Healthful academic translations: cultivating Collaborative Doers as Innovation Managers for societal well-being

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Science and technology have the potential to transform the practices that can save and improve the lives of so many millions in underprivileged and vulnerable populations. Meeting this vision, however, requires that science and technology be translated into innovative products and services, so as to ensure relevance, appropriateness and sustainability for use to benefit the intended populations. This paper argues that as academic research tends towards collaborations that are global, interdisciplinary and inter-sectoral, a corollary need emerges to develop the requisite leadership and managerial abilities to create and enhance partnerships which translate these academic advancements into (social and/or technological[1]) innovations to achieve increased effectiveness in terms of public health outcomes. In particular, I argue for the development of a cadre of bridging professionals from academe and the field – "Collaborative Doers"[2] – who could act as fundamental cogs in the process of connecting, activating and leveraging the stores of institutional resources, human capital, and scientific and technological prowess to advance global good. By highlighting opportunities to cultivate academic-practitioner networks of Collaborative Doers, I hope to spur attention and dialogue among various stakeholders to create the resource capacity needed for promoting the human competencies that can help improve health access and equity.

Currently, academic technology managers oversee some aspects of innovation diffusion in the context of academic discoveries that promise commercial potential or local economic development. Bridging the worlds of science, law and business, these managers make the deals that move academic ideas into development by the private sector. There are no schools to attend or degree to obtain before one becomes a university technology manager. Rather, one learns from on-the-job experience as well as training programmes of organizations like the Association of University Technology Managers (AUTM)[3].

Moreover, academic technology transfer has typically been tied to financial incentives by way of commercialization of research-based innovation and entrepreneurship. Indeed, the operating budgets (including salaries) at most technology licensing offices in the United States are furnished from earned royalty/licensing income in their intellectual property portfolios. Further, because of narrowly-crafted missions, severely-limited resources, and pressure to show short-term results to shareholders or funders, most employers find it difficult to capitalize on the intrinsic motivations of their high-aspiration employees to contribute into broader communities-of-practice. Finally, with the ongoing economic crisis, academic technology managers confront significantly increased pressure to generate licensing revenue to support their own functions and their parent organizations. Not surprisingly, there is little choice but to defer their aspirational goals of being social entrepreneurs.

The problem of benign neglect is compounded because immediate financial incentives are often missing in numerous academic innovations, particularly when such innovations confer significant societal benefits over the long term. Case studies 1 and 2 showcase how valuable innovations might have still languished but for the evangelical efforts of some of the players involved.

What happens versus what can happen is the core issue when dealing with global health-related innovations as well as technologies which cry out for assuring and activating humanitarian access. Recently, such concern has gained centre stage because of the emergence of a global health industry spurred by increased funding into research and the spawning of global public-private partnerships[6]. Related issues that affect health – food security, water resources, sanitation, climate change, environmental and energy sustainability – have expanded the stakeholder groups and the scope of roles for scientists and managers alike within a global good industry. Naturally we find numerous papers[7] and calls-to-action[8] for optimizing health research architecture and innovation systems, a new generation of problem-solvers[9] and academic leadership for organizational and programmatic transformations[10,11].

To meet these calls, we need "bridging professionals" because the worlds inhabited by the various stakeholder communities – academics, nongovernmental organizations, corporations, "philanthropoids" and parliamentarians (or

CASE STUDY 1: Sprinkles[4]

Stanley Zlotkin is Division Head of GI/Nutrition at The Hospital for Sick Children, and Professor of Pediatrics & Nutritional Sciences at the University of Toronto. Stan invented Sprinkles, which are sachets (like that of sugar) that contain a blend of micronutrients in powder form, and can be used to fortify any homemade food. Sprinkles is inexpensive to manufacture and easy to distribute. Importantly, Sprinkles does not change the taste or appearance when mixed into children's food, making it more likely to be used. Sprinkles addresses malnutrition issues among children, especially iron deficiency anaemia which is the most prevalent nutrient deficiency in the world today.

Over a decade ago, at the time Stan came up with the idea for Sprinkles, he did not find support from his organization's technology transfer group since intellectual property protection would likely not garner significant licensing revenues. Stan, a model collaborative doer, had to configure alternate pathways to make his vision come true. Despite the barriers, he proceeded to test the efficacy of Sprinkles in diverse settings, and teamed up creatively with a willing commercial partner.

Today, the Sprinkles Global Health Initiative – a nonprofit launched with the support of his institution – is linked up in numerous partnerships and making a difference in so many parts of the world. The health impact of the programme has been demonstrated in Bangladesh and Mongolia. Partners in the initiative have included UNICEF, USAID, World Bank and CIDA, and many others. Stan is also building a global network through grassroots mothers' groups that provide essential health education for distributing Sprinkles. Stan has won numerous awards for his work.

The question to ponder is what happens if an innovator does not have the skills and grit of a Stan Zlotkin? Stan's dogged efforts inspire us to configure new pathways to support academic inventors whose work may some day make a huge difference.

members of Congress) – are very different[12]. The denizens of these worlds have their individual cultures and languages[13] meaning that we need boundary-spanners who can bridge these various cultures and forge new partnerships. But finding meaningful partnership opportunity occurs only upon familiarity with the various languages of practice and spheres of influence among the bridging zones. No single person can be expected to possess sufficient familiarity required to work among these multiple constituencies. Thus, boundary spanning work can only thrive with trustful networks of Collaborative Doers who are sufficiently capable and willing to work together with the personal will to do good and the professional humility to execute their tasks[14] over the short, mid, or long term as may be required. These traits are particularly relevant because any such bridging professional needs to relate with sensitivity and care to issues of the poor and the vulnerable in our society; indeed, routine business training models may not only be inappropriate but even unethical and exploitative of the poor.

In sum, there is limited recognition that the impact of an innovation-driven global good industry depends upon the availability of a suitably-trained workforce that can bring disparate parties together and bridge often conflicting interests. Clearly, we need new training models and professional development programmes that can help connect, contextualize, and engage effectively those within and outside of academia, within and outside of health sciences to fulfill the workforce needs of this industry. Thus, the question is: how can we encourage the birth of a new profession of knowledge managers globally who can help shepherd social and technological innovations out of the university settings where they often arise and into the real world where they are needed?

Building a network of Collaborative Doers
In this section, I share a few examples of CARTHA programmes that have helped identify Collaborative Doers from a variety of disciplines, sectors and regions. The

CASE STUDY 2: The Ponseti Method[5]

Clubfoot affects nearly 150 000 newborns annually, with 80% of them in impoverished nations. Clubfoot causes a baby's feet to turn inwards and downwards; if not corrected, a child is unable to walk or move properly. Over nearly five decades, Ignacio Ponseti (Professor Emeritus of Orthopedic Surgery at the University of Iowa Hospitals and Clinics) developed and practised the revolutionary Ponseti Method for clubfoot treatment as an alternative to surgery.

Early in his career, Ponseti realized that surgical approaches did not fully correct clubfoot and/or created problems later in life, such as severe arthritis or even requiring more surgery. He set out to develop a non-surgical treatment that made the most of babies' flexible ligaments. Although the method was initially met with some opposition, it is now endorsed by numerous organizations, including the American Academy of Pediatrics and the World Health Organization. In addition to the improved physical outcomes, the Ponseti Method is less expensive and can be taught to non-physician health-care providers, which is useful in areas with few or no doctors.

In 2008, the University of Iowa launched the Ponseti International Association for the Advancement of Clubfoot Treatment. In partnership with CURE International, Christian Blind Missions and an anonymous donor from North Carolina, orthopaedic specialists from the University of Iowa and elsewhere are now training local health-care workers (doctors, nurses, midwives) in 10 countries. To supplement in-person training, materials are provided through the e-granary digital library (www.widernet.org/digitallibrary/) and online education (https://globalcampus.uiowa.edu). Prominent Iowa City Rotarians are advocating for further outreach, linkages and support of these activities.

This is a glowing example of global partnerships that help spread academic innovations to help the disadvantaged.

However, a natural question is whether an earlier launch of such initiatives could have been undertaken for improving the lives of so many more children?

programmes utilize the C2G2 Training Model: Building Collaborative Competence (C2) within Multisector Partnerships for Global Good (G2), shown in Figure 1. It is particularly relevant to note that these programmes (see http://cartha.org/programs/index.htm) aim to add the social dimension and have been designed and executed with all-volunteer teams of Collaborative Doers to build and enhance Collaborative Competence skill sets (see Figure 2). Finally, with humility, I present these early pilots as anecdotal evidence of what can be done (and to imagine what more could be done) as we seek to collectively build on professionalizing a cadre of Collaborative Doers to serve as Innovation Managers.

✤ **Initiating thought leadership dialogues in professional society meetings to promote continuous interaction between technology managers and academic scholars and researchers from different regions of the world:** from 2001 on, several groups within and outside the Association of University Technology Managers began raising awareness for global health issues in the context of intellectual property management. Evolving from the work of the Technology Managers for Global Health[15], several networking events and training programmes have been promoted in conference settings and campus seminars. These dialogues, in part, continue to help identify how academic licensing policies and management practices might be refined. For example, it has now become more common to consider institutionalizing policies for use of humanitarian licensing provisions in patent licensing agreements.[16]

✤ **Fostering transnational alliance-building and advocacy through contextualization:** it is obvious that de facto ambassadorial behaviours are required among Collaborative Doers operating at the intersection of socio-cultural norms and bridging diverse groups of academics and practitioners from different regions of the world. Such ambassadors empower and inspire themselves and others by creating a "glocalizing" network aimed at inducing these diverse groups to cooperate and craft human-centred approaches to addressing problems of the most-disadvantaged sections of our society. We recognize however that a lack of routine communication and advocacy training for academics and technology managers has been generally lamented in public engagement realms[17]. Therefore, such "glocalizing" networks intentionally embed filmmakers, documentary producers, writers and other creative artists who can help Collaborative Doers reach wider publics.

✤ **Developing fellowships, speaker series and exchange programmes:** we draw upon the motivations of high-aspiration individuals by inviting contributions from younger and older generations from different regions. Existing platforms offered by social service clubs (such as Rotary or Lions) can greatly benefit such outreach and engagement.

✤ **Forming a professional society and developing certifications:** Collaborative Doers need to share their learning-by-doing perspectives and gain new competencies through cross-sector, transnational training platforms and exchange portals. Utilizing in-person training programmes and IT-based environments (social media, new media and other learning platforms), new curricula and certification programmes that supplement traditional education and training in academe could be established to provide viable structures for development of Innovation Managers.

✤ **Promoting tangible mechanisms for social change through portfolio assignments and resource allocations for Innovation Managers:** Innovation Managers require time, travel support, seed funding and fundraising talent to put into practice what they learn through professional development programmes to: (a) alter patterns of seeking new academic research and innovations that can be translated; (b) hone frameworks and methods used to evaluate such innovations; and (c) craft appropriate regional/transnational, multi-sector alliances and deals that can produce better health equity outcomes. Community leaders and institutions (e.g., community foundations) could serve as useful vehicles in this regard at the localized levels to support the development of younger generations of Collaborative Doers.

✤ **Inducing new research and evaluation centres:** we need trained scholars and researchers to observe, study and report on the work of Collaborative Doers and the use of collaborative competence skill sets in various settings. They can help develop the suitable metrics to independently track and assess the work and health equity impact of Collaborative Doers serving as Innovation Managers. Such metrics may lead to positive transformations in the culture of innovation itself. Measuring global health equity impacts could (a) rejuvenate certain "neglected" research sectors (e.g., social sciences and humanities); and (b) strengthen human resources policies and compensation practices with regard to Collaborative Doers and their functional roles within organizational hierarchies and external outreach responsibilities.

The primary benefit of "collaborative doing" is to increase the probability of reaping the societal benefits associated with currently neglected academic innovations. Subsidiary benefits are likely to be realized in the areas of formulating policy as well as building a global community (adept at tapping into locally-resident talent and knowledge resources) with the shared goal of advancing global good. Thus, well-trained, well-networked Collaborative Doers will (a) share, utilize and disseminate resources in more thoughtful, more equitable ways than currently observed; and (b) usefully guide the formulation of better policies for the future (rather than sole reliance on past data to dictate future policy).

Cultivating collaborative doers℠

CARTHA's comprehensive C2G2℠ framework enables the formulation and implementation of solutions to create greater equity and reduce economic and social disparities in local and global settings. We provide models for understanding, facilitating and communicating the work of Collaborative Doers.

CARTHA programming overview
Building Collaborative Competence (C2)
Within Multisector Partnerships for global good (G2)

Provide tools for innovators	Study current practice
Conduct training and development	Build collaborative competence

C2G2℠ Training Model
Building Collaborative Competence (C2)
Within Multisector Partners hips for Global Good (G2)
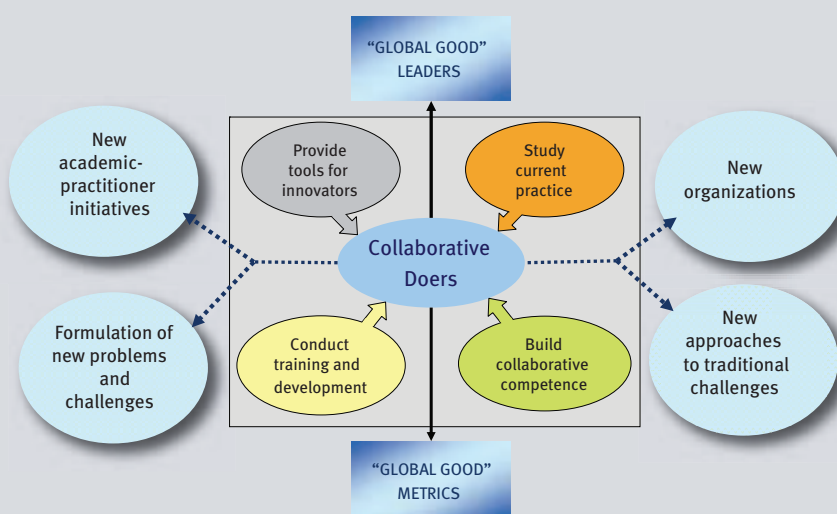
CARTHA Programming
Components of C2G2℠ Training Model Development

Provide tools for innovators	Technology Measures	Study current practice	C2G2℠ Roles Contexts
Web-based Learning Platforms	Online Community Networking	Empathy Governance Leadership	Metrics Outcomes Reporting
Training and development	Fellows Interns	Build collaborative competence	Academics Professionals
Career Development Counseling	Case Studies Immersive Learning	Conferences Workshops Media	Donors Grantees Organizations

Figure 1: CARTHA's C2G2℠ training model and programming overview

A conundrum

Education and training programmes requiring transcontinental exchanges of academics and professionals are costly and time-consuming. Who could or should be funding these programmes for the development of Collaborative Doers, particularly because the benefits of their actions accrue beyond any single organization? In light of the vast benefits to be gained, I argue that it is reasonable to invest an additional small percentage of research expenditures towards training and mechanisms geared towards professionalizing the management of innovations within and outside of the academic sectors to improve global health equity outcomes. Such a cadre of Collaborative Doers could also act as Innovation Managers for research and development (R&D) investments anticipated into other areas (e.g., climate change and climate adaptation; water-related technologies, etc.) which increasingly require cross-sector approaches, involve large-scale funding for large-scale alliances and directly affect the global health landscape.

However, what "paid jobs" exist currently or will arise in the future for such professionals? In essence, beyond any personal satisfaction derived from being a good global citizen or the prestige of being recognized by others for one's good works, what is the core economic rationale for any academic or professional to be or seek further education and training to become a Collaborative Doer? Philanthropies and funding agencies could be more vigilant about how their grant making positively or adversely affects the birthing, development and maintenance of Collaborative Competence traits in the people and partners affiliated with their grantees. Academics and practitioners acting within these purposeful endeavours need appropriate mechanisms, training, and networks to continuously align the impact of their daily

The skill sets and traits outlined below were gathered on behalf of CARTHA with the pooled experiences of over 55 volunteers in 2007.

Collaborative Doers require Collaborative Competence skill sets
⇢ Cultural translation skills in fluid and complex situations
⇢ Ability to proactively reach out with empathy and fairness
⇢ Talent of bridging across people, organizations and networks
⇢ Aptitude to involve, engage and leverage resources across different generations and cultures
⇢ Capacity to spur individual and collective thinking towards collective doing for collective benefit

Collaborative Doers: TRAITS
⇢ Include local talent and passion on local projects
⇢ Anticipate new ideas and innovations to come from any corner of the globe
⇢ Work with dignity and respect for local community to solve problems they identify
⇢ Rely on nuances from oral, written and digital cultures before defining a community problem
⇢ Share and gain new channels and platforms for innovation development, transfer and dissemination
⇢ Engage young people to give creative input and also allow them to gain early advantage of learning by doing

Collaborative Doers: OUTCOMES
⇢ Serve as transformative and resilient thought leaders
⇢ Identify, share and leverage various resources for collective benefit
⇢ Negotiate partnerships and manage expectations to arrive at a better balance in terms of social, environmental and economic impacts

Figure 2: Collaborative Competence℠ Skill sets

professional work to benefit larger interests of society over the short and long term.

Conclusion

As global linkages between academic-practitioner communities proliferate, there is a growing need to understand academic research translation and innovation management-related frameworks as well as research, training, and practice environments from a variety of perspectives, including mechanisms that bridge academic disciplines. To advance global health causes, academic Innovation Managers need to collaborate with academic scientists to understand their aspirations for advancing societal impact: formulating interdisciplinary, sustainable solutions through an enhanced understanding of the complexity of global health problems and their determinants; raising awareness for the need to share experiences and perspectives from novel collaborative structures and new managerial roles among the partnering stakeholders; and helping bring attention to these topics among wider publics. Of course, those persons possessing the impulse to creatively connect and invent with others in entrepreneurial ways for larger societal causes will likely pursue bridging work as Collaborative Doers with or without support and recognition. But, because of the accelerating complexities and scope of global health issues, it is neither wise nor practical to rely on such passion or voluntarism alone to resolve the wide-ranging effects of increased income, social and health disparities. Tangible support and recognition of the work of Collaborative Doers may get us to attaining greater heights of excellence in more timely ways in the hope of creating a more equitable world.

A cadre of Collaborative Doers serving in a network of Innovation Managers – speaking the languages of academics, nongovernmental organizations (NGOs), policy-makers, philanthropic donors and the private sector – can fulfill some of the workforce needs of the global health industry. Building Collaborative Competence will help leverage multisector partnerships, deal-making and resources to move a broader set of potentially useful ideas into policy and action.

Key messages

✚ Bridging professionals (Collaborative Doers) with leadership traits and managerial skill sets (Collaborative Competence) are needed to serve as Innovation Managers to help shepherd academic (social and/or technological) innovations to produce increased public health outcomes.

✚ Filling this unmet workforce need for an innovation-driven global health industry requires multiple stakeholders to thoughtfully create the resource capacity for birthing (a) "glocalized" academic-practitioner networks of Collaborative Doers, and (b) a cadre of professional Innovation Managers who can in turn help form the partnerships to connect, activate and leverage key additional resources in timely ways that move a broader set of potentially useful ideas into policy and action.

✚ CARTHA's "C2G2 Training Model" and early pilots offer some possibilities for what can be – and what more could be – done to advance "health equity impacts" of such a bridging workforce.

As global awareness leads to increased appreciation for the global good, the least we can do as a concerned community of stakeholders is to spur the formulation, implementation and evaluation of alternate paths to vary the patterns of health equity outcomes we expect from and want to promote with increased financing for academic R&D-induced innovations. It is time to professionalize a cadre of Collaborative Doers that can serve as Innovation Managers for societal well-being. ❑

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of CARTHA (www.cartha.org), a 501c3 nonprofit organization launched in 2006. She led the formation of Technology Managers for Global Health in 2003 and has organized numerous thought leadership dialogues and seminars in the USA and abroad. Her 15-year academic administration career at the University of Iowa *included directing corporate partnerships, fostering economic development-related outreach, and managing inventions, patent licensing and technology transfer functions. She has a BCom from Bombay University and an MBA from the University of Iowa.*

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3. See www.autm.net. Several AUTM-like networks have now arisen: ACCT (Canada), ProTon (Europe), FORTEC (Brazil), SARIMA (Africa), ATMT (Taiwan), Knowledge Commercialisation Australasia, STEM (India), etc.
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12. I gratefully acknowledge the contribution of the language for this section in personal email correspondence dated May 2008 from Charles A Gardner who served on CARTHA's founding Board of Directors from 2006–2009.
13. Balakrishnan U, Ramamoorti S. *Contrasting inhabitants of distinct cultures: Towards an academic-practitioner dialogue for real world problem-solving & decision-making*. accessible at www.cartha.org/WorkingPaper/.
14. This is an intentional play on words. While leadership excellence in the social sector surely needs a combination of personal humility and professional will (as stated by Jim Collins who also interestingly points out "why business thinking is not the answer" in the subtitle of his 2005 monograph titled "Good to great and the social sectors"), these traits are simply insufficient to raise awareness for or helpfully address the immense scale or social and cultural underpinnings of dire economic consequences and human suffering due to poverty-driven health disparities.
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