

Research training during residency

In India, the 3-year urology postgraduate training also involves doing a research project (written as thesis). A student gets not more than 2 years to do this project as it takes some time for the students to adjust in a new environment after joining, conceptualizing, planning and writing protocol, getting ethical clearances, etc., Furthermore, the project has to be submitted at least 6 months before the exit examination and generally has little or no funding.

Since the student should have an interest in the topic, it is important that this is selected by the student herself/himself under the guidance of his/her mentor (guide). It is expected that the student will collect data honestly and ethically and will not falsify and inflate it. At some institutes, it is mandatory to publish the results of the completed project as an "original article" in an indexed journal. As the project is timebound, many students and guides find it difficult to choose an appropriate topic. Furthermore, after completing the project, the data generated may not be sufficient to address the research question and may fail to get published.

How is new knowledge generated? An important step is to develop the habit of "critical thinking." It is important that students reflect on whatever they read and do. In Kolb's cycle of learning, reflective observation and abstract conceptualization are essential for "deep learning" [Figure 1].^[1] Many Indians are rote learners and therefore acquire only "superficial" knowledge.^[2] However, only when students "reflect" or think deeply about a condition, will they develop better understanding about the topic. Reflection is an ongoing process. A learner who is moving in Kolb's cycle will break the cycle into a spiral and new knowledge/insight will emerge [Figure 2]. Thus, for the research to be useful, a student who is doing a project should develop new insight on the topic. The guide should encourage the student for deep learning. It is likely that if a student sincerely executes the project and reflects on it, she/he will develop transformative ideas that can then be published [Figure 2].

Although numerous original urological articles are published from India, articles describing novel concepts are rare. In 2010, Heldwein *et al.* published a list of "classic articles."^[3] They identified articles published over a 50-year period between 1955 and 2009 in urology journals and looked at the citations of each article. They labeled articles with more than

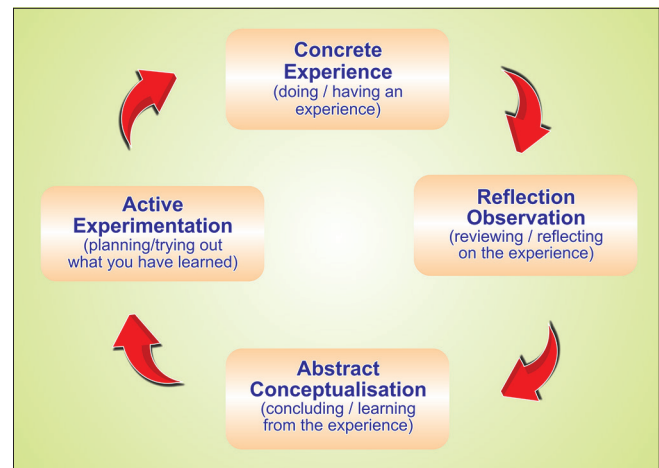


Figure 1: Kolb's cycle of learning

100 citations as "classic." Of 97,554 articles published during this time, 1239 articles were cited more than 100 times. Only 2 articles from India could be identified in this list. My personal communication with the authors revealed that both these articles were by Dr. DD Gaur who designed a simple device to create retroperitoneal space for performing retroperitoneal laparoscopic surgery.^[4,5]

Recognizing the problem of time limitation and funds, students often find it difficult to choose a topic. Retrospective analysis of data is often not the option as the records may be incomplete. Identifying a timebound, prospective meaningful study that does not require funds is a challenge. This problem can partly be overcome if we focus on problems that are relevant for our country.^[6] Innovative research on conditions such as chyluria and genitourinary tuberculosis is lacking. For example, a PubMed search using key word "chyluria" shows only 8 articles (1 from India) published in 2017 and 15 articles published in 2016 (4 from India). These numbers are dismal when we realize that more than 40% of the world's burden of lymphatic filariasis (LF) lives in India. Approximately 1100 million people across the globe are living in endemic regions for LF and exposed to risk of infection. The World Health Organization declared LF as a "neglected" tropical disease initiating "The Global Program for Elimination of Lymphatic Filariasis." Chyluria occurs in up to 10% of patients with filariasis.^[7-9]

In the last few years, the emphasis on publications has increased. This pressure to publish received reinforcement from the Medical Council of India where they made publications mandatory for promotions.^[10] It is now probably the right time to inculcate the importance of "deep learning" and "research" among the residents. Rather

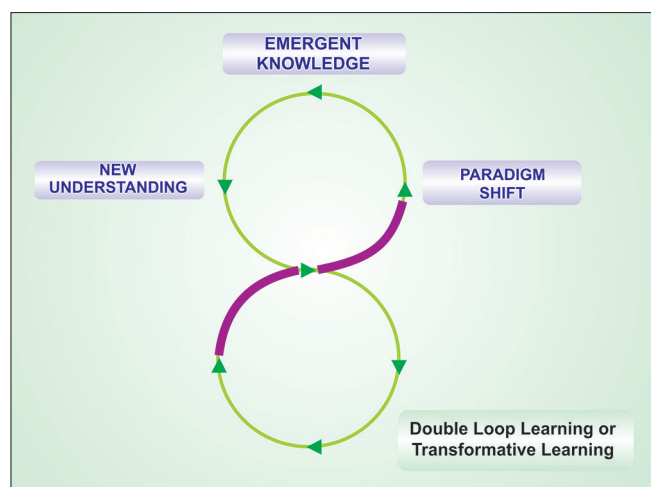


Figure 2: Transformative learning

than the quantity, it is probably more important to focus on quality and choose meaningful topics that are relevant for our community.

Apul Goel*

Department of Urology, King George's Medical University,
Lucknow, Uttar Pradesh, India
*E-mail: drapul.goel@gmail.com

REFERENCES


1. Kolb DA. Experimental Learning: Experience as the Source of Learning and Development. Englewoods, NJ: Prentice-Hall; 1984.
2. Newble D, Cannon R. Helping students learn. A Handbook for Medical Teachers. 4th ed. New York: Kluwer Academic Publishers; 2001. p. 5-7.
3. Heldwein FL, Rhoden EL, Morgentaler A. Classics of urology: A half century history of the most frequently cited articles (1955-2009). Urology 2010;75:1261-8.

4. Gaur DD, Agarwal DK, Purohit KC. Retroperitoneal laparoscopic nephrectomy: Initial case report. J Urol 1993;149:103-5.
5. Gaur DD. Laparoscopic operative retroperitoneoscopy: Use of a new device. J Urol 1992;148:1137-9.
6. Arunachalam S. Does India perform medical research in areas where it is most needed? Natl Med J India 1998;11:27-34.
7. Hotez PJ, Molyneux DH, Fenwick A, Kumaresan J, Sachs SE, Sachs JD, *et al*. Control of neglected tropical diseases. N Engl J Med 2007;357:1018-27.
8. Kant L. Deleting the 'neglect' from two neglected tropical diseases in India. Indian J Med Res 2016;143:398-400.
9. World Health Organization. Accelerating Work to Overcome the Global Impact of Neglected Tropical Diseases: A Roadmap for Implementation. Geneva: World Health Organization Press; 2012. p. 42.
10. Aggarwal R, Gogtay N, Kumar R, Sahni P, Indian Association of Medical Journal Editors. The revised guidelines of the medical council of India for academic promotions: Need for a rethink. Indian J Urol 2016;32:1-4.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

Access this article online	
Quick Response Code:	Website: www.indianjurol.com
	DOI: 10.4103/iju.IJU_261_17

How to cite this article: Goel A. Research training during residency. Indian J Urol 2017;33:257-8.

© 2017 Indian Journal of Urology | Published by Wolters Kluwer - Medknow