10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER

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DISCLAIMER

These opinions are my own, they are not the opinions of MIT, Brookings, any of the project funders, nor (with the exception of co-authored previously published work) my collaborators.

Secondary disclaimer:

“It’s tough to make predictions, especially about the future!”

- Attributed to Woody Allen, Yogi Berra, Niels Bohr, Vint Cerf, Winston Churchill, Confucius, Disreali [sic], Freeman Dyson, Cecil B. Demille, Albert Einstein, Enrico Fermi, Edgar R. Fiedler, Bob Fourer, Sam Goldwyn, Allan Lamport, Groucho Marx, Dan Quayle, George Bernard Shaw, Casey Stengel, Will Rogers, M. Taub, Mark Twain, Kerr L. White, etc.
Related Publications

• Smith, Yoshimura, Karen, M. Altman, et al, Registering Researchers in Authority Files, *OCLC* [Forthcoming]
• Altman, Micah, and Mercè Crosas. "The Evolution of Data Citation: From Principles to Implementation." *IASSIST Quarterly* (2013): 63.
• http://projects.iq.harvard.edu/attribution_workshop

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10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER
Perspectives

* Foundations *
* Third Person *
* Second Person *
* First Person *
* Self-Experimentation *
First Principles* for a successful career as a researcher*  

*Aka, building blocks.*

10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER
The Basics

10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER

Choice

Chance

Heredity

Environment
Particular things that help in general...

- Positive affectivity skills/strengths
- Metacognition skills/strengths
- Executive function skills/strengths
- Character strengths
- Talents
- Social cognition skills/strengths
- Collaboration skills
- Negotiation skills
- People management skills
- Written communication
- Verbal communication
- Project management
- Marketing

- Social & professional network support
- Personal resources
- Strategic planning
- Effortful practice
- Exercise
- Diet
- Sleep
- Personal relationships
- Stress management
- Internal motivation
- Iteration
- Feedback
- Self-monitoring
A Sample of Specialize Academic Skills Influenced by General Strengths

- Giving a job talk
- Giving an invited talk
- Surviving in a job interview
- Critiquing / reviewing scholarly work
- Contributing to university committees
- Teaching
- Managing a research project
- Preparing a grant proposal
- Preparing a scientific article
- Preparing a book proposal
- Data management

- Responding to reviews
- Mentoring postdocs
- Scholarly communication skills and approaches
- Running a workshop
- Starting a company
- Leading a scientific community
- Editing a journal
- Chairing a panel
- Co-authoring on a paper
- Collaborating in a research group

...
Many Skills are Not Taught

• Success in research and the academy draws on a variety of skills, traits and resources.
• Some skills are explicitly taught and developed in academic training, e.g.: domain skills, research methodology
• Some skills, typically those that are particularly ‘academic’ but not part of a specific discipline, may be transmitted, implicitly through modeling, and mentorships
• Some academic skills neither taught nor modeled, and many valuable skills may be viewed as external to the research enterprise
Zooming In...

(Almost all) of the rest of the talk will focus on scholarly communication & impact...
Third Person Perspective*: Observations from Scientometrics

*Possibly objective, certainly not omniscient.

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‘Impact’ Factors: Overview

What are impact factors?
• Descriptive statistics
• Usually based on citations
• Commonly treated as a proxy for the level of influence of an article, person, or journal

Common measures
• *ISI Journal Impact Factor:*
  The frequency with which the “average article” has been cited in a particular year. It is based on the most recent two years of citations. It is only supplied for journals indexed by ISI in the Web of Science.

• *Article Citation Count:*
  Total number of citations received from other articles to target article.

• *H-Index:*
  The maximum number of articles $h$ such that each has received at least $h$ citations

libraries.mit.edu/scholarly/publishing/impact-factors/
A proposed standard for the scholarly citation of quantitative data
N. Altman, G. King - D-lab Magazine, 2007 - dialnet.unirioja.es

Abstract: An essential aspect of science is a community of scholars cooperating and competing in the pursuit of common goals. A critical component of this community is the common language of and the universal standards for scholarly citation, credit attribution, ...

Cited by 104  Related articles  All 14 versions  Cite  Saved  More

Micah Altman
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Social Science, Information Science
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My profile is public

Citation indices

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<thead>
<tr>
<th></th>
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</tr>
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</table>

Co-authors

Michael P McDonald, Gary King, Jeff Gill, Bruce Cain, Paul D. Allison.

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Author Impact: Example – Web of Science

10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER IN YOUR EARLY CAREER
10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER
Journal Impact: Example – Scopus

Journal Analyzer

Search: in Journal of Political Science
Limit by Subject Area
Show: SJR, SNIP

Results: 1 Sources Found (Double-click or drag to add)
Journal Title | SJR
---|---
American Journal of Political Science | 5.975

Note: Scopus does not have complete citation information for articles published before 1996.
Calculations Last Updated: 15 Feb 2014

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## Journal Impact: Database Comparison

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<th>Google Scholar</th>
<th>Scopus</th>
<th>Web of Science</th>
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<tbody>
<tr>
<td><strong>Journals Covered</strong></td>
<td>Top 100 ranked in each language</td>
<td>Mostly english-language</td>
<td>Many (selected) Journals</td>
</tr>
<tr>
<td><strong>Metrics</strong></td>
<td>H5 Median</td>
<td>Many</td>
<td>Impact factor, Many others</td>
</tr>
<tr>
<td><strong>Visualization</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Longitudinal analysis</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Discipline Rankings</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Sharing, Collaboration, Clarity Likely Improve Impact

• Collaboration/team science increases impact
• Open access associated with substantially higher citations
• Self Citation in moderation is associated with reinforced impact
• Sharing data is associated with higher citation rates
• Publishing regularly is associated with much higher impact
• Citation measures only one type of use – you can collect evidence and measure others
• Use clear, titles, and meaningful keywords and abstracts
• Mainstream social media, especially twitter, can indicate broader use
Not-so-positive findings

- Null results are less likely to be submitted and published → submit all your results
- Publication bias leads to overestimates of effects/significance in many fields
- Many data sharing and replication policies are not followed → share even when you are not forced to
- Good science may not pass peer review → be persistent
- Much research is not replicable → make yours replicable
- Many publications are not cited
- Multidisciplinary work less cited
- Edited volumes are not well cited → think carefully about publication venue, significance of research
- Retraction rates in scientific journals have substantially increased
- Author order is overemphasized in evaluation → discuss authorship early, use other ways of describing contributions and distributing credit
- Delays in peer-review, and publishing are frequent, and important → track your submissions, and politely, but actively manage delays
- Not enough time spent on research → develop a research habit, and build research in your schedule

Daniel Schectman’s Lab Notebook
Providing Initial Evidence of Quasi Crystals

10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER
Limitations of data

1. Citation differs systematically from sharing, reading, or ‘use’
2. Relationships signaled by citation are heterogenous: citations may indicate evidentiary support, definitions, disagreement, kudos,…
3. Cited objects are heterogenous – e.g. journals include letters, comments, reviews and original research
4. Databases may have limited or inconsistent coverage of publishers, fields, years, or types of publications (e.g. conference proceedings), types of objects (databases, software, books, articles), language, journal size
5. Some types of objects such as software and data, are often used without being cited
6. Much of the scientific research based on study of single field or scientific community

{See for a review CODATA 2013, Cameron 2005}

Limitations of measures

6. Levels and change in measures vary across fields, disciplines – cross disciplinary comparison is difficult, normalization necessary.
7. Most measures are vulnerable to manipulation by groups of actors
8. Measures are typically presented as is they were population descriptive statistics -- without any estimate of uncertainty
9. Although self-stability of measures is relatively high [for H-index, see Hirsch 2007], prediction validity of measures such as journal impact measure and h-index [Perez 2012; Penner et al 2013] is lower
10. Cross-predictive validity is much lower for h-index [Bollen et al 2009; Schreiber 2013], other measures
11. Most measures are descriptive estimates – they are not forecasting or causal inferences
12. Few studies of the external validity of measures
12. Rankings induced by indices may change in counterintuitive ways over time when relative performance remains stable [Ludo & Eck 2012]
13. Few studies on error and bias in estimators
Second Person*
Perspectives

* Second person, but first rate -- we’ve read dozens of academic advice books, so you don’t have to.
From 10 Simple Rules ...

Graduate Students
• Share your scientific success with the world

Postdoctoral Positions
• Negotiate first authorship before you start.

Getting Published
• If you do not write well in the English language, take lessons early
• Become a reviewer early in your career.
• Decide early on where to try to publish your paper.
• Quality (of journals) is everything.

Building Reputation
• Think Before You Act
• Do not ignore criticism
• Do not ignore people
• Diligently check everything you publish
• Always declare conflicts of interest
• Do your share for the community
• Do not commit to tasks you cannot complete
• Do not write poor reviews
• Do not write references for people who do not deserve it
• Never plagiarize, or doctor your data

From *A Ph.D. is Not Enough!*

Establish a research program:

- “no technical skill is worth knowing how to select exciting research projects”
- Find a theme to your work that is compelling to you and interesting to others
- Timing is everything; consider what you will have finished, when, and its future value
- Finish some things
- Make yourself useful

From The Chicago Guide to Your Academic Career

- Divide your research into publishable segments
- Aim for top journals in your field but be realistic in matching the quality and impact of your work with journal standards
- Ensure that the title and abstract of your article provide an informative summary of the content of the manuscript
- Provide comprehensive and fair coverage of the relevant literature
- Pay attention to the ethics of authorship

From *Survive and Thrive*

- Overarching questions for building reputation:
  - In what ways can you be strategic about making yourself visible?
  - Have you identified strategies that you are comfortable pursuing?
  - Can you work with your mentors to identify ways to improve visibility in positive ways?

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From *Marketing for Scientists*

- Everything you get from other people comes because it satisfies their needs or desires
- Marketing is the craft of seeing things from other perspectives, understanding others’ wants and needs, finding ways to meet them
- Manage your marketing funnel – converting people who never heard of you -> know your work -> collaborators -> advocates
- Develop your brand & signature research idea
- If you can’t be first in a category, set up a new category you can be first in

From *How to Succeed as a Scientist*

• When to publish?
  – As soon as possible after main body of work is completed.

• Where to publish?
  – Target your preferred readers.
  – Consider impact factors.

• What to publish?
  – Be selective
  – Consider order of authorship

First Person Perspective*

* First Person Voice: Stream of consciousness, possibly unreliable narrator
First Person: Quasi-Academic Bona-Fides

- H-Index: 18 (by google-scholar)
- Publications: 65+ (not all peer-reviewed)
- Software packages: 6+ (0 patents)
- Citations 970 (generously inclusive)
- Grant funding to date: > $10M (not all as PI)
- Awards, honors: a few (for policy impact, not NAS, etc.)
- Awards committees: some
- Other committees: too many
- Invited talks: dozens
- Editorial boards: a few (not chief editor)
- Grant review panels: tons (mostly NIH)
- External reviewer - # of journals: tons
- Grad students advised: 1
- Post-docs advised: 11 (quasi-officially)
- Courses developed: 12+ (most short-courses)
- Klout Score: 76 (< 400 Twitter followers)
- Erdos #: 4

10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER
Idiosyncratic* Recommendations for Scholarly Communications

• Identify and use opportunities to communicate:
  – Accept invited talks, where practical
  – Announce when you will be speaking, teaching
  – Share your presentations, writings, and data

• Create a scholarly identity
  – Obtain an ORCID, domain name, twitter handle, LinkedIn profile, Google Scholar profile
  – Create a short bio and longer CV
  – Develop a research theme, and signature idea

• Communicate broadly
  – Publish writings as Open Access when possible
  – Publish data and software as open data and open source
  – Use social media (LinkedIn, Twitter) to announce new publications, teaching, speaking

• Develop communications skills early
  – Take writing lessons early
  – Take public speaking lessons early

• Monitor your impact
  – Monitor news, citation, social media metrics, and altmetrics that reflect the impact of your work
  – Keep records
  – Do this systematically, regularly, but not reactively or obsessively

• Focus on Clarity and Significance
  – Do research that is important to you and that you think is important to the world
  – When writing about your research, work to maximize clarity – including in abstracts, titles, and citations

• Give credit generously
  – Cite software you use
  – Cite data on which your analyses rely
  – Don’t be afraid to cite your own work
  – Discuss authorship early, and document contributions publicly

* Based in part on formal research, in part on experience...
Unsorted & Unsolicited Advice

- Do research that is important to you and that you think is important to the world (repeated, for emphasis)
- Manage your research program – find a core theme, a signature idea, and regularly review comparative strengths, comparative weaknesses, timely opportunities and future threats
- Collaborate with people you respect, and like working with, start with small steps
- Take a positive and sustained interest in the work and career of others, this is the foundation of professional networking
- Make a moderate, but systematic effort to understand and monitor the institutions within which your work is embedded.
- Identify your core strengths. Build a career around those.
- Identify the weaknesses that are continual stumbling blocks. Make them good enough.
- Pay attention to your world: exercise, sleep, diet, stress, relationships
- Don’t manage your time – manage your life: know your values, choose your priorities, monitor your progress
- Align your career with your core values

10 SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER
Self-Experimentation: 10 Simple Steps*

*Question: How do you tell an extroverted researcher?  
Answer: When she talks, she looks down at your shoes.
Self Experimentation*: 10 Simple Steps

**Identify yourself** -- register for:

1. An identifier – ORCID
2. Information hubs: ORCID; LinkedIn; your own domain name → forward to LinkedIn; Slideshare
3. Communication channels: twitter, LinkedIn

**Describe yourself**

4. Write and share a 1-paragraph bio
5. Describe your research program in 2 paragraphs
6. Create a CV

[Post these on your LinkedIn and ORCID profiles]

**Share**

7. Share (on Twitter & LinkedIn) news about something you did or published; an upcoming event in which you will participate; interesting news and publications in your field
8. Make writing; data; publication; software available as Open Access (through your institutional repository, SlideShare, FigShare, Dataverse)

**Monitor**

...check and record these things regularly, but not too frequently (once a month) -- and no need to react or adjust immediately

9. Set up tracking – google scholar, google alert,
10. Find your klout score, H-index,

*Question: How do you tell an extroverted researcher?
Answer: When she talks, she looks down at your shoes.
Tools

• Google Scholar: Profiles, H-Index, New Publication Alerts
  – scholar.google.com
  – Choose: Create an account
• Google Alert: tracking mentions on the web
  – www.google.com/alerts
• ORCID: A persistent unique identifier for you; a place for your profile
  – orcid.org/register
• Publish or perish: Personal impact metrics galore
  – www.harzing.com/pop.htm
• Klout: Social impact measures
  – klout.com
• Altmetric bookmarklet:
  Scholarly altmetrics on recent paper for free
  – /www.altmetric.com/bookmarklet.php

For more bibliometric tools and data see:
informatics.mit.edu/classes/overview-citation-analysis
Recommended Readings

**Academic Career Guidance**

- *PLOS, Ten Simple Rules Collection: bit.ly/PLOSTEN*

**Scholarly writing and proposals**

- *Yang, Otto Guide to Effective Grant Writing: How to Write a Successful NIH Grant Application,* Springer 2005.

**Communication**


**Life, People, and Project Management**

- Cialdini, Robert B. "Influence: The psychology of persuasion." (1993).
- Peterson, Christopher. *A primer in positive psychology.* Oxford University Press, 2006.

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• Fanelli, Daniele. "Negative results are disappearing from most disciplines and countries." Scientometrics 90, no. 3 (2012): 891-904.
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- Smith, Yoshimura, Karen, M. Altman, et al, Registering Researchers in Authority Files, OCLC [Forthcoming]
Online Advice

Where to go:

- Stack Exchange: academia.stackexchange.com
- Quora: quora.com/Academia
- Reddit: reddit.com/r/academia
- Chronicle of Higher Ed: chronicle.com/forums/
- Ph.D. Comics: phdcomics.com/

What to do:

1. Do not be afraid to ask
2. State the question clearly
3. Use a clear title
4. Learn the customs
5. Do your homework
6. Proofread
7. Be courteous

More:
SIMPLE STEPS TO BUILDING A REPUTATION AS A RESEARCHER, IN YOUR EARLY CAREER

The drawing of electoral districts is among the least transparent processes in democratic governance. All too often, redistricting authorities maintain their power by obstructing public participation. The resulting districts embody the goals of politicians to the detriment of the representational interests of communities and the public at large. We have developed DistrictBuilder to increase participation and transparency in the electoral process.

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