

Comments on the Forum on Repko and Szostak

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I would first like to thank the editors of this journal for inviting contributions to this Forum on Repko and Szostak (2021) *Interdisciplinary Research: Process and Theory*. It is a rare honor to have a forum devoted to a book, and both Allen and I are deeply appreciative. I thank the editors also for inviting me to comment on the contributions. Since the contributors mostly say positive things about the book, this is a particularly enjoyable task. Yet each contribution raises important questions that deserve to be engaged.

I was deeply saddened by the passing of Gretchen Schulz, longtime co-editor of this journal. She was a great colleague and friend, and at the same time a master of the correct use of semi-colons. I much benefitted from her editorial advice over the years.

There is a general lesson in the group of articles as a whole: that instructors can use the book in many ways, tailored both to their particular institution and program, and to their own strengths and preferences. This reflects the obvious but oft-disputed fact that interdisciplinarity operates in a very similar fashion regardless of the precise questions addressed and disciplines engaged. The various strategies outlined in the book are thus useful to instructors and students in a wide variety of pursuits.

These articles are all great examples of the scholarship of (interdisciplinary) teaching. Each of the authors deserves to be applauded for thinking deeply about what they are trying to achieve in the classroom, and then about how best to achieve these goals. Allen and I have learned much from these papers, and will build on their insights in the next edition of our book. Notably, each author in their own way pursues strategies that rely heavily on class discussions. They also each stress having students apply interdisciplinary strategies while learning them. Students learn best how to tackle complex problems and appreciate diverse perspectives by doing so repeatedly.

Benjamin Brooks (2022) makes a compelling case that our book can be used to encourage information literacy. I concur totally with Brooks that we need to be teaching our students how to both find and then evaluate and critique relevant information. Indeed, in a world awash in disinformation, this is one of the key educational priorities of our age. While all university programs should grapple with information literacy, it can be argued that interdisciplinary programs have advantages here. We naturally teach our students to seek

information from diverse sources, evaluate this, and pursue a more comprehensive understanding. I hope that instructors will be inspired by Brooks to make information literacy an explicit goal of their courses. Allen and I in turn should make the goal more explicit in the book.¹

I also applaud Brooks for pursuing metacognition. It is invaluable to have students reflect on their own thinking processes. This allows them to contemplate how they might improve these, and in particular how to reduce bias. I quite liked the prompts he uses to stimulate these reflections. Allen and I encourage various types of reflection, and can also be more explicit about this goal in our book (and yes we will likely use the prompts).

I very much like the sort of class conversations that Brooks encourages. I also have devoted lots of class time to having students discuss their research, step by step. I am always impressed by the ability of students to give each other advice—and the confidence and agency they develop in doing so. Instructors who have familiarized themselves with the strategies in the book will find that they can make useful suggestions as students talk about the challenges they face. Some of my best teaching moments have come when we were able to identify a strategy for addressing a challenge a student had identified. You could see the light come on, and I hope the value of the strategy(s) involved will not soon be forgotten.

Rhonda Davis (2022) addresses the importance of mapping as a teaching tool. I would confess here that mapping has always been one of Allen's and my favorite topics, and perhaps the area in which we innovated the most in the book. I particularly like the way she has her students develop maps together in class.² In doing so, they not only master an important technique but learn that they have something useful to contribute, while hopefully coming to appreciate the unique contributions of other students with different perspectives.³ She then urges students to develop a systems map of their own research question, and recognizes that this aids them in identifying relevant phenomena and disciplines, and at many other points in the interdisciplinary research process. I completely agree that any mapping exercise forces students to clarify their thinking. The maps, each in their own way, force students to ask a set of questions about their research project and try to develop a coherent answer. They might otherwise be tempted to write very descriptive essays

1 We devote more attention to information literacy in the third edition of Allen Repko, Rick Szostak and Michelle Buchberger, (2020) *Introduction to Interdisciplinary Studies*.

2 I occasionally give workshops to interdisciplinary research teams, and have found the exercise of developing a system map to be incredibly useful in identifying research questions and dividing tasks among team members.

3 I also have a sentimental attachment to the Mathews and Jones (2008) article that she cites multiple times. Allen and I co-edited the 2008 volume of *Issues* in which that paper appeared, and liked that paper from the moment we first read it. It is a great resource for instructors to use to get a greater handle on systems thinking. Another useful resource is <https://wtf.tw/ref/meadows.pdf>.

in which they simply parrot the ideas of others. I also like the emphasis on getting students to think about how they might change the world: Systems maps (among other things) help identify where social action might lead to beneficial change.

I also like her use of a worksheet from Tanya Augsburg's (2016) book to get students thinking about their research topic. The questions in this worksheet guide students to first identify issues they care about and then work toward a research question. Allen and I added a couple of paragraphs about how to choose a good research question in the most recent edition in response to observations by Sharon Woodill that students struggle a lot with this task. But a list of questions that students could ask themselves as they try to develop a research question is clearly a good idea.

Rafi Rashid (2022) has used our book in graduate courses in science and engineering,⁴ and also in a journal club for students. He emphasizes the important role that interdisciplinarity can play in developing the critical thinking skills of students. This is an important point—and one that cannot be stressed too much to university administrators. What, though, is interdisciplinary studies' particular contribution to critical thinking, given that virtually all university programs can claim that they also encourage critical thinking? Rashid (like Brooks) emphasizes the value of students learning how to find and evaluate information from different disciplines. I would take this valuable argument a step further. I increasingly think that our key advantage may lie in exploring complex webs of relationships among several phenomena generally studied in different disciplines (the systems maps emphasized by Davis serve to illustrate this point). We all know that our world faces a set of complex challenges that involve the interactions of phenomena studied in different disciplines (and Rashid introduces us to challenges associated with our internal microbes and shows how these require an interdisciplinary response). We cannot stress too much that interdisciplinary studies has a special role to play in teaching students how to grapple with such challenges.⁵

I also applaud Rashid for integrating across both ethical and scientific insights. The vast bulk of research in interdisciplinary studies has focused on the latter. But Allen and I have long had discussions of ethics in our books. As Rashid notes, we can often apply the same techniques to integrating across ethical conflicts as we apply when addressing scientific conflicts. And Rashid is quite right that there is an ethical dimension to many of the world's great challenges. We can thus not afford to ignore ethics in our teaching. I fear that instructors often avoid discussing ethics because of a fear that ethical

4 Allen and I have always tried to include examples from diverse fields, and look forward to including examples of research by Rashid and his students in future editions.

5 My argument here echoes Bill Newell's (2001) "Theory of interdisciplinarity" in this journal, but his discussion of complexity emphasized nonlinear relationships while I think the key may be instead the number of relationships involved.

disagreements are intractable, or a fear that they will be too controversial for comfortable class discussions, or a misplaced feeling that any ethical argument is as good as any other (and thus our skills at evaluation and integration are inapplicable). But students can be introduced to the mere handful of key types of ethical analyses,⁶ understand the bases of each, and then be far better prepared to examine the assumptions underlying any particular ethical argument they may encounter.

Rashid, like Brooks and Davis, engages his students in group projects and class discussions about various steps and strategies in the interdisciplinary research process. He stresses the value of “active learning,” where students learn material while pursuing their own curiosity. This is, of course, particularly valuable for graduate students.⁷

Rashid makes an interesting observation: that he and his students are often guided by the interdisciplinary research process to suggest hypotheses for *disciplinary* research that would not have occurred to a researcher embedded in that discipline. I would confess that Allen and I have focused on the development of comprehensive understandings that involve phenomena studied in multiple disciplines. Yet we have also stressed a symbiotic relationship between disciplinarity and interdisciplinarity: that interdisciplinary analysis builds on disciplinary insights but then provides advice to disciplines on how they might benefit from different theories or methods or studying links to phenomena studied in other disciplines. So Rashid’s observation should not come as a surprise, and deserves to be made explicit in our book.

Rashid talks about sharing his research with his students. I encourage all instructors to do so. I have done so with both graduate students and undergraduates, and in both disciplinary and interdisciplinary courses. Students are required to read a lot of books and articles, and thus have some natural curiosity about how these things came to be written. We can tell them about how we moved from a first vague idea to a finished product (or indeed, discuss work in progress—I once developed a key argument during a classroom conversation about a paper I was writing). My students seem to especially enjoy hearing about how I deal with referee reports. I think it is invaluable for students to recognize that all that stuff they read is written by flawed humans like us.

I concur with Machiel Keestra, Anne Uilhoorn, and Jelle Zandveld (2022) that choice is good. I thank them for recognizing how pathbreaking Allen Repko’s original textbook was. It indeed signaled that the literature

6 Students can also be taught that these analyses often point in the same direction: honesty, personal and social responsibility, and other important values receive strong (though inevitably imperfect) justification within all types of ethical analysis. I have argued in many places that the “ethical challenge of our times” is to continue to celebrate diversity of many kinds while still encouraging all of society to recognize some shared values.

7 Rashid is, as far as I know, the first to develop an explicitly interdisciplinary MOOC. I encourage him to make this widely available.

on interdisciplinarity had come of age.⁸ It is a sign of the book's—and the field's—importance that other textbooks have emerged.⁹ Allen and I had talked about maybe doing a book aimed explicitly at graduate students, but decided in the end that our book could be coupled with the literature on mixed method research to serve the needs of graduate students.¹⁰ Yet we have, as Keestra et al. recognize, added more material in our book on both mixed method research and team research.

I thank Keestra et al. for recognizing their intellectual debt to Repko.¹¹ The community of interdisciplinary instructors and researchers deserve to have a choice among textbooks in which textbook authors learn from each other. We look forward to returning the favor as we add more discussion of mixed methods research and team research. I very much like the discussion in this paper of how they employ some questions from the Toolbox project as prompts as students begin work in teams.

I worry very much that we risk making the word “integration” meaningless if we apply the same word to too many distinct activities. I confess that Allen and I have gone some way down this road ourselves, following many others in recognizing the need for some integration of outlook among interdisciplinary research teams. But the discussion by Keestra et al. of several different activities that they call “integration” goes many steps further. We should, most importantly, draw a sharp distinction between the integration of insights into a more comprehensive understanding, which is generally the *goal* of interdisciplinary analysis, from a whole bunch of other activities that are important *means* to achieving that goal. We should, that is, emphasize the integration of insights, while appreciating the distinctness of the wide range of activities that support the integration of insights. We should then appreciate that there are some key characteristics of the integration of insights such as identifying common ground, being creative, and having recourse to a handful of well-defined strategies. The integration of insights deserves dedicated appreciation and study by both students and scholars, and should not be grouped together with a host of activities that are different in important ways.¹²

8 I have a vivid memory of Allen making a presentation at an AIS conference while writing the first edition, and talking about how his book was only possible because of the research of many others (many of them associated with AIS).

9 I have already mentioned Tanya Augsburg's (2016) *Becoming Interdisciplinary* above.

10 This seems to have been the approach of Rashid, though he also would like to see more discussion of both graduate research and team research in our book.

11 I would quibble with their description of the interdisciplinary research process in our book as “linear.” We stress the iterative nature of the process throughout the book.

12 I am not troubled by “integrative studies” as in Marcus Tanner's (2021) *Introduction to Integrative Studies*, for this also prioritizes the integration of ideas that students encounter in the classroom with those they encounter elsewhere.

There is already a well-developed literature on mixed-method research. We should be forging links with that literature,¹³ rather than insisting on (mis-) applying our own terminology. There is a burgeoning literature on team research also (I am not sure to what extent they use the word “integration”). There are a variety of terms we can employ for other activities—synthesis, collaboration, and so on—without unnecessarily diminishing clarity around what we mean by integration.

Simon Scott (2022) recognizes that the interdisciplinary research process is challenging. We should be neither surprised nor embarrassed by this simple fact. Disciplines tend to devote multiple courses to explaining disciplinary methodology (this is certainly the case in my home discipline of economics). Once we have appreciated that there are a set of strategies that have proven useful in performing interdisciplinary research, we need to ensure that we communicate these to our students. There is much that can be accomplished in one course, but the material can be usefully reinforced across multiple courses. As Scott appreciates in his conclusion, interdisciplinary research is inherently challenging, and students benefit greatly from understanding a process and strategies for performing this.

Scott has students choose disciplines before topics (or make these choices simultaneously). Students can then choose disciplines in which they already have some adequacy. The interdisciplinary research process is iterative and thus Scott’s approach is quite legitimate. Indeed I suspect that many interdisciplinary researchers look for questions that can be addressed with familiar disciplines. Yet I think it useful for students to explore new disciplines. This likely occurs to a considerable degree in the group conversations that Scott encourages. Scott hopes that his students will come to view their home discipline with new eyes (but doubts his students would agree). We may need to hope that we plant a seed that will blossom as they take further courses in a discipline.

Scott, like other authors in this forum, requires students to engage in group conversations and presentations. Each student is required to present on how a particular text addresses the group’s research topic. Analyzing texts from an interdisciplinary perspective is an important interdisciplinary skill (and one that lies at the heart of Repko, Szostak, and Buchberger (2020) *Introduction to Interdisciplinary Studies*). Yet I worry a little that this task may divert attention from a key element of disciplinary adequacy: appreciating within-discipline debates about a research topic.

Scott worries that finding common ground comes late in the interdisciplinary process. Students may thus lack the time to perform the step properly.

¹³ I discussed the connections between interdisciplinarity and mixed-methods research in my (2015) “Interdisciplinary and Transdisciplinary Multimethod and Mixed Method Research” in the *Oxford Handbook of Multimethod and Mixed Method Research*.

This is indeed a challenge. Scott appreciates that this step requires creativity. Creativity in turn takes time—time not just to work on a problem but to relax and allow subconscious thoughts to bubble to the surface. I always structure my courses with lots of class presentation time at the end to ensure that students have some weeks to engage the last steps. Another solution, of course, is to structure a course sequence so that students can continue their research into a capstone course.

Marcus Tanner (2022) recognized when he became director of his Interdisciplinary Studies program that students needed to be taught how to integrate. This, sadly, is not universally appreciated. (Tanner benefitted from attending AIS conferences and reading this journal.) He further appreciated that students in the program had difficulty articulating what the program was about. This point deserves emphasis. Interdisciplinarity is still novel to many parents, employers, and university administrators, and students (and program directors) thus need to be able to explain the nature of interdisciplinarity to multiple audiences. This they can only do if there is a set of core courses that clearly define interdisciplinarity and explain how it is best pursued.

Tanner is to be applauded for developing a rigorous sequence of core courses for his program, ending with a capstone in which students pursue a research project. As noted above, the interdisciplinary research process is best communicated across a course sequence that can reinforce key concepts—and results in a capstone course in which the students apply what they have learned in a research project.¹⁴ I note that Tanner's university has a funding formula in which his program received funding based on enrollments—and his enrollments have soared as he strengthened the core (and added some new options). I wish that more universities provided clear incentives to interdisciplinary programs. Tanner has also carefully evaluated learning outcomes, and these have improved. We can be both rigorous and popular if we can gain appropriate resources.

Scholarship is a conversation. Our textbook has evolved over the years as we have responded to advice from instructors, referees, and the growing literature on interdisciplinarity. Allen and I thank all of the authors in this forum for furthering this conversation. We have learned much from it, and are confident that other interdisciplinary scholars will also have learned much.

¹⁴ I am of course partial to Repko, Szostak, and Buchberger (2020) as a text for the introductory course, but I quite like Tanner (2021) and Augsburg (2016) also. It is a great thing that instructors can choose the text that works best for them. Like Davis above, they can borrow ideas from one while working with another.

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I thank Allen Repko for his comments on this piece, and even more so for decades of collaboration and friendship.

Biographical Note

Rick Szostak, PhD, is Professor of Economics at the University of Alberta. He was President of AIS from 2011 to 2014. He is the author of twenty books and fifty journal articles in economics, history, interdisciplinary studies, information science, and several other fields. He has studied the theory and practice of interdisciplinarity for two and a half decades. He has taught courses in interdisciplinary studies and served as an Associate Dean with responsibility for interdisciplinarity. Recent books include *Making Sense of World History*, *Making Sense of the Future*, and *Integrating the Human Sciences*, all with Routledge. He is at present editing the *Edward Elgar Handbook of Interdisciplinary Teaching and Administration*.

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