Acharya & BM Reddy College of Pharmacy

Bengaluru - 560107

2019-20

BEST PRACTICES

1. UG RESEARCH PROGRAMMES

1.1. Objectives of the Practice

UG Research Programme (UGRP) is a student-oriented, research promotional academic activity where students are introduced to the world of research work by studying approaches to a formulated research problem. It focuses on identifying budding scientists and making students to learn the scientific concepts through an experimental approach. It educates the students in developing a systematic approach to find solutions to technical problems or challenges apart from making them to work independently and improve scientific writing skills through preparation of manuscripts. UGRP strengthens the students in critical areas such as managing projects, critical thinking skills and reasoning ability along with knowledge acquisition.

1.2. The Context

The pharmaceutical industry is a knowledge based one. The products are research based while the execution is through project management approach. This necessitates one to develop attributes and skills such as technology management alongside getting respective discipline-specific knowledge. UGRP is an unique programme aimed at identifying budding scientists and technocrats from amongst the students of B.Pharm. and Pharm.D. They are encouraged to solve simple research problems which triggers knowledge seeking activity, promotes individual knowledge levels and further leading to exploration of resources, peer learning, and group discussions. All these inspire students to understand the relevance of underlying scientific knowledge and principles, develop learning outcomes, finding of solutions and an attitude of ‘never say die’, preparing report during which students get equipped with other desirable attributes.

1.3. The Practice

The teacher should zero in onto a research problem keeping in mind the knowledge levels of UG students and infrastructure available with the institution and choose the right student based on previous interactions and academic performance. The teacher should discuss the research problem with the student and communicate the learning outcomes. Once convinced that the student is on the same page, the teacher should prepare a plan of action and make the student to fully understand it from concept as well as execution points of view. The teacher-student pair has to draft a research project proposal and forward to the Rajiv Gandhi University of Health Sciences (RGUHS) for grant of funds.

The student has to execute the experiments under the close supervision of the teacher, make note of research work and update the progress to the teacher along with seeking clarifications wherever required. The teacher should ensure that the student engages in the research work, understands the scientific concepts involved, remains interactive and also train the student from scientific writing point of view. The teacher-student pair have to publish a research paper at the end of the UGRP.

1.4. Evidence of Success

The world of research and development creates a lot of curiosity in the minds of students. They need to get a feel of the kind of life in it. Therefore, activities such as UGRP are important. These activities make the students to get introduced to research and development with execution based on project management approach. This makes them to have a self-assessment and introspect their own suitability for a career in research and development. Those found suitable to research and development will have a higher probability of success in that career and those found unsuitable will have the clarity of pursuing some other career in the pharmaceutical industry. This is also good because, it avoids career failures later.

1.5. Problems Encountered and Resources Required

Major challenge is formulation of research problem. Its implementation needs enough infrastructure in terms of laboratories, equipment and instruments. Procurement of APIs and specialty chemicals in small quantities can prove to be a daunting task. Some students may turn out to be mentally ambitious and lose the zeal and enthusiasm. Staffing for each UGRP is difficult to manage if it is planned for whole program since their workload and time allocation needs exhaustive managerial skills.

1.6. Conclusion (Notes)

India is on the verge of revolutionizing education system through employing National Education Policy (NEP) which focuses on the element of vocational education into the curriculum. Initiatives such as UGRP go a long way in developing the right talent for the world of research and development and technology management. At this juncture, therefore, incorporating UGRP, as one of the best practices in the UG program is the need of the time.

1.7. List of projects

Acharya and BM Reddy College of Pharmacy has successfully executed two UGRPs in the academic year 2019-20. The Research Project were approved and sponsored by the affiliating University, Rajiv Gandhi University of Health Sciences, Bengaluru.

Sr.No.	UG - Research Project Title	Project Code	Student Name	Amount in Rs.
1	Development of Polyherbal Nanogel for the treatment of inflammation.	UGPHA358	Ms. Malleshwari K	15,000.00
2	Fabrication and Characterization of Chocolate Drug Delivery System of Anti Hypertensive Drug using Monk Fruit for Geriatric Patients	UGPHA360	Mr. Om Anand Sewsagar	15,000.00

2. PROBLEM BASED LEARNING

2.1. Objectives of the Practice

Problem Based Learning (PBL) is a student-centered, self-directed teaching method where students learn the course or concept by solving an open-ended problem. It does not focus on getting defined solution. On the other hand, it allows students to develop skills like, working independently as well as with a team with ease, oral and written communication skills, managing projects, inculcating leadership skills, critical thinking skills, both oral and written communication skills along with knowledge acquisition which are required to meet modern corporate prospects.

2.2. The Context

The interdisciplinary nature of current challenges, work culture necessitates one to develop transferable attributes and skills alongside getting respective discipline-specific knowledge. PBL, which is a concept based on problem of real world in which students are not taught before. Therefore the problem given to them triggers doubt and confusion which activates individual knowledge, and further leading to exploration of resources, peer learning, and group discussions. It is an interactive process of three phases, initial problem analysis phase, phase of self-directed learning, and then reporting phase, and inspire students to understand the relevance of underlying scientific knowledge and principles, develop learning outcomes, finding of solution, preparing report during which students get equipped with other desirable attributes.

2.3. The Practice

Teachers should prepare a interdisciplinary problems and develop learning outcomes based on what students are expected to learn and develop. After vetting of learning outcomes successfully at different levels, PBL sessions to be planned and facilitators to be assigned. PBL involves three sessions, brainstorming and identification of student based learning objectives, discussion with write ups, sharing materials and finally, presentation to whole group and assessment. In the first session, students are divided into small groups of 6 to 8 persons, requesting to identify a Leader and a Scribe, further preparing a list for the group members and other details. Around 10 min time to be given for all these. Students should be made familiar with the respective roles of leader and scribe. After commencing of the session, everyone is allowed to express opinions in an orderly manner, writing important points in this brainstorming session, hypothesis, and learning objectives are prepared for the next session and shared with team members. In the second session, each member has to come up with the write up

regarding the same and each one to be discussed, summarized and the solution to be finalized. In the last session, the solution should be presented in presence of team members and facilitators. Each student's involvement is evaluated by facilitator in all the sessions and final assessment results are made available.

2.4. Evidence of Success

PBL is found suitable for the healthcare industry as it focuses on healthcare management. Students expressed satisfaction of learning as it made them develop reflective, critical and collaborative skills along with positive attitudes. It helped them in long term retention of knowledge. Students are progressively given more and more responsibility for their education and become independent of the teacher for their learning. Those who participated in PBL have become more active and successful lifelong learners.

2.5. Problems Encountered and Resources Required

Major challenge is time required in defining problem statement and developing and vetting of specific learning outcomes. Its implementation needs enough infrastructure in terms of class rooms/PBL rooms to accommodate 10 to 12 members, furniture, and ICT tools. Teachers in terms of facilitators are required in more number to implement effectively. Apart from these, staffing for each group if it is planned for whole program, their workload, time allocation needs exhaustive managerial skills. Inclusion of PBL as one of the pedagogies in curriculum, allotting part of the curriculum to be taught in the form of PBL, assessment, award of credit points, and grades to students is difficult in current educational scenario of the country and are still in infantile stage in India which needs involvement of administrators, curriculum committees of universities.

2.6. Conclusion (Notes)

PBL, as a pedagogy, promotes active participation and learning in students, fosters self-motivation, enhances student's knowledge base, helps to develop reasoning and problem-solving skills, and finally facilitates students to work as efficient members of team. PBL is a part of curriculum in all healthcare related academic institutions in most of the developed countries. India, is on the verge of revolutionizing education system employing National Education Policy, and at this juncture, incorporating PBL, one of the effective pedagogies, as part of curriculum is the need of the time.