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Evaluation of Fixed Prosthesis Practical Sessions in the Faculty of Dentistry of Casablanca

Research Article

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Abstract

Practical teaching is an important part of the teaching of fixed prosthesis. This work aims to evaluate fixed prosthesis practical teaching of the 2nd, 3rd and 4th year in terms of organization, developed skills, learning and assessment activities at the Faculty of Dentistry of Casablanca. A descriptive survey was conducted through questionnaires distributed to students who have completed their academic year 2011/2012. The results revealed the presence of numerous shortcomings regarding this teaching in relation to scheduled sessions, coaching, equipment, communication and argumentation of continuous exam's marks.
In the light of this work, an action plan tailored to the reality of the Faculty of dentistry of Casablanca resources was proposed.

Keywords: Evaluation; Practical Sessions; Fixed Prosthesis; Dentistry.

Introduction

The teaching of dentistry involves a theoretical, practical and clinical teaching. Practical sessions (PS) take an important place in the teaching of fixed prosthesis (FP), a discipline that treats, by fixed prosthesis, dental dilapidations, discoloration and tooth gaps to remedy the aesthetic and functional requirements.

Practical learning allows gesture initiation, its repetition is a guarantee of improvement. The ease and control of gesture are acquired with time and repeated expression of talents; yet the PS only permits a sufficient and minimal dexterity.

At the Faculty of Dentistry Casablanca, FP's PS are organized by the department of FP in an amount of one session per week of 2H30 during the 2nd, 3rd and 4th year of university.

PS begins with a presentation of the topic to be covered (slideshow), it lasts 15 minutes and illustrates pedagogically, using pictures and diagrams, all stages of the act to be performed. A demonstration is made by the teacher supervisor, it shows the details of the act realization and is accompanied by an explanation of the steps. The student performs the act by trying to follow the steps and the mean. Errors are identified by the teacher.

PS evaluation is done through a weighted average of the ratings of all the work done during the year and the final exam.

In the spirit of improving the quality of education, the FP department supported this work of evaluation of the FP PS in the 2nd, 3rd and 4th year in terms of:

- Organization and developed skills
- Learning activities, materials and resources

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• Evaluation, monitoring and feedback

Materials and Methods

A descriptive survey was conducted among all the students who have completed their 2nd, 3rd and 4th year of the 2011-2012 academic year, at the Faculty of Dentistry of Casablanca.

The data for this study were picked up using a questionnaire consisting of five main sections covering: the identification of the questionnaire and the study year, the organization and the skills developed, the learning activities, materials and resources, and a final section covering the evaluation, supervision and feedback.

Results

The study population included 334 students, 309 among them submitted their questionnaires which 37.66% were in the third year, 36.69% in the fourth year and 25.65% in the fifth year .

PS Organization

Students from three promotions were satisfied with the PS objectives communication with a percentage of 52.6% for 3rd year students, 46.9% for those in the fourth year and 53.2% for those in the fifth year (Table 1).

Scheduling one PS per week was satisfactory for 42.2% of students in the third year, 37.2% of students in the fourth year and 44.3% of students in the fifth year.

The PS time (2H30) was seen satisfactorily in 59.5% of students in the third year, 55.8% of 4th graders and 55.7% of students in the fifth.

Students of 3rd, 4th and 5th year expressed their satisfaction to have free access to PS rooms in a percentage of 44%, 46.9% and 60%.

The general organization of FP PS was seen satisfactorily in 64.7%, 60.2% and 60.8% of students in 3rd, 4th and 5th year.

Developed skills

The usefulness of PS in improving control of gesture was perceived very satisfactory at 16.4% and 59.5% of students in the third year (respectively). This satisfaction was slightly reduced among students of 4th and 5th years (Table 2).

The ascertainment of improved gesture control was observed in 75% of students in the third year, 67.3% in the fourth year and 69.6% of students in the fifth year.

Learning activities, equipment and resources

The interest of the course before PS was seen satisfactorily in 55.2%, 41.6% and 41.8% of students in 3rd, 4th and 5th years (Table 3).

If the 3rd year students were satisfied with the materials and equipment available to them, the dissatisfaction rate was higher among students in fourth and fifth year.

The slideshow was seen satisfactorily in 48.3% of students in the third year. A decrease in satisfaction was observed among students of 4th and 5th year with 46% and 50.6% who were dissatisfied.

The methods used for the explanation of practical acts were seen satisfactorily in 41.4% of students in the third year. Unlike students in the fourth and fifth years who were less satisfied.

Table 1. Perception of the PS organization.

		Very satisfactory N (%)	satisfactory N (%)	Less satisfactory N (%)	Non satisfactory N (%)	No disclosed N (%)	Total
PS objectives communication	3th Y*	42 (36.2)	61 (52.6)	12 (10.3)	0	1 (0.9)	116
	4th Y**	30 (26.5)	53 (46.9)	21 (18.6)	2 (1.8)	7 (6.2)	113
	5th Y***	16 (20.3)	42 (53.2)	16 (20.2)	5 (6.3)	0	80
PS scheduling	3th Y	21 (18.1)	49 (42.2)	31 (26.7)	15 (12.9)	-	116
	4th Y	8 (7.1)	42 (37.2)	38 (33.6)	25 (22.1)	-	113
	5th Y	10 (12.7)	35 (44.3)	30 (38)	4 (5.1)	-	80
PS time	3th Y	21 (18.1)	69(59.5)	17(14.7)	9 (7.8)	-	116
	4th Y	10 (8.8)	63(55.8)	25(22.1)	15 (13.3)	-	113
	5th Y	5 (6.3)	44(55.7)	25(31.6)	5 (6.3)	-	80
PS room access	3th Y	52 (44.8)	51 (44)	10 (8.6)	3 (2.6)	-	116
	4th Y	36 (31.9)	53 (46.9)	17 (15)	7 (6.2)	-	113
	5th Y	19 (24.1)	49 (62)	9 (11.4)	2 (2.5)	-	80
PS organization	3th Y	13 (11.2)	75 (64.7)	22 (19)	6 (5.2)	-	116
	4th Y	3 (2.7)	68 (60.2)	33 (29.2)	9 (8)	-	113
	5th Y	3 (3.8)	48 (60.8)	26 (32.9)	2 (2.5)	-	80

*3th Y: 3th Year
**4th Y: 4th Year
***5th Y: 5th Year

Table 2. Perception of developped skills.

		Very Satisfactory N (%)	Satisfactory N (%)	Less satisfactory N (%)	Non satisfactory N (%)	Total
PS usefulness	3th Y	19 (16.4)	69 (59.5)	27 (23.3)	1 (0.9)	116
	4th Y	6 (5.3)	50 (44.2)	48 (42.5)	9 (8)	113
	5th Y	7 (8.9)	35 (44.3)	34 (43)	3 (3.8)	80
Gesture control improvement	3th Y	18 (15.5)	87 (75)	10 (8.6)	1 (0.9)	116
	4th Y	8 (7.1)	76 (67.3)	24 (21.2)	5 (4.4)	113
	5th Y	9 (11.4)	55 (69.6)	13 (16.5)	2 (2.5)	80

Table 3. Perception of learning activities, PS materials and resources.

		Very satisfactory N(%)	Satisfactory N(%)	Less satisfactory N(%)	Non satisfactory N(%)	Non communicated N(%)	Total
Doing course advantage before PS	3th Y	28 (24.1)	64 (55.2)	16 (13.8)	8 (6.9)		116
	4th Y	10 (8.8)	47 (41.6)	34 (30.1)	22 (19.5)		113
	5th Y	15 (19)	33 (41.8)	25 (31.6)	6 (7.6)		80
Material/ equipment	3thY	4 (3.4)	56 (48.3)	46 (39.7)	10 (8.6)		116
	4th Y	4 (3.5)	33 (29.2)	46 (40.7)	30 (26.5)		113
	5th Y	3 (3.8)	25 (31.6)	45 (57)	6 (7.6)		80
Educational assist	3th Y	6 (5.2)	57 (49.1)	44 (37.9)	9 (7.8)		116
	4th Y	2 (1.8)	34 (30.1)	58 (51.3)	19 (16.8)		113
	5th Y	1 (1.3)	34 (43)	42 (53.2)	2 (2.5)		80
Slideshow purpose	3th Y	17 (14.7)	56 (48.3)	41 (35.3)	2 (1.7)		116
	4th Y	5 (4.4)	45 (39.8)	52 (46)	11 (9.7)		113
	5th Y	0	35 (44.3)	40 (50.6)	4 (5.1)		80
Explanation methods	3th Y	19 (16.4)	48 (41.4)	42 (36.2)	7 (6)		116
	4th Y	6 (5.3)	38 (33.6)	54 (47.8)	14 (12.4)	1 (0.9)	113
	5th Y	7 (8.9)	27 (34.2)	32(40.5)	13 (16.5)		80
Demonstrations	3th Y	29 (25)	45 (38.8)	25 (21.6)	17 (14.7)		116
	4th Y	12 (10.6)	46 (40.7)	33 (29.2)	22 (19.5)		113
	5th Y	10 (12.7)	37 (46.8)	29 (36.7)	3 (3.8)		80
Work on « phantom »	3th Y	61 (52.6)	41 (35.3)	11 (9.5)	3 (2.6)		116
	4th Y	42 (37.2)	51 (45.1)	14 (12.4)	6 (5.3)		113
	5th Y	24 (30.4)	41 (51.9)	13 (16.5)	1 (1.3)		80
Coaching	3th Y	17 (14.7)	67 (57.8)	28 (24.1)	4 (3.4)		116
	4th Y	8 (7.1)	47 (41.6)	48 (42.5)	10 (8.8)		113
	5th Y	2 (2.5)	34 (43)	40 (50.6)	3 (3.8)		80

In general, students were satisfied with demonstrations performed during the PS. However, the rate of unsatisfied students increased from the third to the fifth year. The main cause of dissatisfaction cited was related to the difficulty of seeing the demonstration of the performed act, which is made by a teacher for a group of students.

The introduction of students to work on "phantom" (model simulating a patient) was seen very satisfactorily in 52.6%, 37.2% and 30.4% of students in 3rd, 4th and 5th years and satisfactory in 35.3% 45.1% and 51.9% of the same students respectively.

The number of less satisfied students toward PS coaching increased from the 3rd to the 5th year. The main causes of dissatisfaction in term of supervising were identified as a lack of supervisors, the divergence of their opinions and the stress associated with the lack of encouragement and the requirements of teachers.

Evaluation, supervision and feedback

The evaluation system was seen satisfactory for 66.4%, 64.6% and 63.3% of students in 3rd, 4th and 5th year (Table 4).

Evaluation criteria communication was seen satisfactory for 54.3% 44.2% and 36.7% of students in 3rd, 4th and 5th years.

Although, the dissatisfaction rate in term of communicating exams marks was 52.6%, 37.2% and 45.6% among students in 3rd, 4th and 5th year respectively.

The exams marks argumentation was perceived as unsatisfactory in the majority of students in the third and fourth years with a percentage of 45.7% and 42.5%. For the students of the fifth year, 36.7% were less satisfied.

This study, conducted to evaluate the practical teaching of FP, was

Table 4. Perception of the evaluation, supervision and PS feed-back.

		Very satisfactory N(%)	Satisfactory N(%)	Less satisfactory N(%)	Unsatisfactory N(%)	Total
Evaluation system	3thY	9 (7.8)	77 (66.4)	23 (19.8)	7 (6)	116
	4th Y	8 (7.1)	73 (64.6)	22 (19.5)	10 (8.8)	113
	5th Y	1 (1.3)	50 (63.3)	24 (30.4)	4 (5.1)	80
Evaluation criteria	3th Y	11 (9.)	63 (54.3)	37 (31.9)	5 (4.3)	116
	4th Y	5 (4.4)	50 (44.2)	43 (38.1)	15 (13.3)	113
	5th Y	1 (1.3)	29 (36.7)	42 (53.2)	7 (8.9)	80
Exams marks communication	3th Y	3 (2.6)	17 (14.7)	61 (52.6)	35 (30.2)	116
	4th Y	6 (5.3)	43 (38.1)	42 (37.2)	22 (19.5)	113
	5th Y	1 (1.3)	27 (34.2)	36 (45.6)	22 (19.5)	80
Marks argumentation	3th Y	3 (2.6)	12 (10.3)	48 (41.4)	53 (45.7)	116
	4th Y	1 (0.9)	21 (18.6)	43 (38.1)	48 (42.5)	113
	5th Y	21 (26.6)	28 (35.4)	29 (36.7)	1 (1.3)	80
Intiative purpose	3th Y	63 (54.3)	48 (41.4)	5 (4.3)	0	116
	4th Y	54 (47.8)	57 (50.4)	2 (1.8)	0	113
	5th Y	24 (30.4)	51 (64.6)	2 (2.5)	2 (2.5)	80

perceived very positively by almost all students who participated.

Discussion

Before beginning the discussion of our results, it should shed light on three key points that can position the quality of the obtained results and judge our study through its intrinsic value. It concerns the target population of the survey, the questionnaire and the difficulties and biases.

Our study focused on the 3th year students who have completed the 2nd year FP PS program, the 4th year students who have completed the 3th year FP PS program and the 5th year students who have completed the 4th year FP PS program of the academic year 2011/2012.

The memory capacity to describe past situations decreases with the age of the event and the degree of its importance. Thus, in order to avoid the negative impact of memory on the quality of our interpretations of the results, we have clarified the students that their responses were only the academic year previously validated. The questionnaire used is not a standard model for the evaluation of the perception of the practical teaching of FP. It was developed following the steps of EAVE process [1] (evaluation process improvement and enhancement of education) which constitutes a renewed vision of the evaluation of university education to uncover and clarify problems and difficulties in FP PS teaching at the Faculty of dentistry of Casablanca.

We believe that the anonymity of the survey, its clarity, its structure, the number of open questions that help to gather as much data, the freedom to participate to the survey helped to obtain enough results that reflect the real opinions.

Through the various steps of the survey we have tried to overcome the difficulties and avoid biases to not affect the value of our results. However, we faced some difficulties related to the non-cooperation of a number of students. We believe that the non-response rate (7.48%) can not significantly affect the results.

Thereby, the use of a comprehensive study helped us to avoid the problem of representativeness of the study population.

PS Organization.

The survey reports, in terms of the PS communication objectives, a general perception mostly satisfactory to very satisfactory. Indeed, the definition of the objectives of each PS is vitally, on the one hand, it allows the teacher to determine the purpose of education, build relevant programs, select teaching methods and provide a fundamental basis for evaluation. On the other hand, it allows the student to focus their learning properly, to assess their progress and to know what activities on his part can lead to success [2].

The duration of PS was perceived generally satisfactory, but some students have identified some causes of dissatisfaction related to the absence of break between PS from different disciplines scheduled the same day in addition of the encroachment of time allotted to installation students, slideshow and demonstration on working time.

Although the number of PS per week was appreciated by the students, a significant percentage expressed his wish to have free access to rooms for training sessions.

Over 60% of students were satisfied with the overall organization of FP PS, but there are still complaints about the precariousness of the equipment and the presence of a single ancillary teacher to all students.

Developed skills.

The students were aware of the value of TP, they found out that they have improved their gestures control related to the improvement of their work during the year as well as the timeliness of actions with compliance.

Learning activities, material and resources.

Scheduling courses before PS promotes assimilation of acts. Indeed, the integration of the theoretical teaching into the practi-

cal one associated with an inducement for attendance and regular work, provides better results in initial medical education [3].

The majority of students surveyed recognized the advantages of doing the courses before the practical sessions, however absenteeism rate reveals itself to be very high during courses sacrificing this relevant source of information.

Teachers who provide the PS are faced with a real lack of student preparation which forces the teacher to spend more time than expected for the explanations and demonstrations. PS falls behind and students lose autonomy [4].

Material and equipment available to students was considered unsatisfactory for the majority of students. This is related to inadequate maintenance of equipment and its degradation, frequent breakdowns in micromotors which can severely impede the practice learning session.

If the Faculty loans to students of 2nd and 3rd year a briefcase containing the necessary tools to execute the practical actions, French schools force students to buy almost all their tools. Deans justify this situation by the financial status of their institute, making it impossible for them to buy the teaching materials. In addition to that, the maintenance of equipment is complex and expensive financially and humanly if you want to avoid premature degradation [5].

The results showed a negative attitude of students towards educational support. Indeed, only the 2nd year PS handout has been made available to students during this year.

Thus, a lot of effort needs to be done in this direction by making illustrated and commented handouts available for the students of the 3rd and 4th year to facilitate the assimilation of slideshows and save time for the completion of the act.

The slideshow is done through a presentation on Microsoft Powerpoint. It lasts 10 to 15 minutes and shows all the stages of the act to be carried out using photographs and pedagogical patterns.

However, 50.6% of students in the fifth and 46% of students in the fourth year were less satisfied. Yet 48.3% and 14.7% of 3rd year students were satisfied to very satisfied.

The mental image, a psychological representation of the act to perform, is a pedagogical technique that has a positive impact on the acquisition of technical gestures for students [6].

Faculty of Odontology RENNES and ICTE services (Information and Communication Technologies for Education) have partnered to produce online digital files with manipulations that take place during the PS [7].

Each file consists of a PS description area (title, duration, teaching and learning objectives, prerequisites), an area for the presentation of material using pictures, a demonstration area for manipulations performed using diagrams and videos.

In deed, the student consults, on the tele-education platform of the university, the PS files illustrated before going into PS.

More than 98% of the surveyed students believe that those files improved their learning and that they are a betterment for their education.

Diagrams and demonstrations are the most usable means to explain the practical acts.

This means have been judged as less satisfactory for 36.2% of the 3th year students, 47.8% of 4th year students and 40.55% of the 5th year students.

This can be explained by the fact that the students, too numerous or wrong placed, have a lot of difficulties to identify the various stages of the act carried out during the demonstration. In deed, 38.8% of 3th year students, 40.7% of 4th year students thus 46.8 % of 5th year students expressed the need of realizing small groups demonstrations.

The non-use of videos is unfortunate because they are a rapid and precious in providing informations [8]. Therefore, they can avoid and replace the demonstrations that need a lot of time which is cutted down from the manipulation time.

The memory holds 75% of what is seen and heard. In fact, an evaluation survey of the audio visual tools in the Histology PS, showed that the use of movies improved significantly the students results [9].

The majority of 3rd year students, that to say (52.6%), were very positive about working on « phantom » ; 45.1% for the 4th year students and 51.9% for the 5th year judged this initiative as satisfactory.

This testifies of the students' goowill to approach as much as possible the clinical reality, because from the 4th year, students become hospital externals and take in charge real patients.

In fact, the training on simulator accelerats the stage of basic gesture learning with a direct impact on the clinical practice [10].

In this way, Showa university in Tokyo created a female robot particularly realistic to help students to train in term of dental cares. This allows students to repeat exercises and multiply fails, and thereby acquire experience [11].

The 3rd year students were mostly satisfied with the supervision of PS, yet this satisfaction has declined among students in 4th and 5th year. The reasons for dissatisfaction were mainly related to the fixed number of supervisors facing an increasing number of students every year, the lack of communication with students and a stressful climate [12].

Evaluation, supervision and feed-back.

The evaluation system (calculated based on 60% of the score of continuous exams and 40% of the exam) appeared adequate for the majority of students. This approach allows to overhaul an accident during the final exam [13-15].

The communication of evaluation criteria has been appreciated by the majority of the surveyed students, but, they reported a lack of communication and argumentation of the continuous exams

scores, which is unfortunate because it would have allowed students to define their mastery level and fill the gaps [2]. In this way, the teachers do not have evaluation sheets where they can justify the scores given to students, this is why the creation of elaborated evaluation grid is necessary.

Recommandations

At the end of the analysis of the results obtained, we have emerged certain points to overcome the shortcomings identified during our investigation:

- Scheduling courses before practical sessions.
- Involving students in the education process by various pedagogical means likely to encourage them to attend classes.
- Elaboration of pedagogical hand out for the 3rd and 4th year students.
- Realizing online digital sheets preparing the practical sessions, helping introduce the theoretical notions necessary for the manipulations, presenting the material dedicated for every step and describe the stages of manipulation with various visual support [16] (videos, pictures, diagrams).
- Introduction of TV's allowing the broadcasting of videos of demonstrations during the PS. This tools permit to students to follow carefully the gestures and the motion dynamique of the instruments.
- They also allow the teachers to realize manipulation live.
- Acquisition of new equipment (contra-angles, lights, models…).
- Permanent maintenance of this equipment to reduce downtimes and loss of time during the session. And duty of students towards the equipment available to them.
- Raising the number of supervisors to ensure an effective and closer supervision for the student.
- Organizing training sessions during the year.
- Initiate the students to work on « phantom ».
- Development of an educational booklet defining the criteria to be respected for the work and their validation through validation grids. To do this, each student will be provided with a booklet" PS book" containing the PS program with evaluation sheets for each performed act, the student will now be able to appreciate the quality of its work and therefore know its shortcomings in order to catch up.

Conclusion

Evaluation of FP PS in terms of organization and developed skills, learning activities, materials and resources and in terms of evaluation, supervision and feedback helped shed light on a practical teaching with shortcomings related to the supervision, resources and equipment as well as communication and argumentation of the exams.

Strengths on the scheduling, organization and evaluation system are identified.

Through this audit, user data are made available to teachers of the Department of Fixed Prosthesis to improve practical teaching of this discipline, pillar of modern dentistry.

References

[1]. Bernard H (2011) Comment évaluer, améliorer, valoriser l'enseignement supérieur? Edition De Boeck, Avril.

[2]. Carey JA, Madill A, Manogue M (2010) Communications skills in dental education: a systematic research review. Eur J Dent Educ 14(2): 69-78.

[3]. Cottin V, Mornex JF, Cordier JF (2002) Enseignement magistral: Intérêt potentiel de son intégration aux stages hospitaliers et de la réalisation de contrôles de connaissance impromptus. Pédagogie Médicale 3(2): 97-100.

[4]. Fleischer S, Barlow J (2011) Student absenteeism: whose responsibility? Innovations in Education and Teaching International 48(3): 227-237.

[5]. Bruche S. Cost of equipment teaching in dental surgery studies. Contribution Assisi Territoriales-Ile-de- France - AEG & UNECD.

[6]. Vignes JR, Rogues AM, Moreau JJ (2013) The mental image it improve learning a surgical procedure? The example of hand disinfection. Educational and Medical 14(2): 99-105.

[7]. Dautel A, Le Clerc J, Perard M, Cabasse C, Olivo M , et al. (2012) hybrid training in dentistry: an innovative digital device formation.Odontologie, University of RENNES1.

[8]. Pelpel P, Bourrissoux JL (1992) Teaching with audiovisual. Paris, Organisation.

[9]. Gerbauer C, Feldman G (1987) Evaluation audiovisual means in Rev histology labs. Ed., Méd, Tome X, 3..

[10]. Lacreuse I, Mahoudeau G, Becmeur F, Ferreira CG, Moog R, et al. (2011) Clinical evaluation of the effectiveness of the simulator to achieve intracorporeal knots by internal surgery: a program established in pediatric surgery. Educational and Medical 12 (4): 213–221.

[11]. Tanzawa T, Futaki K, Tani C, Hasegawa T, Yamamoto M, et al. (2012) Introduction of a robot patient into dental education. Eur J Dent Educ 16(1): e195-9.

[12]. Mc Givney Glen P (1976) Prosthetic teachers: Number and qualifications for undergraduate education. The J of prosth dent 35(1): 10-14.

[13]. Bernard H, Postiaux N, Salcin A (2000) The paradoxes of the evaluation of university teaching. Sci income of educ 26(3): 625-650.

[14]. Kellaghan T, Greaney V (2002) Using assessment to improve the quality of education. UNESCO International Institute for educational planning, Paris.

[15]. Mc Andrew M, Pierre GC (2013) Using multiple measures to evaluate a dental faculty development program. Eur J of Dent Educ 17(1) : 1-9.

[16]. Clark Glenn T, Mulligan R, Kazuyoshi B (2011) Developing and providing an online (web-based) clinical research design course in Japan: Lessons learned. J of Prosth Res 55(2): 61–68.