

ORIGINAL ARTICLE

Current BDS Curriculum: An Evaluation based upon CIPP ModelShazia Rafiq Nawabi¹, Ayesha Maqsood², Sidra Aamir³**ABSTRACT**

Objective: Objective of this study was to evaluate current BDS curriculum to identify the need for reviewing and updating the existing curriculum.

Study Design: It was a descriptive cross-sectional study.

Place and Duration of Study: This Study was conducted in four private sector dental colleges of Islamabad from 5th June to 25th December 2013.

Materials and Methods: Two hundred and ninety six faculty members and students were included in the study based upon random sampling technique. Demonstrators and junior dental students were not included in the study. Faculty of different levels including professors, associate professors, assistant professors, senior registrars and final year BDS students were included in the study. A self-administered structured questionnaire based upon Stufflebeams' CIPP Model of program evaluation was used as data collection tool and principal author personally visited all four dental colleges to collect data. MS Excel was used for data entry, descriptive analysis and generation of graphs.

Results: Results of the present study indicated that there are weaknesses in the current Dental curriculum.

Conclusion: Integration according to latest trends and approaches are required to make it at par with international standards.

Key words: *Integrated Curriculum, CIPP Model, Outcome Based Dental Education, Community Oriented Curriculum, Student Centered Education, Hybrid Curriculum.*

Introduction

Dentistry is a noble field, exclusively involved in the study, diagnosis, prevention and treatment of diseases of oral and perioral structures.¹ In current scenario, all Dental colleges in Pakistan are following PMDC curriculum (draft version 2003). The term 'curriculum' was originally related to the concept of a course of studies. It is a comprehensive plan for an educational training program to improve manpower to fulfill the rising needs of a dynamic society.²

Evaluation is an essential part of the educational process. Teaching institutions require evaluation as part of their quality assurance procedures, but the value of evaluation is much greater than the provision of simple audit information. It provides evidence of how well students' learning objectives are being met and teaching standards are being maintained.³ Importantly, it also enables the curriculum to progress in the desired way. Similarly a medical and dental curriculum needs to be developed constantly in response to the needs of

students, institutions, and society. Alternate approaches and guidelines have been used in literature for evaluating programmes.⁴ Stufflebeam's CIPP Model of program evaluation was developed in late 1960s, and was applied in many institutes for evaluation of their curricula. Reason for selecting this model of evaluation in the present study was its simple system model approach for all the four domains, C: context, I: input, P: process and P: product of a program. By employing this comprehensive evaluation model, curriculum developers can strengthen existing program and meet accountability requirements, as it offers both formative and summative evaluation.⁵ CIPP model has been used in literature to evaluate health professions program in different parts of the world^{6,7}, but it has not been used in Pakistan to evaluate curriculum of any institute. Although there are few research articles published in Pakistan emphasizing the need and demand of revisiting dental curriculum according to needs of current learners and Pakistani community,⁸ but no evidence based scientific method of curriculum evaluation has been used. So aim of this study was to evaluate current BDS curriculum using CIPP model to identify the need for reviewing and updating the existing curriculum in a more systematic manner.

Materials and Methods

It was a cross sectional, descriptive study, done at

¹Department of Prosthodontic/ Maxillofacial²
Rawal Institute of Health Sciences, Islamabad

³Department of Dental Materials
Foundation University Dental College, Rawalpindi

Correspondence: Dr. Shazia Rafiq Nawabi
Assistant Professor, Prosthodontic
Rawal Institute of Health Sciences, Islamabad
E-mail: drshazianawabi@yahoo.com

Received: April 01, 2015; Accepted: June 09, 2015

four private sector dental colleges of Islamabad from 5th June 2013 to 25th December 2013. Senior faculty members (professors, associate professors, assistant professor and senior registrars), and final year BDS students were included in the study using random sampling method. Ethical committee approval was obtained and counter signed by co-chairperson of RIHS. Ethics Board had no objections to the content of the survey. Faculty and Students were informed about content and intent of study and were assured about maintenance of confidentiality regarding their names and the name of their institute, and were directed to fill a close ended questionnaire. Questionnaire was based on CIPP model of program evaluation and consisted of 32 questions from all the four domains of evaluation (9 questions for context, 9 questions for input, 9 questions for process and 5 questions for product evaluation). Baseline data included the name of the person (optional), age, designation/class, teaching experience and name of the institution. The participants were supposed to answer each question on a five point Likert scale, comprising of categories: strongly disagree; disagree; not sure; agree and strongly agree. Before distribution, the questionnaire was pilot tested on a group of 15 teachers/students each from own medical college, (not included in the study) to see the clarity of language and understanding of the terms used in the questionnaire. Total 296 participants (210 students and 86 faculty members) were distributed questionnaire either by investigator or focal person in each institute. Only 227 participants (152 Students and 75 faculty members) responded by filling questionnaire. MS Excel was used for data entry, descriptive analysis and generation of graphs.

Results

Out of total 227 questionnaires some had missing data and final analysis was done on 207 questionnaires, with adequate data available for analysis. The overall response rate was 79%. Seventy percent of respondents were students and 30 % were faculty members. Data analysis revealed that 48% of dental faculty and 26 % of students identified issues in the context of curriculum regarding lack of community orientation. Seventy four percent of faculty members were not agreed with current duration of BDS course, while 35% of students showed same concern. Another 30% of faculty

members pointed out issues in integration and organization of curriculum, reflecting dissatisfaction with traditional discipline based curriculum and lack of organization in current curriculum. Almost same percentage of students pointed out issue of integration and organization of curriculum. Last but not the least 82% of faculty and 70% of students recognized lack of learning objectives in all subjects of BDS curriculum. Input and process evaluation revealed, 90% of Students indicating issues in process of curriculum including didactic lecturing, lack of problem based learning and teacher centered approach. Twenty two percent of faculty and 10 % of students recognized problems in input of BDS program, including entrance criteria, merit and resources required for BDS program. Eight percent of the faculty and 63% of students exhibited reservations with assessment system, and finally 38% of faculty and 21% of students identified problem in product of current BDS curriculum, showing reservations with competencies of current dental graduates.

Table I: Distribution of respondents according to category (n=296)

Category	Frequency	Percentage
Professors	8	2%
Associate professors	18	6%
Assistant professors	38	13%
Senior registrars	22	7%
Final year students	210	70%

Table II: Views of respondents regarding context of curriculum

Issues in context	Faculty	Students
Duration of BDS course	74%	35%
Integration	30%	12%
Organization	30%	32%
Community orientation	48%	26%
Objectives of program defined	82%	70%

Table III: Views of respondents regarding input and process of curriculum

Issues in Input and process	Faculty	Students
Entrance criteria	45%	10%
Educational strategies	66%	90%
Assessment	8%	63%

Discussion

Curriculum evaluation is an essential phase of curriculum development. Through evaluation a

faculty discovers scientifically, whether a curriculum is fulfilling its purpose and whether students are actually learning.⁹ There are many models available in the literature for curriculum evaluation. The CIPP model is one of the most widely used models, developed by Stufflebeam in 1971. CIPP stands for Context, Input, Process and Product. One of Strengths of CIPP model is its emphasis on decision making which seems appropriate for administrators concerned with improving curricula. It is a useful and simple tool for helping evaluators produce questions of vital importance to be asked in an evaluation process.¹⁰ CIPP model of curriculum evaluation has been used successfully nationally and internationally for evaluation of different programs and courses.

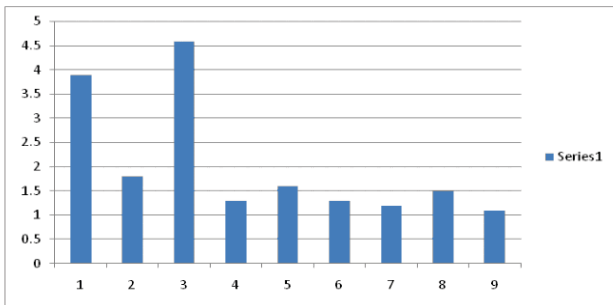


Fig 1: illustrates accumulative response of faculty and students regarding nine questions about context of curriculum

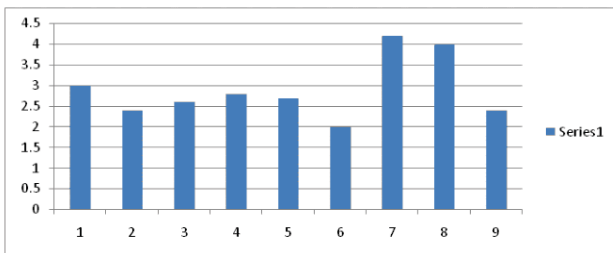


Fig 2: illustrates accumulative response of faculty and students regarding nine questions about input of curriculum

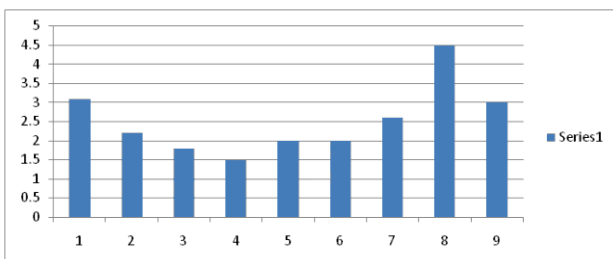


Fig 3: illustrates accumulative response of faculty and students regarding nine questions about process of curriculum

According to Dubrowski et al. process based evaluation models such as CIPP model provides a deeper understanding of a program function because assessment instruments are a critical part of program evaluation.¹¹ Tseng et al. also used CIPP model for evaluation of engineering curriculum and found it appropriate for assessing effectiveness of any program. Their results indicated that a detailed analysis of all the essential domains of curriculum proved this model to be a dynamic assessment model.¹² Steinert et al used the CIPP model to evaluate a faculty development program designed to promote the teaching of professionalism to medical students and residents. The authors conducted all four elements of the CIPP model and also provided preliminary evaluations of their program. Their faculty development initiative was, therefore, evaluated from the initial steps of its planning to the implementation and evaluation of its educational benefits and impacts.¹³ Another study done by Zhang et al. reported that the issue of multiple goals is a major challenge in evaluating programs. Without a guiding evaluation model that is well-aligned with the unique features of a program, assessing the project may be challenging. They found CIPP model of curriculum evaluation useful for this purpose.¹⁴ In the present study evaluation of BDS curriculum was done using CIPP model. Results of evaluation indicated that there are deficiencies in context, input and process of BDS curriculum. Seventy four percent of faculty members pointed out deficiencies regarding context, including duration of BDS program and educational strategies. According to 90% of students BDS curriculum was old and traditional (teacher centered) and not at par with international curricula and were not satisfied with traditional teaching methods. 63% of them pointed out that knowledge is being transferred without understanding of its use and practical application, due to lack of integration. Another 22% of faculty and 10% of students showed reservations regarding entrance criteria of BDS program, which should be clearly mentioned in curriculum to improve input especially in private dental colleges. Analysis of same work done by Tseng K H to evaluate engineering curriculum, CIPP model was found effective in obtaining essential information regarding weaknesses of curriculum to help establishing

foundation for improvement in future curricular change. Steinert et al analyzed his work using CIPP model and proposed that such an integrated program evaluation model may provide evaluators with a better understanding of the multitude of factors influencing not only the success of the program but also its sustainability. The strength of current BDS curriculum according to faculty and students was comprehensive. Year wise course outline provided for every subject, but they thought it difficult to cover this course content in four year duration. Results of the present evaluation also indicated that current BDS curriculum is like a syllabus or course outline. It is rich in contents for every subject but no guidelines for educational strategies and competencies of a dental graduate are provided i.e. it's descriptive but not prescriptive. While a curriculum is not only a course outline, but a set of detailed documents about all the objectives, educational and assessment strategies etc. throughout the year. Results of present study can be confidently used to suggest need of curriculum review, as 12 years have been passed since last curricular revision. Latest trends and approaches in the field of medical education may be used as guideline for modifying existing dental curriculum.

Conclusion

Evaluation of BDS curriculum by dental faculty and students revealed that there are shortcomings in the current dental curriculum and work needs to be done in dental education sector to make curriculum integrated and student oriented. These deficiencies may end up in dental graduates with a good knowledge base but little problem solving, leadership and research skills. Awareness of community needs and practice of evidence based dentistry is also lacking in current dental students.

REFERENCES

1. Reichart, Peter A, Philipsen H.P. (2000). Oral pathology- Thieme.
2. Talukder HK. Reviewing and Updating BDS Curriculum – Stakeholders Views: City Dent. Coll. Journal 2013; 10:5-9.
3. Morrison J. ABC of learning and teaching in medicine: Evaluation. BMJ: British Medical Journal 2003; 326: 385-7.
4. Fitzpatrick, Jody L, James R Sanders, Blaine R Worthen. "Program evaluation: Alternative approaches and practical guidelines." 2004.
5. Stufflebeam DL. The CIPP model for evaluation. Evaluation models, Springer Netherlands 2000: 279-317.
6. Singh, Mina D. "Evaluation framework for nursing education programs: application of the CIPP model." International journal of nursing education scholarship. 2005.
7. Evaluating an interirrn/residency program, using CIPP model. 1992; 92:91-5.
8. Khan JS. Tabasum S, Mukhtar O, Iqbal M. Developing the outcomes of a baccalaureate of dental surgery programme. J Ayub Med Coll Abbottabad 2010; 22: 205-9.
9. DiFlorio I, Martin B, Middlemiss MA, Duncan PA. Curriculum evaluation. Nurse education today 1989; 9: 402-7.
10. Stufflebeam DL, Shinkfield AJ. Stufflebeam's improvement-oriented evaluation. In Systematic evaluation, Springer Netherlands 1985; 151-207.
11. Dubrowski A, Paule-Morin M. Valuating pain education programs: An integrated approach Pain Res Manag 2011; 16: 407-10.
12. Tseng KH, Diez CR. Using the Context, Input, Process and Product model to assess an engineering curriculum: World Transactions on Engineering and Technology Education 2010; 8: 256-61.
13. Steinert Y, Cruess S, Cruess R, Snell L. Faculty development for teaching and evaluating professionalism: From programme design to curriculum change. Med Educ. 2005; 39: 127-36.
14. Zang G, Zeller N. Using the Context, Input, Process, and Product Evaluation Model (CIPP) as a Comprehensive Framework to Guide the Planning, Implementation, and Assessment of Service-learning Programs: Journal of Higher Education Outreach and Engagement 2011; 15: 57 - 83.

Curriculum Evaluation using Questions based on CIPP Model

Name (optional): _____ Institution: _____

Age _____ Gender M/F _____ Designation/class: _____

Answer Scale 1. Strongly Agree 2. Agree 3. Not Sure 4. Disagree 5. Strongly Disagree

	CONTEXT	SA	A	NS	D	SD
1	There is a need for the BDS program in Pakistan.					
2	Four years time period is adequate for the BDS program.					
3	My institute is using PMDC curriculum, without any change/modification in it.					
4	Current curriculum of my institute is integrated.					
5	PMDC curriculum is well planned and organized.					
6	Aims/ goals of the BDS program are clearly defined in the curriculum.					
7	The objectives of the program are well defined.					
8	PMDC curriculum is community oriented.					
9	BDS curriculum is at par with other international curricula.					
	INPUT					
10	There is an entrance criteria set for the BDS program.					
11	I am satisfied with the entrance criteria.					
12	There is a balance between the theory and the practical hours.					
13	There is faculty development/medical education program in my institute.					
14	The college has adequate resources/equipment to run the program.					
15	Students have access to latest edition of text books/journals in college library.					
16	Class room environment is supportive for teaching and learning.					
17	Maximum number of students in a class is 80.					
18	There is sufficient number of teachers available for every subject.					
	PROCESS					
19	Workload of students (theory/practical) per day is appropriate.					
20	Students are motivated to participate actively in educational process/experience.					
21	I am satisfied with learning of the students.					
22	Most of the lectures are interactive.					
23	The program follows problem based learning approach.					
24	There is a lot of interaction of students with the community during the program.					
25	PMDC curriculum should be revisited to address current and sensitive educational issues					
26	my institute should manage curriculum change and innovation to implement Curriculum for Excellence					
27	Use of integrated curriculum will stimulate learners for problem solving approach					
	PRODUCT					
28	There are assessments for feedback to students throughout the year.					
29	I am satisfied with the quality of assessments.					
30	I am satisfied with the competence of Pakistani dental graduates.					
31	I am satisfied with the attitude of Pakistani dentists.					
32	Pakistani dentists are at par with international dentists.					