 3	Doesn't communicate / doesn't show interest on his problem
- 1	Communicates showing interest on his problem but doesn't understand the problem
0	Communicates showing interest on his problem but shows difficulties managing the context
2	Communicates showing interest on his problem managing the context but needs minor corrections
3	Communicates showing interest on his problem without needing help

2.2 ABILITY TO INTERPRET PATIENT DATA	
SYNTHESIS / PROPOSAL OF PHYSIOTHERAPY DIAGNOSIS	
- 8	Doesn't interpret the results of the assessments
0	Needs reminding to interpret the results of assessments
8	Frequently needs help to interpret the assessment data/results
16	Sometimes needs help to interpret the data/results of assessments
21	Always interprets correctly the results/data of the assessments

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Clin.Comp.Eval.Scale - sample

1.2 RELATIONSHIP ATTITUDE WITH PATIENTS	
A) ABILITY TO COMMUNICATE WITH PATIENT, FAMILY AND OTHER PROFESSIONALS.	
E	Doesn't communicate / doesn't show interest on his problem
D	Communicates showing interest on his problem but doesn't understand the problem
C	Communicates showing interest on his problem but shows difficulties managing the context
B	Communicates showing interest on his problem managing the context but needs minor corrections
A	Communicates showing interest on his problem without needing help

2.2 ABILITY TO INTERPRET PATIENT DATA	
SYNTHESIS / PROPOSAL OF PHYSIOTHERAPY DIAGNOSIS	
E	Doesn't interpret the results of the assessments
D	Needs reminding to interpret the results of assessments
C	Frequently needs help to interpret the assessment data/results
B	Sometimes needs help to interpret the data/results of assessments
A	Always interprets correctly the results/data of the assessments

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Rank Calculation - sample

### Rank calculation

ITEM 2.1			ITEM 1.2		
GRADE	COUNT	RANKING	GRADE	COUNT	RANKING
E	0	0	E	0	0
D	0	0	D	0	0
C	5	0,17	C	1	0,033
B	13	0,6	B	11	0,4
A	12	1	A	18	1
Total	30		Total	30	

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