

A Road to Being a Researcher: A Personal Experience

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OUTLINE

- **My brief background & history**
- **Important elements for academic success**
- **5P's of academic research**
- **Acknowledgements (*very important part of this talk!*)**

MY ACADEMIC & CAREER PATHWAYS

Assoc. Prof., KMUTT 2005-present

Asst. Prof., KMUTT 2002

Lecturer, KMUTT 2001

Food Engineering

Ph.D. (McGill) 2001

M.Eng. (McGill) 1997

B.Eng. (KU) 1995

Chemical Engineering

MY RESEARCH PATHWAY

TRF Advanced Research Scholar

2008/2011

TRF Research Scholar

2005

TRF New Researcher

2002

Research Assistant
McGill Univ.

1995-2001

Published 170+ papers in
int'l journals (100+) and
proceedings (70+), 3 books,
10 book chapters and 3
patents (granted + pending)

UG Research student
KUCHE

1994-1995

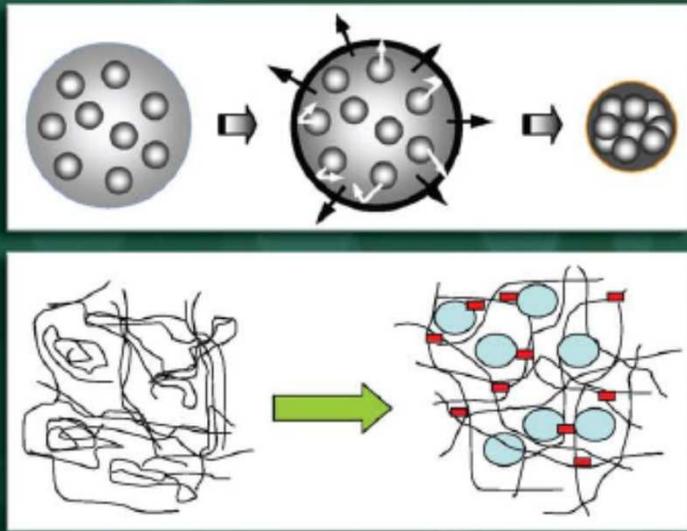
OTHER ACTIVITIES

- Associate Dean of Engineering (Research & Academic Affairs)
- Editor, *KMUTT R&D Journal*
- Associate Editor, *Drying Technology*
- Editorial board member of 5+ international journals
- Reviewers for 20+ international journals
- Reviewer for various granting agencies (Thailand and abroad)
- Examiner of theses from universities in Thailand and abroad
- Thailand Delegate, International Association for Engineering and Food
- Member, Subcommittee on Food Innovation, National Science and Technology Development Agency (คณะกรรมการเทคนิคด้านนวัตกรรมอาหาร สวทช.)
- Consultant for various food companies in Thailand, Germany, Japan, etc.
- Part-time English teacher (**my Sunday job!**)

Contemporary Food
Engineering Series
Da-Wen Sun, Series Editor



PHYSICO-CHEMICAL ASPECTS OF FOOD ENGINEERING AND PROCESSING



Edited by
SAKAMON DEVAHASTIN

 CRC Press
Taylor & Francis Group

การอบแห้งอาหารและวัสดุชีวภาพ

ศก. ดร. สักกมน เทพหัสดิน ณ อยุธยา



การอบแห้งอาหาร และวัสดุชีวภาพ

Drying of Foods and Biomaterials



ศก. ดร. สักกมน เทพหัสดิน ณ อยุธยา

SELECTED ACHIEVEMENTS

- **TRF-CHE-Scopus Researcher Award (2009)**
- **Young Scientist of Drying in Asia-Pacific Region (2007)**
- **Young Technologist Award (2004)**
- **Top 10 world contributor to drying literature (*h*-index = 19; Scopus™ data, September, 2012)**

ELEMENTS FOR ACADEMIC SUCCESS

- **Patience *and* willingness to succeed**
- **Good *Role Model* (Mentor)**
- **Well focused research topic (or theme)**
- **Good colleagues & supporting staff**
- **Good students – *very important* element!**

5P's OF ACADEMIC RESEARCH

- **Propose**
- **Plan**
- **Prepare**
- **Present**
- **Publish**

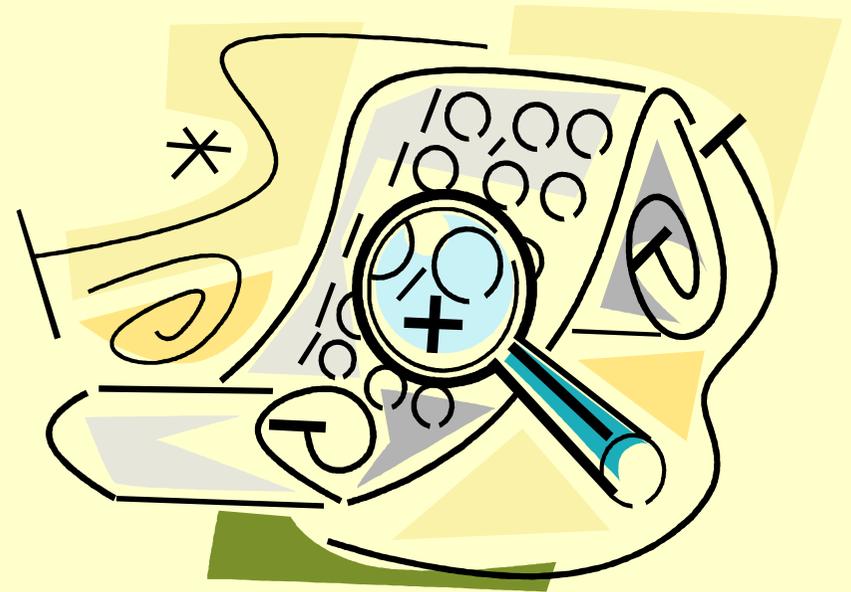
This is a simplistic list of what academic research entails!

Propose

- **First step is to propose a suitable project that is relevant and of current and potential interest (to both academia and industry)**
- **No short-cut to uncovering, accessing and studying critically relevant research literature**

Propose

- **Too narrow literature search can cause problems since not all significant literature may be covered – must be up-to-date (or minute!)**



Propose

- **Define objectives and scopes carefully**
– these are however dynamic, esp. over 3-5 years span
- **Work elsewhere can impact research objectives/scopes/methodology**
- **Think globally but act locally – what is relevant or important in one part of the world may not be so in another part**

Propose

- **Be realistic – match resources (quality and quantity) with objectives and scopes**
- **Avoid buzz word research! Buzz may fizzle out before work is finished!**
- **Also, stay out of ROM (run-of-the-mill) or Me-TOO research !**

Plan

- **Develop schedule realistically**
- **Be flexible – timeline cannot be cast in concrete. *Project is not done because time is up!***
- **Report/present results within group/network regularly to enhance communication skills!**

Prepare

- **Allow mistakes but not the same one repeatedly!**
- **Learn from experiences of team members – critical for multi-disciplinary projects**
- **Encourage critical discussion with peers**

Prepare

- **Must keep abreast of literature continuously – not just in initial phases**
- **Evaluate literature critically – do not read it like a novel or newspaper! Don't depend too heavily on printed word!**
- **Prepare summaries of relevant papers**

Try this...

Milk and dairy products are rich in vitamin D and calcium, substances essential for building and maintaining bones. Many people therefore believe that a diet rich in dairy products can help prevent osteoporosis, a disease in which the bones weaken significantly with age and that is linked to both environmental and genetic factors. However, a long-term study of a large number of people has found that those who have consistently consumed dairy products throughout the years of the study have a higher rate of bone fractures than any other participants in the study. Since bone fractures are a symptom of osteoporosis, **this study result shows that a diet rich in dairy products may actually increase, rather than decrease, the risk of osteoporosis.**

Noticed these phrases?

Milk and dairy products are rich in vitamin D and calcium, substances essential for building and maintaining bones. Many people therefore believe that a diet rich in dairy products can help prevent osteoporosis, a disease in which the bones weaken significantly with age and that is linked to both environmental and genetic factors. However, a long-term study of a large number of people has found that those who have consistently consumed dairy products throughout the years of the study have a higher rate of bone fractures than any other participants in the study. Since bone fractures are a symptom of osteoporosis, **this study result shows that a diet rich in dairy products may actually increase, rather than decrease, the risk of osteoporosis.**

Prepare

- **Benchmark against high quality work in the same area**
- **Do not repeat earlier work except to compare/validate your work – inject element of innovation and creativity in your research**



Prepare

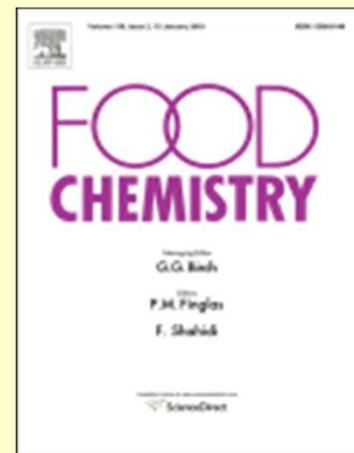
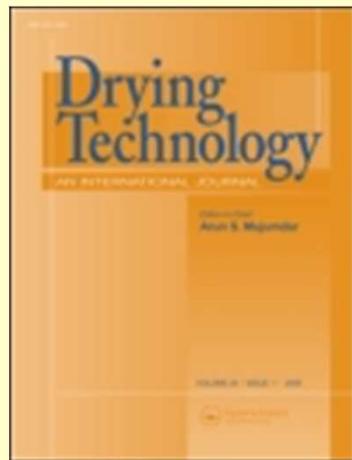
- **Researchers must be able to do multi-task, i.e., carry out several tasks in parallel and in series**
- **Delays can occur over which one has no control – use this time productively**
- **Analyze data critically (and statistically!)**

Present

- **Presentation of work to right audiences at right time is key to success**
- **Dated presentation to wrong audiences is wasteful**
- **Do not make false claims or (*even worse*) do not claim someone else's work as yours! Be ethical at all times!**

Present

- Follow ethical guidelines rigorously
- Choose conferences and journals carefully – match theme to readership



Present

- **Choose journal based on its acceptance in your field**
- **Eng. papers in physics journals will be largely ignored although IF may be higher!**
- **Let your paper enhance impact of journal rather than expecting the reverse!**

Publish

- **Critical in academic life – must be done carefully**
- **Only results of archival value (not transient value) should be published**
- **Research in progress may be presented at conferences**

Publish

- Study *good* papers carefully – identify why they are really *good* so you can refer to them as models
- Be original but benefit from past experience of others
- Papers must be clear, concise and correct (*3C's!*)

Publish

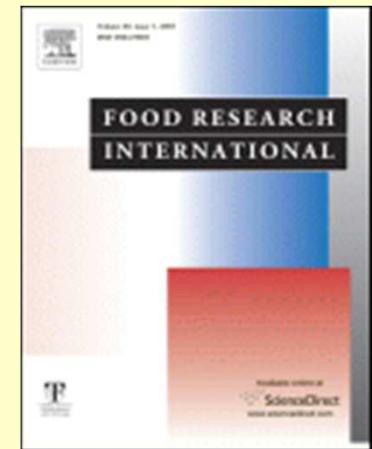
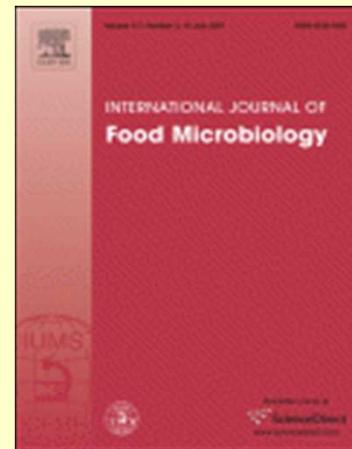
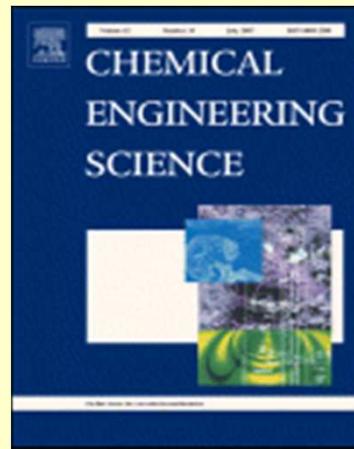
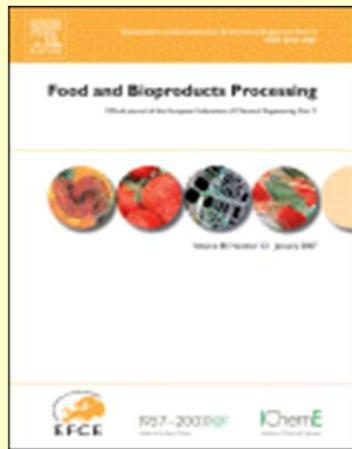
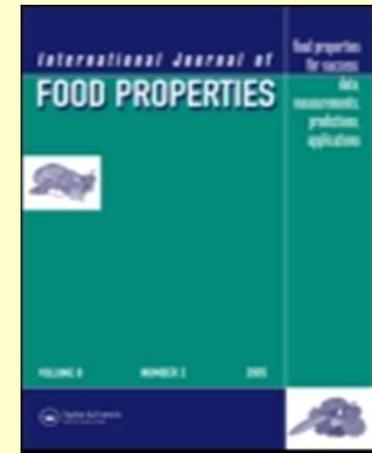
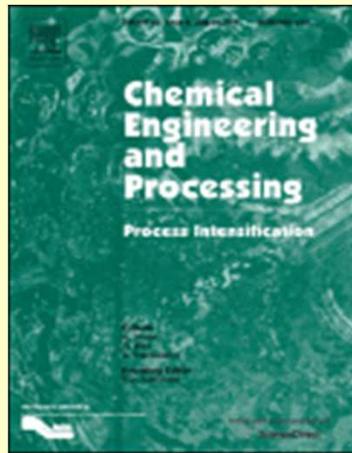
- **Reviewers' comments can help improve quality of presentation and research**
- **Third party, unbiased comments are useful – negative comments must be accepted professionally and should not be taken as personal attack!**

Publish

- **Ensure that appropriate credit is given to earlier work**



Do we need to publish?



Objectives of publication

- **Disseminate knowledge (not just information) – avoid re-inventing the wheel and waste scarce human and financial resources**
- **Degree of originality and depth required depends on medium selected for dissemination and expected readership or audience**

Objectives of publication

- **Bring recognition to you, your institution, employer depending on quality of research and of presentation**



What to write/present?

- **Depending on medium chosen, follow instructions and guidelines of the journal/conference closely**
- **Write clearly, concisely and correctly!**
(3C's of presentation requirements!)

What to write/present?

- Present only what is new, innovative and *true* – do not exaggerate claims and do not claim others' work as own
- Make it interesting!



What to write/present?

- **Write only if it is worthwhile publicizing – should be a substantial contribution to knowledge**
- **Note that knowledge is dynamic – be aware of the state-of-the-art and acknowledge prior work ethically; research literature regularly**

What to write/present?

- **Write as if it were a detective story – build up interest in Introduction and follow a logical sequence**
- **Test – would you read the paper if someone else did the work and wrote it? *If not, work on it more!***

Choose medium wisely

- **Do not choose journal by its cover or ISI impact factor exclusively – may go to wrong readership (even if it slips through the review process)**
- **Only final, archival work which will withstand test of time *for some time* is appropriate for journals – work in progress is typically good for conferences**

Choose medium wisely

- **Be aware of target readership/audience and their needs and write at right level**
- **Keep reader's interest in mind – not just your own!**

Review process

- All archival journals are peer-reviewed
– some poor quality papers and even wrong information may slip through these “filters” *Be critical in reading printed words*





JORGE CHAM © 2007

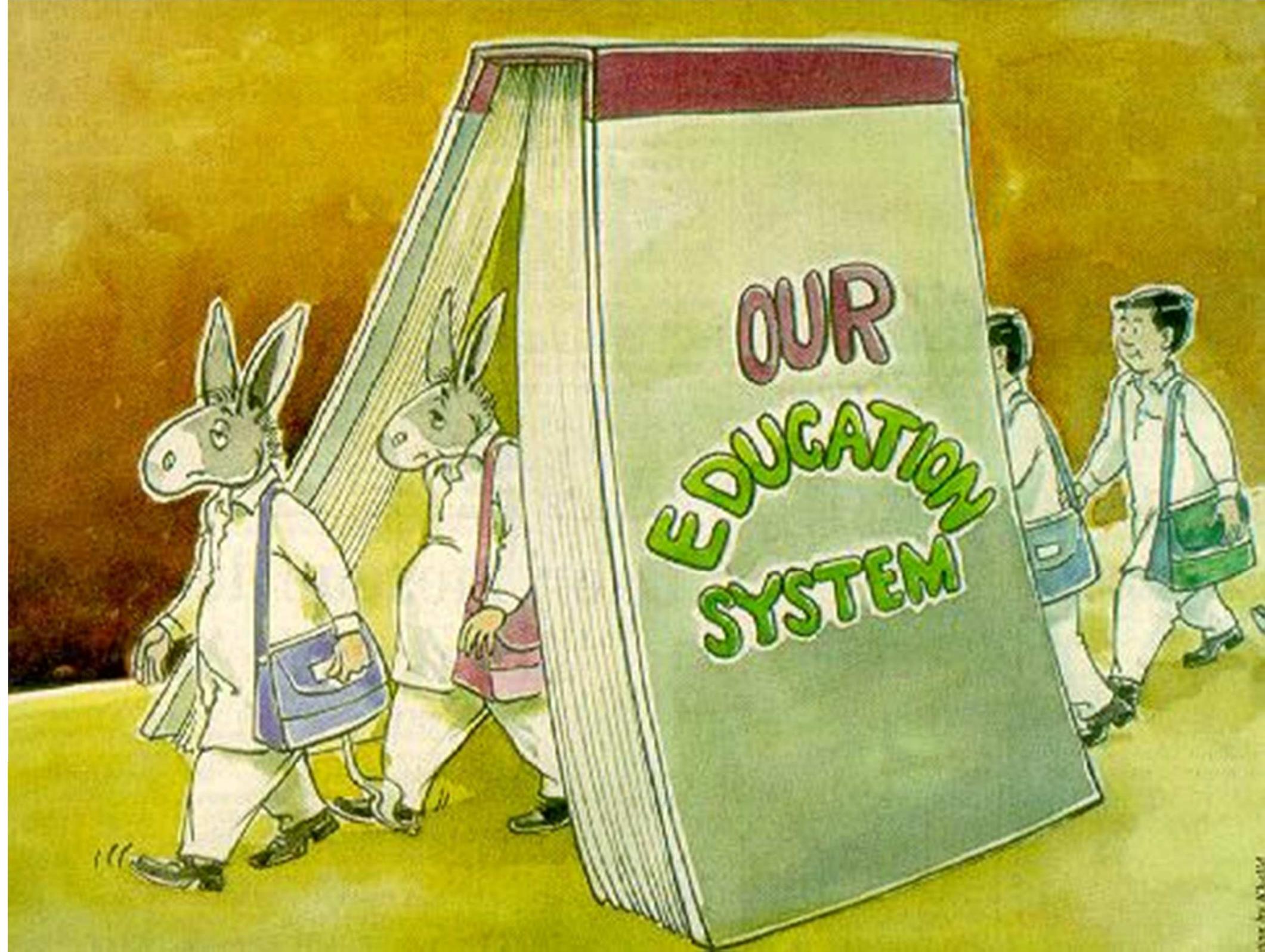


Review process

- **Be aware of latest developments in your area and also have good foundation in related areas**
- **Avoid repeating prior work – try to be innovative and creative**

Pitfalls to avoid – A must!

- **Plagiarism – committed when one uses others' writing as own without giving due credit**
- **Even your own published writing is subject to copyright laws!**
- **Do not plagiarize words as well as ideas!**



ACKNOWLEDGEMENTS

- **My family (mom, dad, sister and Peung)**
- **My teachers and mentors (esp. **Prof. Arun Mujumdar**, formerly of McGill Univ. and now at NUS; and **Prof. Somchart Sophonronnarit** of KMUTT)**
- **My research collaborators and friends at KMUTT and around the world**

ACKNOWLEDGEMENTS

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- **And, most importantly, all my students who collectively have taught me *more* than I taught them**



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