

Twin-Win Research:

*Breakthrough Theories and Validated
Solutions for Societal Benefit*

Second Edition

Synthesis Lectures on Professionalism and Career Advancement for Scientists and Engineers

Editors

Charles X. Ling, *University of Western Ontario*

Qiang Yang, *Hong Kong University of Science and Technology*

Synthesis Lectures on Professionalism and Career Advancement for Scientists and Engineers includes short publications that help students, young researchers, and faculty become successful in their research careers. Topics include those that help with career advancement, such as: writing grant proposals; presenting papers at conferences and in journals; social networking and giving better presentations; securing a research grant and contract; starting a company; and getting a Masters or Ph.D. degree. In addition, the series publishes lectures that help new researchers and administrators to do their jobs well, such as: how to teach and mentor, how to encourage gender diversity, and communication.

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Ben Shneiderman
University of Maryland

*SYNTHESIS LECTURES ON PROFESSIONALISM AND CAREER
ADVANCEMENT FOR SCIENTISTS AND ENGINEERS #04*

ABSTRACT

The thrill of discovery and the excitement of innovation mean that research is often immensely satisfying. But beyond the personal satisfaction, the goal of research is to improve the lives of people everywhere by driving revolutionary advances in health-care, education, business, and government. This guidebook's strategies will help you shape your research and energize your campus so as to achieve the Twin Win: a breakthrough theory that's published and a validated solution that's ready for dissemination.

The action-oriented paths in this guidebook resemble a backpacker's guide to hiking. It suggests paths and gives you enough information to get started, while providing enough flexibility to take side treks and enough confidence to find your own way. Short-term projects include inviting speakers to campus, choosing appropriate research projects, and developing networking skills. Middle-term include seeking funding from government agencies and philanthropic foundations, sharpening your writing and speaking skills, and promoting teamwork in research groups. Long-term missions include changing tenure policies, expanding collaboration with business and civic partners, and encouraging programs that combine theory and practice.

KEYWORDS

research, Twin-Win Model, breakthrough theories, validated solutions, innovation, discovery

Contents

	Preface	xiii
	Acknowledgments	xv
1	Thinking about Research	1
1.1	Introduction	1
1.2	The Twin Win	2
1.3	Change	4
1.4	Checklist	4
1.5	Audience	6
1.6	Messaging	8
1.7	Evidence	9
1.8	History	14
1.9	First Steps	16
1.10	Bottom-Up and Top-Down Approaches	19
1.11	Short-, Medium-, and Long-term Strategies	21
1.12	Organizations that Promote HIBAR Research and Twin-Win Strategies	22
1.13	References	24
2	A Starter Set of Paths to Enhance the Quality and Impact of Your Research	27
2.1	Small, Short-term Projects	27
2.1.1	Invite a Speaker	28
2.1.2	Run a Reading Group	29
2.1.3	Organize a Workshop	29
2.1.4	Offer a Tutorial to Build Research Skills	30
2.1.5	Organize Faculty Meetings to Discuss Twin-Win Research Strategies	31
2.1.6	Study Meaningful Problems	32
2.1.7	Form a Research Project	34
2.1.8	Develop Your Social Media Fluency	34
2.1.9	Develop Your Networking Skills	35

2.2	Medium-sized, Middle-term Efforts	36
2.2.1	Arrange a Speaker Series	37
2.2.2	Make It Easy for Off-campus Guests to Visit	37
2.2.3	Facilitate Meetings on Campus	38
2.2.4	Seek Funding from Government Agencies	38
2.2.5	Seek Funding from Philanthropic Foundations	40
2.2.6	Sharpen Your Writing Skills	41
2.2.7	Sharpen Your Speaking Skills	42
2.2.8	Strengthen Your Campus's Social Media Presence	44
2.2.9	Generate Targeted Email Lists	44
2.2.10	Create an Award for Research Communications	45
2.2.11	Organize Research Fairs	46
2.2.12	Promote Teamwork in Research Groups	47
2.3	Bigger, Long-term Missions	49
2.3.1	Include Team Projects in Courses	49
2.3.2	Teach the Methods of Design Thinking	51
2.3.3	Raise Twin-Win Issues at Conferences	53
2.3.4	Collect Evidence of Twin-Win Payoff	54
2.3.5	Learn about Alternate Ways to Assess the Impact of Your Work	55
2.3.6	Change Hiring, Tenure, and Promotion Policies to Encourage and Recognize Teamwork	56
2.3.7	Change Hiring, Tenure, and Promotion Policies to Encourage and Recognize Working with Business, Government, and NGO Partners	57
2.3.8	Incorporate New Goals and Measures in Strategic Plans and Vision Statements	58
2.3.9	Work with Your Campus's Office of Technology Commercialization	59
2.3.10	Expand Collaboration with Business	60
2.3.11	Expand Collaboration with Civic Partners	62
2.3.12	Spread Twin-Win Ideas in Professional Societies	63
2.3.13	Encourage Research Programs that Combine Theory and Practice	63
3	Conclusion	65
	Author Biography	71



University of California at Irvine (March 2016)

Preface

This guidebook grew from years of discussions about an issue near to my heart: how to change the culture of college campuses in order to produce higher-impact research. Initially, those discussions led to a book, *The New ABCs of Research: Achieving Breakthrough Collaborations* (2016). Yet as I continued the conversation with colleagues and delivered more than 40 talks in the U.S., Canada, and the UK people kept asking me a question that I couldn't fully answer: "How can I change my own campus?"

So, I started preparing handouts. These one-pagers were meant for students, faculty, and academic leaders, like department chairs, institute directors, deans, and provosts. Memorable talks were at the Office of Science and Technology Policy and the National Science Foundation, where my one-page lists had a different set of items. This guidebook is a revised and combined version of those lists.

My focus is especially on North American universities and institutions that I know best, but I hope readers will find ways to translate these ideas into their national research ecosystems. My campus photos, which show the diverse universities I've visited, are meant to help readers appreciate that the ideas in the book can be widely applied.

The first edition of this book was a Kindle self-published book titled *Rock the Research: Achieving the Twin Win of Theory Breakthroughs and Societal Benefits*. Since my audiences have responded strongly to the Twin Win concept, I have made it the title for this second edition.



Cornell University (May 2003).

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