High Quality Research to High Impact Journal Publication

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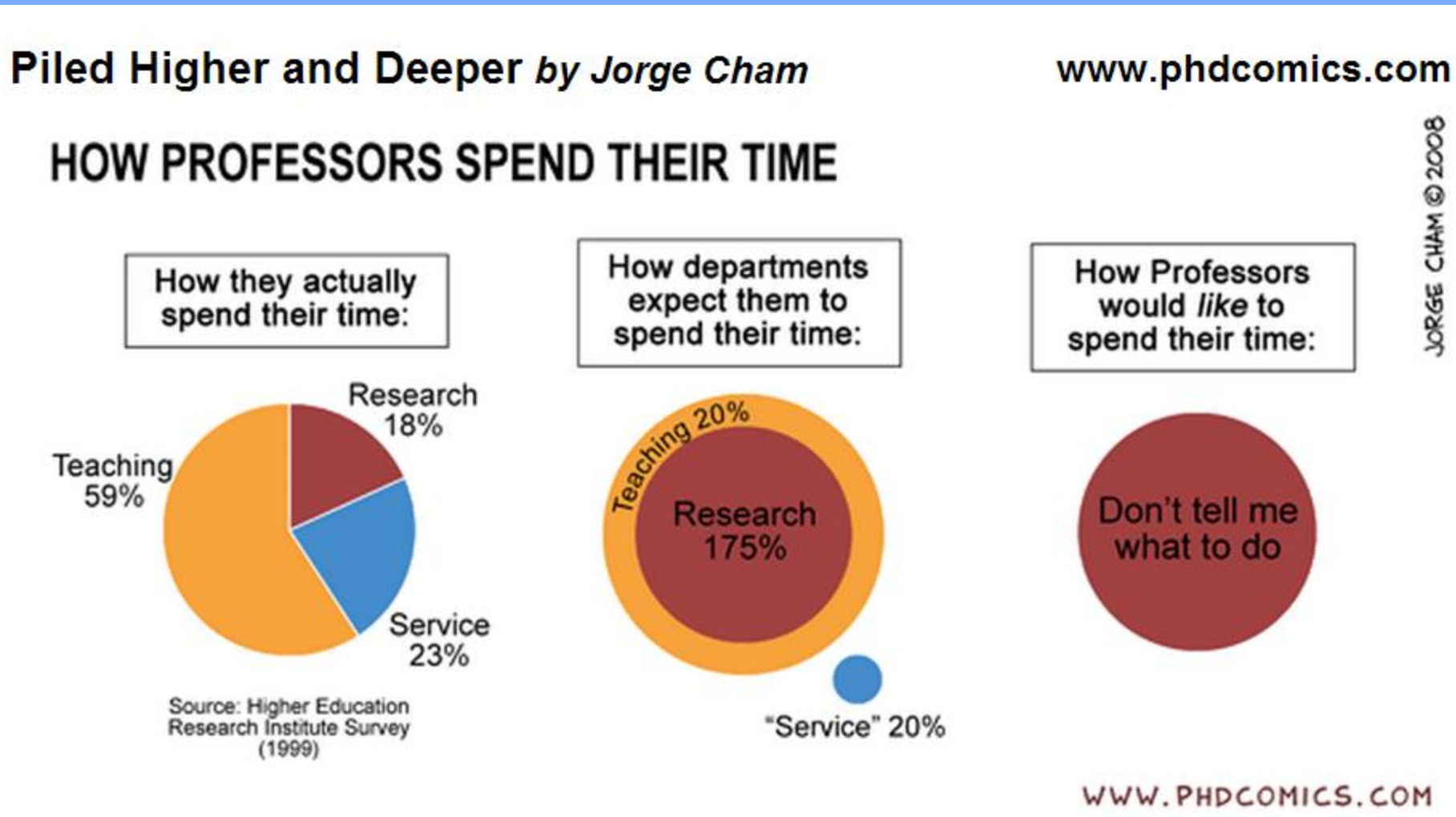
Berry's World

"He didn't publish, so he perished."

Growing Expectations of Research Productivity



Research Quality Vs. Publication

- There is more emphasis on publication count rather than publication quality
- Driven by academic “bean counting”; simple to evaluate research output (quantity) than research quality
- Self assessment
  - Have you publications made a difference?
  - Which publication are you most proud of?

h-Index

- The ***h*-index** attempts to measure both the productivity and impact of the published work of a scientist
- A scholar with an index of *h* has published *h* papers each of which has been cited in other papers at least *h* times
- *h-index* may provide misleading information about a scientist's output: e.g., no. of authors in the paper, context of citation,..

http://en.wikipedia.org/wiki/H-index

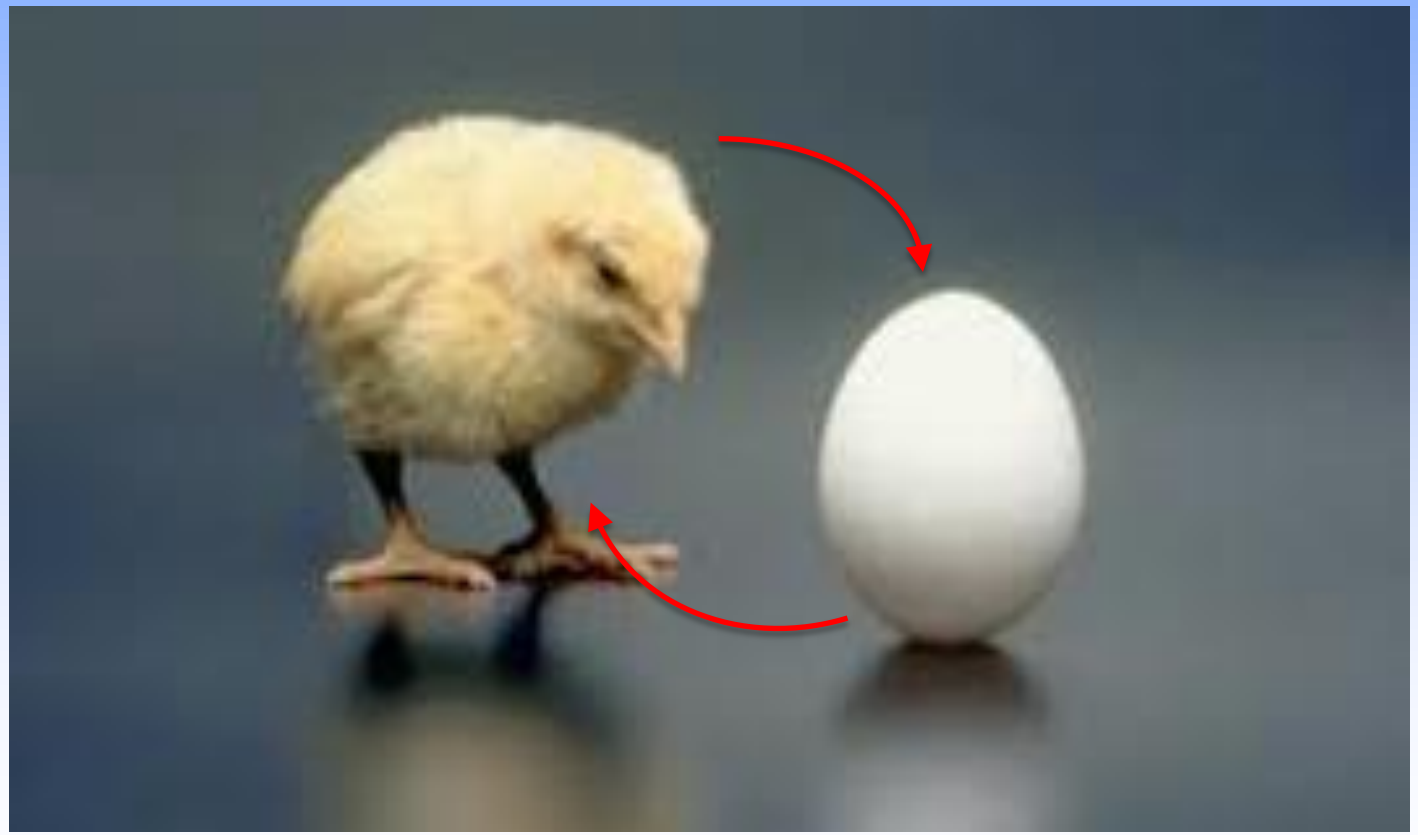
Impact Factor

- The **impact factor** (IF) of a journal reflects the average number of citations to recent articles published in the journal. It indicates the relative importance of a journal within its field
- In a given year, IF of a journal is the average number of citations per paper published in that journal during the two preceding years
- Journal can adopt policies to increase its IF, e.g. It may publish more review articles which generally are cited more than research papers

http://en.wikipedia.org/wiki/Impact_factor

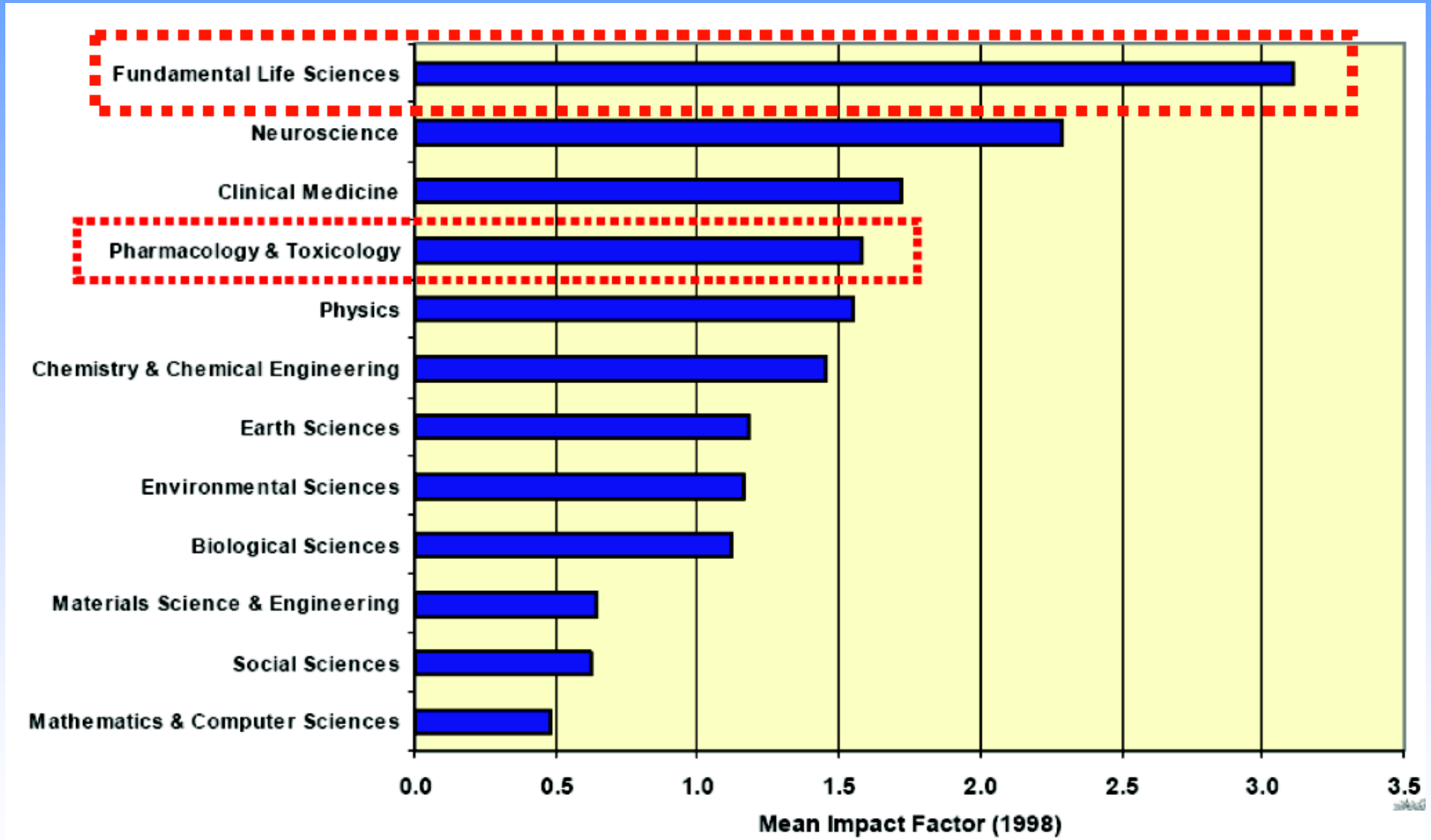
Choosing the Right Journal

Which comes first: the journal or the paper?



*The Charlesworth Group

Subject Area Influence on Impact Factors



"How to write a Great Research Paper and Get it Accepted by a Good Journal", Anthony Newman, Elsevier
http://www.paperpub.com.cn/admin/upload/file/201062216345377.pdf

Computer Science Journals with Highest IF
(2011)

1.	IEEE COMMUN SURV TUT	6.311
2.	IEEE T PATTERN ANAL	4.908
3.	J CHEM INF MODEL	4.675
4.	SIAM J IMAGING SCI	4.656
5.	ACM COMPUT SURV	4.529
6.	MIS QUART	4.447
7.	MED IMAGE ANAL	4.424
8.	INT J NEURAL SYST	4.284
9.	IEEE T FUZZY SYST	4.260
10.	J STAT SOFTW	4.010

- In CS there are many conferences with higher IF than most journals
- IF is just one number, so it alone does not indicate quality of a paper

http://www.spinellis.gr/blog/20120703/

Journals With the Highest IF

- New England Journal of Medicine (IF: 53.48)
- Nature Reviews Molecular Cell Biology (IF: 38.65)
- The Lancet (IF: 33.63)
- Chemical Reviews (IF: 33.04)
- Nature (IF: 31.43)
- Science (IF: 31.36)
- Cell (IF: 31.25)
- Abstracts of Papers - American Chemical Society (IF: 31.00)
- Nature Genetics (IF: 30.26)
- Nature Reviews Immunology (IF: 30.01)

http://tools.niehs.nih.gov/srp/publications/highimpactjournals.cfm

No. of Citations vs. Journal IF

- Publication in a high impact journal will gain you recognition and visibility by your peers
- But, publication (research) quality is not necessarily the same as the quality (Impact Factor) of the journal where it is published
- Not all papers published in high Impact Factor journals have a large number of citations

IEEE Transactions on PAMI, vol. 5, 1983 (IF 4.8)

Author(s)	Article Title	No. of Citations (Google scholar)
GR Cross and AK Jain	**Markov random field texture models**	**1275**
KS Pal and RA King	On edge detection of X-ray images using fuzzy sets	275
CP Chen and T Pavlidis	Segmentation by texture using correlation	138
GW Milligan, SC Soon and LM Sokol	The effect of cluster size, dimensionality, and the number of clusters on recovery of true cluster structure	129
Ramesh Jain	Direct computation of the focus of expansion	104
YX Gu, QR Wang and CY Suen	Application of a multilayer decision tree in computer recognition of Chinese characters	66
CC Geschke	A system for programming and controlling sensor-based robot manipulators	50
John Fairfield	Segmenting dot patterns by Voronoi diagram concavity	31
PS Wang	Hierarchical structures and complexities of parallel isometric languages	29
WI Grosky and R Jain	Optimal quadtrees for image segments	26
R Mohr and R Bajcsy	Packing volumes by spheres	24
C Gritton and EA. Parrish	Boundary location from an initial plan: The bead chain algorithm	18
RA Finkel and JP Fishburn	Improved speedup bounds for parallel alpha-beta search	18
AH Feiveson	Classification by thresholding	16
K Preston	Gray level image processing by cellular logic transforms	10
GD Riccia and A Shapiro	Fisher discriminant analysis and factor analysis	9

Research Process

1. Reasons for wanting to do research
2. Acquire strong analytical skills and commitment
3. Find a research topic you like
4. Understand the background or what has been done
5. Identify a problem which is likely to make an "impact"
6. Come up with an “elegant” solution
7. Find a suitable journal to publish

Research is Hard

- Good problem is difficult to find
  - Problem in a new area better than in a “beat up” area
- Too many background papers to read
  - How to filter good papers from marginal papers
- Frustration
  - Long periods with no progress
- Time crunch
  - Others may also be working on the same problem
- Writing the paper
  - Takes at least as much time as solving the problem
  - Review process less than perfect

Writing a Good Paper

- Why publish?
  - Disseminate knowledge
  - Degree requirement
  - Job security
- Structure of the paper
  - State the problem and its importance
  - Proposed solution and how it is different
  - Design of experiments and results
  - How do the results advance state of the art?
  - Future work and suggested extensions
  - Bibliography/References

Writing a Good Paper: Be Your Own Critic

- Title should be informative and concise
- A clear & concise abstract will keep the reader engaged
- Paper should contain a clear and useful scientific message
- It should have a logical flow
- Introduction should emphasize the importance of your work
- Provide sufficient details so the results can be reproduced
- How would you rate this paper if you were the reviewer?
- Well-written paper with solid content receives good reviews

Plagiarism

- **Plagiarism** is copying of another author's “language, thoughts, ideas, or expressions,” and claiming them as one's own original work
- Plagiarism by students, professors, or researchers is considered academic dishonesty or fraud
- Need to educate students about consequences of plagiarism and proper way to cite other’s work

Summary

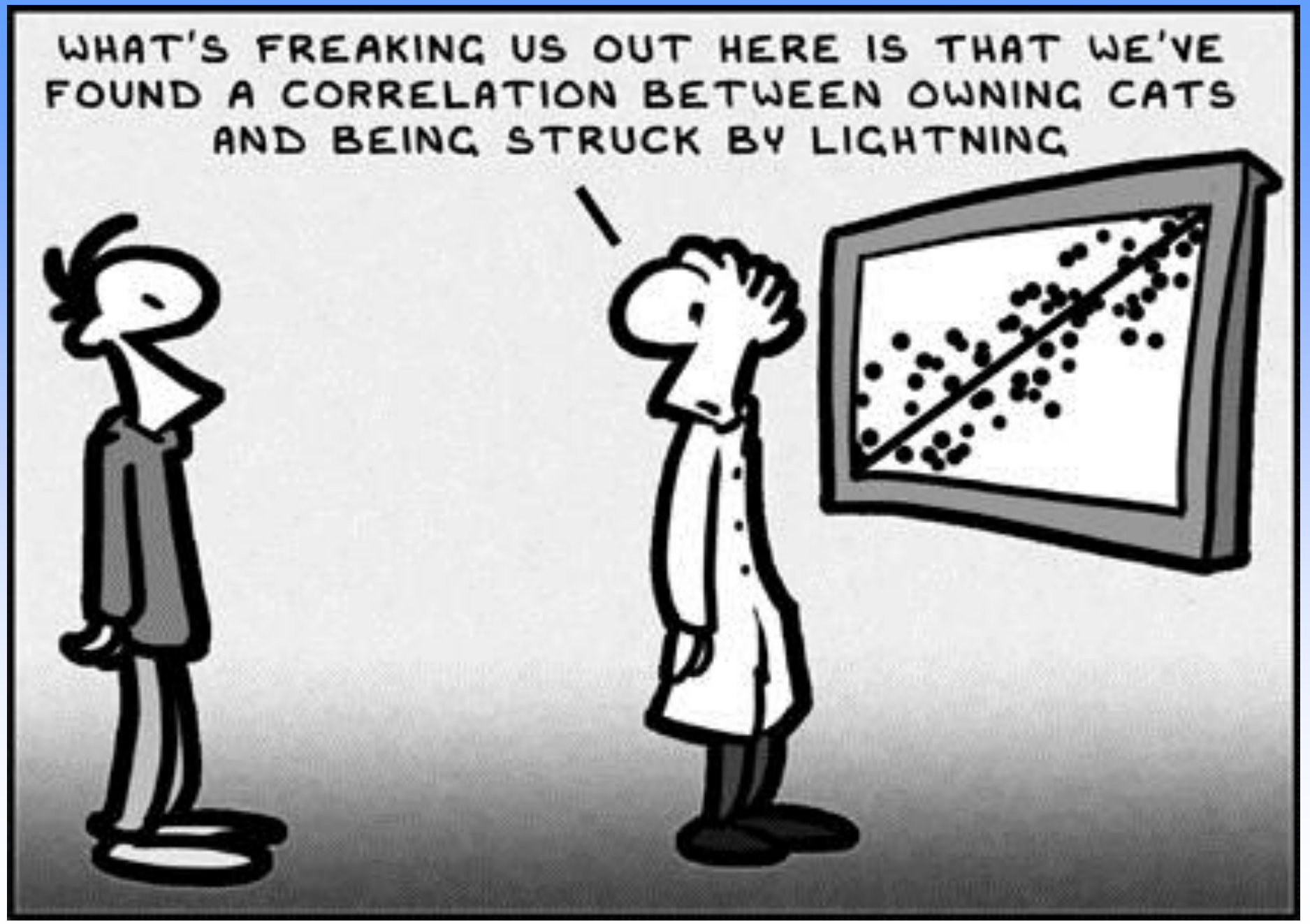
- Ingredients for good research:
  - Choice of problem
  - Strong skills
  - Passion and persistence
- Convert good research to a good paper
- Journal should match paper's topic and quality
- Review cycle can be frustrating
- Effort is worth it when the paper gets accepted

Key to Success

"Work on the right problem, at the right time, and in a right way"

Richard Hamming "You and Your Research"
https://www.cs.virginia.edu/~robins/YouAndYourResearch.html
https://www.youtube.com/watch?v=a1zDuOPkMSw


I WAS JUST RUBBING STICKS TOGETHER FOR FUN – I DIDN'T REALIZE I WAS DOING BASIC RESEARCH.
©2008 HTTP://BALOOCARTOONS.WORDPRESS.COM


WHAT'S FREAKING US OUT HERE IS THAT WE'VE FOUND A CORRELATION BETWEEN OWNING CATS AND BEING STRUCK BY LIGHTNING