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PERCEPTIONS OF INSTRUCTORS AND STUDENTS IN TEAM TEACHING IN DUBAI PHARMACY COLLEGE

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ABSTRACT

The aim of this primary study is to identify students' perspectives, analyze the issues involved with team teaching in interdisciplinary courses and to discuss the advantages and disadvantages of team teaching before implementation in Dubai Pharmacy College, UAE. Participants included 76 students, second year class, (female) and two full time faculty members act as course instructors, responsible for teaching physical pharmacy and Biopharmaceutics interdisciplinary courses. All respondents had no prior experiences with team taught classes. The main research method was a combination of quantitative and qualitative analysis. The research data included student scores, structured designed questionnaires, teachers' self-reflection and students' perception. The research findings showed that the two teaching methods showed significant difference in respect of students' perception. More than half of the experimental students preferred team teaching to traditional teaching. The reflection of team teachers' expectations of team teaching and its implementation was evident. The differences in the teaching strategy also exposed team teachers to challenge and being compared with each other by students in class. In addition, the team teachers had been unprepared for this comparison, especially in regard to class management. The implementation of team teaching, however, was not approved by the college administration, due to time consuming in preparation of the session, which and caused students support regarding team teaching. Limitation of this primary research study concentrated on little number of subjects, only one

class participation and instructors' inadequate preparation of team teaching session, overload of faculty members in the interdisciplinary courses, made the implementation of team teaching bit difficult. The key to this lies with teachers, who are required to do this actively; otherwise, educational goals will not be achieved. Therefore, a further research studies were needed.

KEYWORDS: Teaching physical pharmacy and Biopharmaceutics interdisciplinary courses.

INTRODUCTION

Dubai Pharmacy college is adopting an ongoing professional development plan targeting positive outcomes for both students and the staff. Team Teaching Model needs to be implemented in DPC to promote the teaching/learning processes and for Professional development growth. This study is conducted to guide teachers, as they work collaboratively to develop a comprehensive plan for implementing Team Teaching (TT) in interdisciplinary courses. Therefore, this study is used as a preliminary approach for its implementation. Why Biopharmaceutics and Physical Pharmacy courses? As pharmacy colleges are required to use integration in interdisciplinary courses during the pharmaceutical education, TT is particularly useful because of its emphasis on collaborative teaching to allow students to master the content, deep understanding, integration in different pharmaceutical applications fields. TT is an attractive strategy to integrate knowledge in Biopharmaceutics and Physical Pharmacy courses because it requires students to learn Physical phenomena facts, from which they construct biopharmaceutical concepts for bioavailability problem solving. TT also requires regular preparation and attendance There is no one single definition or ‘best’ model of team-teaching. Bess (2000) defines team teaching as a process in which all team members are equally involved and responsible for student instruction, assessment and the setting and meeting of learning objectives. Other authors suggest that team-teaching is a model that involves two or more instructors collaborating in the planning and delivery of a subject (Zhang & Keim 1993). Davis (1995) addresses the issue of contrasting definitions by proposing that, in reality, team-teaching involves a continuum of models and practices, distinguishable from one anotherthe basis of the level of collaboration within the teaching team.

Models of team-teaching: McDaniel & Colarulli (1997) expand further upon this notion of a continuum by suggesting that models of team-teaching can be described along four dimensions that reflect the necessary elements of collaboration and its potential for student

learning, namely: a) The degree of interaction between team-teaching members and students during the teaching and learning process. b) The degree of active learning and student engagement in the learning process. c) The degree of autonomy or interdependence amongst team-teaching members in the teaching and learning process. d) The degree of integration in the content and the perspectives of the discipline-based knowledge that enhances learning and teaching.

Factors Influencing Outcomes Of Tt Sessions: An outcome of the notion that team-teaching comprises a continuum of practices is that: Particular team-teaching models can be described as weak or strong depending on: 1) The degree of collaboration and 2) Integration between team members, and 3) The level of their engagement in the teaching and learning process. Weak forms of team-teaching are those for which there is little evidence of collaboration and/or Involvement by team members in the planning, management and delivery of a subject.

Jacob, Honey & Jordan (2002) argues that TT is a form of sequential teaching, where the material is presented in discrete units, with integration in the content or collaboration between team members. At the other strong end of the team-teaching continuum are models for which the team members are both intimately and equally involved in all aspects of the planning, management and delivery of a subject (George & Davis-Wiley 2000).

Why Team-Teach ?

Advantages of Team Teaching

Teacher's professional development through the Exchange of ideas and knowledge *of teaching with other* team members (McKee & Day 1992).

by: *Involving outstanding teachers to collaborate in the process. Disseminating new instructional materials Holding workshops for practicing teachers through sharing and peer coaching.* Collaborative teaching *keeps instructors from slipping into a style* that confuse the students helps in *reinforcing that style* (Robinson & Schaible 1995). A supportive team environment can have in *overcoming traditional* forms of teaching (Davis 1995; Goetz 2000; Hinton and Downing 1998; Letterman & Dugan 2004; Robinson & Schaible 1995). An *aid in improving morale* within a faculty and *deepen friendships* between faculty members (Buckley 2000). For example, *planning*, *teaching*, and *evaluating* together bring out support and incentiveness. (Buckley 2000). Students, team-teaching educational advantages. Foror

students, team-teaching has the educational advantage of Combining the strengths of different faculty members (Mason 1992; Buckley 2000). Provide opportunity to receive instruction from experts in specific areas of a discipline's knowledge base (Buckley 2000). Students can develop critical-thinking skills by synthesizing multiple perspectives and relating the information to a larger conceptual framework (Davis 1995). TT provides an opportunity for students *to witness the functionality of a collaborative team,* that may provide students with a *model for their own team endeavors*. (Mason 1992). Further, students are exposed to a variety of teaching styles and approaches, which *increase the potential* for the team to meet the *various learning styles* of students (Goetz 2000; Helms et. al. 2005).

This paper now describes an evaluation of team-teaching in a second-year pharmacy undergraduate class for Biopharmaceutics and Physical Pharmacy courses at Dubai Pharmacy College, over two successive semesters 2010-2011.

PURPOSE of RESEARCH

The innovative nature of Team Teaching (TT) within DPC was an attempt to promote both the learning and teaching processes. The purpose of this primary study is to: Compare instructors' and students' perceptions of Team Teaching (TT). And to Identify the factors encountering its implementation.

Perceiving the value of this pedagogy by both the instructors and students is a critical issue. It has implications for the acceptance and implementation of this pedagogy to be used by other staff members . TT represents a fundamentally different approach to teaching and learning processes.

METHODOLOGY

Student perceptions of (76), second-year students. Team-teaching sessions was conducted by two instructors, Biopharmaceutics and Physical pharmacy courses, Pharmaceutics and Pharmacy Practice Department at DPC, 2011-2012. The literature reviews provided a theoretical framework for the development of a questionnaire that examined various aspects of the subject ranging from their tutorial experiences to their overall experience of the TT model adopted in their subject. A 4-page questionnaire was designed, pretested, revised and used in the study.

1. The questionnaire's ISSUES

The questionnaire included open and closed-ended questions to assess their perceptions of the impact of TT on their interest in the subject, their overall satisfaction with the subject, and the degree to which team teaching has assisted learning. The open-ended section of the questionnaire asked respondents to answer such questions as: a) Please take a few minutes to answer good and bad experiences (likes and dislikes). b) you have had in this subject this semester. c) What improvements would you suggest for this subject? In particular, you are asked. d) to consider improvements to the subject as well as the teaching approach to the subject. e) Data for the closed-ended questions were collected using a five-point Likert scale, where 1 represented 'strongly disagree' and 5 represented 'strongly agree'. Five point scales are commonly used in consumer research, mainly because researchers suspect these scales tend to be more easily understood by respondents than scoring systems using more points (Garland, 1990). f) Indicative of the close-ended questions used are: - I prefer team-teaching style than having only one lecturer for an introductory subject. -The team-teaching approach used in Biopharmaceutics and Physical Pharmacy courses has increased their interest in studying. More general questions on students' level of interest in the subject, and if they were satisfied with their learning experience in the subject were also asked through the use of closed-ended questions. Indicative questions used in this section of the questionnaire are.

Biopharmaceutics is an interesting subject. I was satisfied with my learning experience in Biopharmaceutics.

2. Data Analysis

Responses from the five-point Likert scale questions were entered into SPSS for descriptive statistical purposes. Although the responses to the closed-ended questions were of interest Responses to the open-ended survey questions were analysed in an effort to identify common themes that assisted in providing insights into which aspects of the team-teaching models might hinder or facilitate student learning (Rasha et al, 2014, p.472). To achieve this aim, responses to each open ended survey questions were individually coded for key expressions or phrases, a process often referred to as 'open coding' (Strauss & Corbin 1998, p. 32) or 'in vivo' coding (Hutchinson 1986, p. 120). In turn, these codes were then compared to one another in an iterative fashion to identify a series of common themes.

RESULTS

The main aim of the research was to discover student perceptions of TT in the context of the delivery models adopted in the study. Figure 1 depicts each of the major themes along with its respective properties or dimensions. The first major theme relates to facilitation of learning. The second major theme relates to insights aspects that hinder their learning. The third major theme involves what makes a 'good' or 'bad' teacher from students' perspective in the context of a TT environment. Each of the main themes identified in the data, along with its respective dimensions are discussed in the following slides.

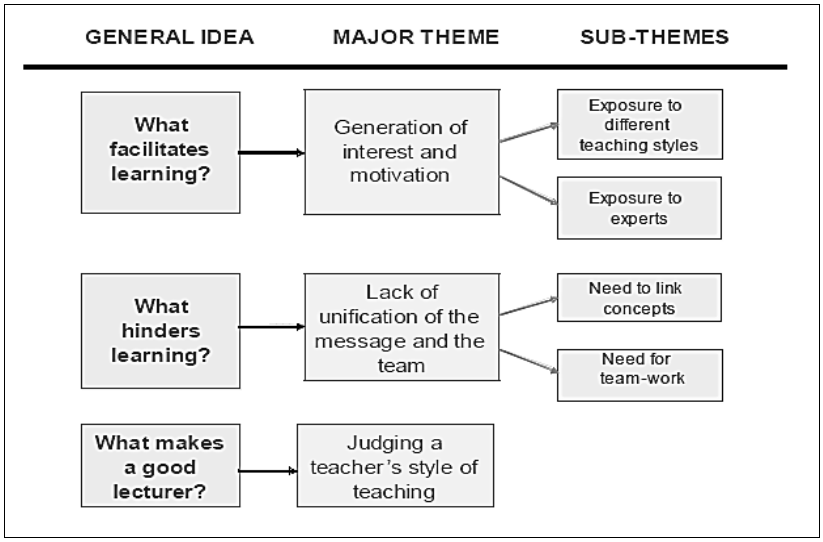

Figure 1: Major Themes and Dimensions

Theme 1: The Generation of Interest and Motivation

Students favoured team-teaching over traditional one-teacher one-subject models, regardless of the TT model used. When asked on a five-point Likert scale (most agree to most strongly agree) for the statements.

Table 1: The Generation of Interest and Motivation

agreed	strongly agreed	disagreed	strongly disagreed
'I prefer TT style than having only one lecturer especially for an introductory subject'			
53 %	33 %	5 %	9 %
'I think the Pharmaceutics & Pharmacy Practice department should team-teach Biopharmaceutics next lectures using TT sessions'			
77 %	15 %	5 %	3 %
'I was satisfied with my learning experience in Biopharmaceutics'			
83 %	5 %	9 %	3 %

Why Motivation? The Variation in Teaching Style Generated Student Interest. Variation in teaching styles

TT exposed students to a variety of teaching styles and a variety of 'experts' and/or the method of presentation by different teachers. That motivated students to attend lectures and increased their interest in the subject. In fact, from the descriptive statistics, for the statements the following findings were.

Table 2: The Variation in Teaching Style Generated Student Interest. Variation in teaching styles

agreed	strongly agreed	disagreed	strongly disagreed
It is enjoyable to see a different teachers each week – it is motivating.			
69 %	13 %	5 %	13 %
TT enhances appeal because TT exposes students to a variety of teaching styles , it stops Biopharmaceutics from becoming stagnant and boring.			
70 %	14 %	9 %	7 %
I like the idea that teachers give examples from their own field of expertise and from their personal and work experience, which is fascinating			
75 %	15 %	6	4

Results are consistent with findings in the literature The results are also consistent with findings in the literature that exposure to more than one opinion allows students to gain a mature level of understanding knowledge, and encourages students to consider the validity of numerous views (Goetz 2000). The relationship between different teaching styles that results from a TT situation and student learning styles is well documented in the extant literature. As Jacob *et. al. (2002)* point out, the greater the number of members teaching as part of a team, the higher the probability that a student will encounter a teacher who matches their learning style (p.3). Brookfield (1990) argues that student preference for variation in teaching styles may be beneficial because their range of learning styles would broaden and they will be more likely to do well in different situations. TT exposes students to more than one opinion or perspective on the subject matter, and can promote critical thinking skills in students (Buckley 2000, p.15 Representation of some disagreed student responses concerning the issue of too much variation in teaching style: The following is representative of student responses concerning the issue of too much variation in teaching style.

The TT approach is, to a certain extent, unfavourable as it provides the students to different teaching techniques. Even though it can pose a positive aspect, various methods of teaching

were rather conflicting, and is an added inconvenience to an already long lecture. Some lecturers were not as enthusiastic as others, which hindered the level of my attention.

I like TT, but it is hard grasping the styles and expectations of teachers… Different lecturing styles mean approaching each new lecture with different mindset. There is no consistency in the style of teaching and no consistency in the way they either pause or continue to the next slide. Some do and others don't. I tend to form favourable impressions towards teachers who do.

Theme 2: The Lack of Unification of the Message and the Team Teaching Approach

Two aspects of TT that can hinder learning emerged in this research. First, the need to unify individual lectures together in a cohesive whole; and second, the need for the TT itself to be unified into a cohesive unit.

Table 3: The Lack of Unification of the Message and the Team Teaching Approach

agreed	strongly agreed	disagreed	strongly disagreed
There seems to be no direction with lectures. I would prefer to learn a subject from start to finish – from one point to the next...I find TT system to be like chopping and changing unsystematically. It confuses me.			
23 %	13 %	5 %	59 %
I don't like the fact that each week teachers don't always link their lecture to the previous week's lecture. The lack of continuity of unifying the concept, what I like least about the subject			
70 %	14 %	9 %	7 %
There doesn't appear to be much consistency in the team-teaching approach. All the teachers should probably discuss it much prior to the beginning of a] course [subject]. Some teaching staff are not truly functioning as part of a team!			
18 %	16 %	7 %	59 %

The results of these dimensions are presented below Results & Consistency with findings in the literature regarding Unifying & Linking Concept and The Need for Teamwork theme For students, the lack of cohesion in instruction is a significant issue. In the study there was a weakness in forms of team-teaching adopted in this subject, due to little opportunity to facilitate those all-important connections (23%) and (19%) results. As Angelo (1993) states, *"to be remembered, new information must be meaningfully connected to prior knowledge" (p.4).* The need for 'collaboration' within a teaching team is important. However, the incentives for investment in good instructional development by teachers involved in this weak form of team-teaching are minimal (Jacob *et. al. 2002).*

Student comments suggested the weaker models of TT Sessions- The Need for Teamwork.

The associated lack of cooperation and involvement by all team members in the planning and administration aspects of the subject detracted from their learning experience. The following student comments reflect this.

Basically, there doesn't appear to be much consistency in the team-teaching approach. All the teachers should probably discuss it much prior to the beginning of a] course [subject]. Looks like some teaching staff got sucked in to the team rather than truly functioning as part of a team!

Theme-3: Judging a Good Teacher through his/her Style of Teaching.

The third theme to emerge in this research is what constituted a 'good' and a 'bad' teacher in the context of a TT environment. Overwhelmingly, the majority of comments from students related to the teaching skills of individual members of the team.

Table 4: Judging a Good Teacher through his/her Style of Teaching.

agreed	strongly agreed	disagreed	strongly disagreed
'Some teachers were very boring yet some others were fascinating and exciting in the ways they are teaching'			
80 %	13 %	5 %	2 %
A method should be considered as to how to 'spice up' each lecture especially when using mathematics and equations or explaining difficult topics.			
70 %	15 %	10 %	2 %
'Judging a Good Teacher through his/her Style of Teaching'			
83 %	5 %	9 %	3 %

Student comments, judging a Good Teacher through his/her Style of Teaching.

Students appeared to be far more concerned with each individual teacher's style rather than team-teaching itself. In other words, some teaching styles were much more liked than others and this was the main factor on which students judged the overall success or otherwise of the team-teaching effort. The following statement is representative of student comments in this regard.

If you get one bad teacher, it puts you off attending lectures; likewise, if you get a good teacher, you wish they taught all the time.

DISCUSSION & COMMENT ON THE STUDY

Many of the themes identified from the student responses in this study are found consistency with literature on TT. To that end, the views of these students support much of the current literature on team-teaching. For example, the exposure to a variety of teaching styles has both advantages and disadvantages depending on the individual student (Buckley 2000, p.13). However, the findings of this study also highlight other aspects of team-teaching that do not receive considerable attention in the team-teaching literature. These are discussed below.

CONCLUSION

The findings of this study suggest that in implementing team-teaching models in the instructional delivery methods, the following points should be considered: Faculties need to be conscious of the need for involvement, collaboration and equal contribution to the various aspects of the team-teaching process will make a strong and successful TT model.All team members should be involved in the planning and execution of the subject as this leads to greater integration between the various topics that constitute a subject's knowledge base.The need for commitment and a contribution to the TT process creates a potential dilemma for those that see team-teaching as a means through which time can be created for academics to pursue other activities. TT should not be considered as short cut to cover teaching loads.The adoption of team-teaching as a management tool capable of addressing the current issue of the learning outcomes.TT should be viewed as a way to accomplish explicit learning outcomes.

Professional development programs can contribute significantly to teachers' classroom practices and lead to improved student achievement when it focuses on how students learn particular subject matter, instructional practices that are specifically related to the subject matter and how students understand it, and strengthening teachers' knowledge of specific subject-matter content (Hill and Cohen 2005).

Similarly, more attention needs to be paid to improving poor teachers' performance. If teachers are to teach for deep understanding, they must be intellectually engaged in their disciplines and work regularly with others in their field (Little 1993). By developing these various teaching skills, these 'poor teachers' are more likely to improve not only their own teaching but also any TT effort they become involved with.The Need for Scaffolding: This is a significant issue that suggests the need to scaffold the content to assist in integrating team-

teaching lectures, the integration of individual lectures by different teachers into a cohesive body of knowledge and cohesion in instruction. (Clarkson & Brook 2004).

Educational Implications

The challenge that faced staff involved in this team-teaching exercise was a lack of decision making and planning that would promote the students learning outcomes. In order to make the kind of decisions necessary, the team-teaching staff needed a better understanding of what is involved in the subject design process.Systematic approaches to the challenge of designing learning experiences for students have been put forward by various educational researchers (e.g. Kemp 1971; Fink 2003) targeting the basic elements of a good instructional design, include: i) Gathering information on any important situational factors; ii) Formulating the learning goals for the subject; iii) 3. Selecting the teaching/learning activities needed for the goals; and iv) 4. Formulating the kinds of feedback and assessment needed.

CONCLUSION AND FURTHER RESEARCH

The findings of this study suggest that the critical success factor appears to be the *Optimum size number and composition of a team and the If individual members are 'good' or ' bad ' teachers*. That was a practical implication emerging from this study that has not received a great deal of coverage in the literature. Further research in this area may be warranted, specifically, into *What skills are needed to be a team-teaching member.*

ACKNOWLEDGING THE LIMITATIONS OF THE STUDY

Although bearing this statement in mind and acknowledging the limitations of the study, we also draw attention to the consistency of the student responses and the size of the sample (n = 76). We also suggest that the findings of this study have relevance to any faculty contemplating the introduction of TT to any large undergraduate class. Relatively low involvement in TT teaching staff, team-teaching size.(2) Students responded more favorably to the team-teaching efforts when their number is fewer (76 students). It may be of benefit to consider further research aimed at identifying the factors that determine what an optimum team-teaching number may be, if in fact an optimum number exists. In presenting the findings of this study, its limitations are acknowledged. The results of this study apply to one substantive area, that is, the second year students only participated in this study in Biopharmaceutics-Physical pharmacy courses only and not other courses.

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