Case study

Aspiring experience journey towards research: importance and essential skills

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Abstract: Research is the creative and systematic conversion of ideas into knowledge and the application of this knowledge in different life fields. The more you get involved in research, the more experiences and skills you can gain. The continuous decreasing number of medical students interested in research can affect the public health in future. Our aim is to encourage medical students to involve more in the research career and to highlight the importance and skills needed for being a successful researcher. Discipline, passion to gain the knowledge, the accuracy of data checking, team work and strict rules are the most important characteristics of a research team. A researcher should be passionate, hard-working, and patient. Teamwork is the golden key to doing research; you should be responsible for your team and develop their research skills along the study period. A researcher should be a self-learner to increase his skills to get an advanced level. From the most important skill that a researcher should gain it by time is the leadership. Being motivated along the study period is an obstacle that leaders always meet, so you should have solutions for it. Fairness is an important manner a leader should acquire. Contribution in a research lab from your youth to build your CV, personality and gain great publications by time.

Keywords: Researcher, Medical students, Team, Leader, Member.

WHAT IS RESEARCH AND ITS IMPORTANCE?

Research is the creative and systematic conversion of ideas into knowledge and the application of this knowledge in different life fields including culture, medicine, engineering, agriculture, and social science. Beside the creation of new theories and ideas, research expands the already existed knowledge through confirmation or rejecting the results of previous work and solve existing problems. John W. Creswell states that "research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue" [1]. It consists of three steps: pose a question, collect data to answer the question, in addition, present an answer to the question.

Regarding the importance of clinical research, Robert H. Riffenburgh said "when told, I'm too busy treating a patient to do research I answer: when you treat a patient, you treat one patient, when you do research, you treat 10,000 patients" [2]. Besides, research can provide important information about risk factors, disease trends, pattern of care, and health care costs of diseases. Consequently, decreases the burden, mortality, and morbidity of those diseases. On the other hand, it helps in the assessment of drug safety as well as efficacy, development of vaccines, and boosting the health care system.

In addition, research gives you a great sense of satisfaction by fulfilling your desires to add something for science not just applying or practicing. Moreover, it keeps you enriched and updated in your field. Moreover, research world is full of knowledge, skills, connections, and new experiences. Every day you learn something new, correct something you wrongly understand, gain a new experience, and make new connections all over the world. It is an adventure that we hope everyone can enjoy. The number of medical students interested in research is continuously decreasing, so our aim to encourage them to enter research field.

MEDICAL STUDENTS' ACTIVITY IN RESEARCH AND THE SHORTAGE OF PHYSICIAN - SCIENTISTS IN FUTURE

Bridging gap between basic and clinical sciences is essential in the field of clinical medicine. This results by connecting research questions focused on patient safety and treatment. However, the number of who interested in research had decreased according to previous reports [3, 4] which are also recorded by US report. Also, physicians engaged in academic medicine has declined in the last two decades [5-7].

Declining in the physician-scientists in future will have a negative consequence for improving the health care of patients. As a consequence, motivation and engagement of medical students into clinical and biomedical research during their medical school can help to stimulate their research interest, thus accounting as a strategy to reverse the declining of future physician-scientists [8, 9]. Interestingly, it was found that medical students engaged in research were more productive and efficient in their postgraduate studies compared with others who were not engaged during their medical school [10, 11]. In light of this, efforts to motivate medical students to join the research field can have better consequence and results for future health care and academia. As a matter of fact, medical students usually busy with their frequent exams and academic study, so finding a suitable time and place for doing a research can be a challenge for them. However, many students start to use social media and online forums to conduct many research projects that are based on online work without borders, and without high facilities or laboratories needed. These online groups are supervised by qualified researchers around the world to ensure their work's reliability and transparency in conducting medical research. This idea has helped medical students to conduct their research without interfering with their school study.

HOW TO WORK IN AN ONLINE RESEARCH LAB

The communication between researchers must be disciplined in order from lower to higher as a student, leader, instructor to a supervisor, bigger supervisor. We have to follow the supervisor instruction. If an old leader leaves the group and the study call for a new leader, both leaders have to check all data and all previous tasks before resuming the work.

Working in research team needs discipline, self-learn, careful, make a strict rule, respect each other and the most important is hardworking and patience to wait for publication.

CHARACTERISTICS OF THE ONLINE RESEARCH TEAM

An international online research team members may face time zone differences, backgrounds, careers, motivations, and aspirations. May somebody has zero research experience and other researchers have higher experience at the time. Doing research with these differences may be a big problem, so every team should consider some solutions for that, as team members have many characteristics. Discipline is the main keyword of the research team. When someone delays his work, the overall study will be delayed and the repeating of this action may cause the end of the study. We have to manage our time to balance between the medical study and the research, perform and submit our tasks before the deadlines. A good recommendation is when you were assigned a new task, better try to do it on time. Because when you wait until the deadline to do the task, you are at risk of overload. Keeping the thirst for knowledge alive because of doing scientific research need reading a research article, academic writing and using some software to analyze, cite references. However, besides the textbook, you can self-learn series of online learning courses, or videos on YouTube. Member accuracy is so critical, so double-checking, understand how to do and handle a task step by step is so important. Because if we find a mistake somewhere almost processing, we have to redo all tasks again.

Finally, rules are important to be applied in the study, as every task has a deadline range 48 hours, the member should send his task before the time is running out. Because an online research team can have many members all over the world, so every task should set 48 hours to avoid the difference in time zone. Members who qualify to get co-authorship should not miss more than six tasks or three consecutive online tasks in the study. Following the rules above All members will get the authorship.

THE PATH OF A RESEARCHER

To become a researcher, we always need a passion for research. Passion is an important key to success in all careers. Then we need to keep patience and consistency in doing research. Because one research project cannot be finished in short time. Hence, we need to consistently and sometimes repeatedly do the same job for a long period of time to answer one question or hypothesis or to solve one target problem. Teamwork and discipline are golden rules for doing research, especially for online research work. Besides of having a good leader/instructor or a good supervisor, a successful researcher should be creative, and curious by daily learning new things, have a good vision and time management skills, have a good communication with supervisor and lab members and have a good habit on small things such as format and typos. A researcher cannot

get a good paper without these skills meanwhile "publish or perish" is currently becoming a new way of academic life.

One more key to a successful researcher is to stay focused on your main topic of research interest in the projects and get it done before moving to another project. If you want to handle too many projects at the same time, overload working will happen and lead to low quality work, which makes you slower in all the projects. Therefore, you should always keep yourself under self-discipline. It cannot be denied that beside your supervisor, Google and YouTube are the best teachers all over the world. You can easily learn everything by yourself if you are willing to learn new things. Once entering a new project, you need to have overview knowledge about the project first, then, make a bibliography of the project by reading significantly related topics to get the research idea. After that, you should set an effective project planning with timeline and to-do-list, which helps to keep research team under strict discipline. One of the successful keys to research is that you should set your working plan with deadlines and keep yourself and all lab members respect that deadline. Last but not least, do not lose your motivation and easily say "give up" in doing research when you face problems and some difficulties or conflicts between leader or supervisor or lab members. When working in the lab like teamwork, we always need to have an open discussion and clear explanations about the problems together among lab members in order to overcome any obstacle. In case there are conflicts or disagreements among members, the discrepancy will be solved by supervisor.

IMPACT OF LEADERSHIP ON THE DEVELOPMENT OF YOUNG RESEARCHERS' SKILLS

From the most important skills that a researcher should learn it by time while interacting in a research lab and gain it from his fellows and supervisors is the leadership. When you will lead a study and you will be responsible to control all researchers with you, about 15 researchers, you should be responsible for this mission, understood the target and aims of your research idea in an excellent way to have the ability to introduce it well and to help other members. so you can depend on their data and not be so confused. From the challenges that every leader must face, how to keep his members motivated along the journey of the study period, by using reward and punishment method will help. Use challenging weather in the study to keep them alert and aiming for higher points, provide an extra score for the best team finishes on time with the highest quality.

As a leader, from your mission to develop your team, teach them how to do tasks well. About deadlines, you can be strict, as if they feel you do not make rules in it, they will miss tasks which will affect your study period and quality.

From the researcher's manners that you should learn is that to be fair, do not favor one from your country to another,

who work harder should be rewarded.

FUTURE GOALS AND TAKE HOME MESSAGES FOR MEDICAL STUDENTS INTERESTED IN RESEARCH

Since the start of involvement in the journey to gather medical knowledge, we had experienced a lot of potentials within ourselves which we were totally unaware of. Working with a research group consisting of researchers from different corners of the world, have shown us the light to face challenges and meet up with each new opportunities with wide possibilities. Nowadays, as a young researcher in the platform, we always try to maintain the schedule to meet up deadlines as per each project objectives on regular basis, fix priority task accomplishments accommodating professional life in a way so that we can carry out our dream to be a researcher along being a clinician. The aspiration of becoming a clinical researcher which grew during first exposure to the patient in the clinical ward, gradually turning into reality. The efforts and the time a clinical researcher puts into practice: meet up of deadlines on a regular schedule, manage professional and personal life concurrently, work on innovative ideas to devise clinical guidelines, maintain liaison with research partners have always been an area of interest for young researchers. Now while as we go through such empirical experience working in an international research platform, gradually gives the complete scenario. The key drive lies within a person's passion and interest in doing research work to improve patient's outcome.

Passion for learning, again and again – knowing that our hope in future will come into a practical perspective and as a researcher to shape our belief that anybody can perform research work if he/she can receive proper guidance in a platform. Gradually as the time passes, we are going through a whole metamorphosis transforming into a young physician-researcher from a novice medical student. We do believe that with firm desire and strong determination for learning and willingness to work as a team, a person can follow the passion in evidence-based research, the reward accompanies alongside includes self-contentment to contribute in science, achievements like publication and awards are a secondary gain.

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