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How do you think systemic design's scholarship system should work?

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Knowledge Innovation Is Systemic and Fractal and That Should Be Reflected in Our Models of Publishing: Proposing a Scholars' Spirals model of scholarly impact and knowledge innovation pathways

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The Systemic Design Association's (SDA) recently adopted the Scholar's Spiral (<https://rdsymposium.org/systemic-design-publishing/>). As described in the article, the previous canonical model of scholarly progress in the systemic design community was a "publication ladder." The ladder provided a simple and useful framework for authors. However, the linear nature of the ladder did not fit with the multiplicity of inputs and outputs of the scholarly process recognized by SDA members. Further, it implied that the highest form of impact was, by default, a scholarly publication in a single preferred destination. A solution to these problems should be celebrated. However, the core problems with the old model persist in the Scholar's Spiral:

1. It still shows the scholarly progress of an idea or project as a stepwise function beginning with conference presentations. This suggests conference publications are less important than later publications. It also implies a standard narrative for the evolution of a scholarly idea.
2. It still specifies an ultimate destination (the Contexts journal). This suggests that an idea should ultimately be presented in Contexts for posterity (if only before it goes on to have further impact).

Further, despite its centering in systemic design, the model fails to include gigamaps, synthesis maps, and other such non-traditional forms of knowledge (Jones & Bowes, 2017; Sevaldson, 2018). Moreover, and perhaps more importantly, the framing of the spiral introduces a new problem. Scholarship *is* knowledge innovation — it is fractal and systemic, requiring and spinning off parallel innovations of many forms, scales, and degrees. Based on these critiques, I propose an iteration on the Scholar's Spiral: Scholars' Spirals. The Scholars' Spirals model recognizes that scholarship is itself a system by incorporating five principles: (1) co-creation; (2) multiplication; (3) nonlinearity; (4) transdisciplinarity; and (5) de-centering the scholar and the publication. I propose multiple pathways through the Scholars' Spirals to provide wayfinding for scholars of different paths.

The Scholars' Spirals model inspires some important questions about scholarship in systemic design: How should scholars be incentivized, assessed, and rewarded? What is the role of prestige in this system? And how can we effectively judge scholarly impact while managing fair and equitable competitions for grants and positions? Metrics like citation counts and Journal Impact Factors have become the shorthand standard for gauging merit. We know that “when a measure becomes a goal, it stops becoming a useful measure” — and yet, while “all models are wrong, some models are useful.” The challenge we have to face is to find novel, effective ways to assess the systemic impact of scholarly work in systemic design.

KEYWORDS: scholarship, knowledge innovation, publishing

RSD TOPICS: Methods & Methodology, Learning & Education

Introduction

The Systemic Design Association's (SDA) adoption of the Scholar's Spiral (“SDA Adopts the Scholar's Spiral,” 2022) should be celebrated. As described in the article, the previous canonical model of scholarly progress in the systemic design community was a “publication ladder.” The ladder (Lockwood, 2018) provided a simple framework for authors. It was easy to understand how scholarly effort should be initially published, and how that effort should advance as its products became more potent and refined. The stepwise nature of the ladder made it easier for a scholar to decide what to do with

their work based on the work's stage of advancement. However, the linear nature of the ladder did not fit with the multiplicity of inputs and outputs of the scholarly process recognized by SDA members. Further, it implied that the highest form of impact was, by default, a scholarly publication in a single preferred destination (a journal).

The new model proposed by the SDA board is a spiral. It ("SDA Adopts the Scholar's Spiral," 2022) purports to:

1. Reduce competitive implications of the ladder's hierarchical structure, which places the achievement of the peer-reviewed article at the top of the ladder;
2. Encourage the development of new authors in the field by promoting a holistic and high-standard process for authors at different levels of quality and readiness to start publishing; and
3. Adapt our knowledge of systems thinking to the publishing process.

By presenting the preceding ladder in a ringed shape, the spiral implies that systemic design scholarship is iterative. It shows how knowledge innovation in systemic design advances in a cyclical form, building on previous efforts by circling back on itself in feedback processes. It changes the label of some of the destinations (e.g., including "Other Conferences") in order to acknowledge variance in the communities a scholar engages with.

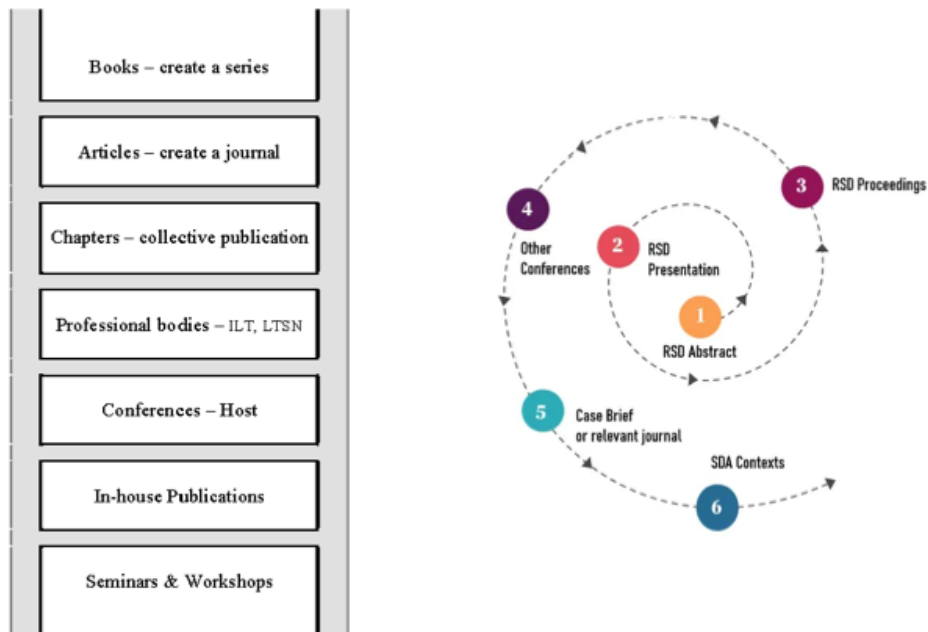


Figure 1. The publication ladder (Lockwood, 2018) and the SDA Scholar's Spiral ("SDA Adopts the Scholar's Spiral," 2022).

Problems with the Scholar's Spiral

However, while the new model should be celebrated as progress, it fails to fully resolve the problems it set out to address. Glibly, the new spiral is merely a linear hierarchy that has been curved. Granted, it looks less hierarchical, and it looks less linear, but it is a mostly a trick of the eye. The core problems with the old model persist in the Scholar's Spiral:

1. It still shows the scholarly progress of an idea as a stepwise function beginning with conference presentations. This suggests, for instance, that conference publications are less important than later publications. It also implies a standard narrative for the evolution of an idea.
2. It still specifies an ultimate destination (the Contexts journal). This suggests that an idea should ultimately be presented in Contexts for posterity (if only before it goes on to have further impact).

Moreover, and perhaps more importantly, the framing of the spiral introduces a new problem. Scholarship *is* knowledge innovation: a change in knowledge that improves our ability to explain, predict, and create. Ergo, several features of innovation also apply to scholarship. Crucially, innovation is fractal and systemic (Murphy, 2016) [p. 20]:

The success of one innovation often requires the success of others in parallel. Innovation often results in new knowledge, relationships, and spin-off innovations. Innovations exist in many forms, from product to social movement; at many scales, from new-to-you to new-to-the-world; and in many degrees, from radical to incremental.

In other words, scholarship requires and precipitates parallel scholarship. Scholarly works build on one another in emergent, nonlinear ways. Scholarly achievements are caused by and cause collaborative inquiry. New ideas form from dialectic relationships between preceding ideas. By calling the model a Scholar's Spiral — a singular possessive of a singularity — the model implies that an idea is owned and shepherded by a single scholar and evolved on a single path. This neglects the true collaborative and emergent nature of scholarship and knowledge innovation.

The Scholars' Spirals model of research impact and knowledge innovation

Based on these critiques, I propose an iteration on the Scholar's Spiral: Scholars' Spirals. A visualization of the model is depicted in figure 2.

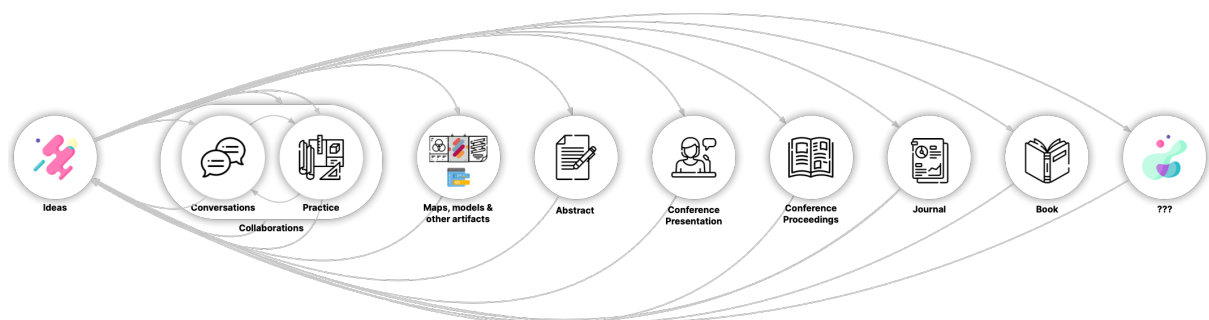


Figure 2. A visualization of the Scholars' Spirals model.

The Scholars' Spirals model suggests that knowledge innovation is typically elaborated from idea to impact through at least eight types of knowledge innovation and

knowledge products: conversations, practice, collaborations, abstracts, conference presentations, conference proceedings, journal articles, and books. However, it does not organize this typology into a hierarchy: no one form of knowledge is necessarily superior to another. Instead, each of these forms of knowledge is the manifestation of ideas. Knowledge is perpetuated and evolved via in cyclical moments of knowledge exchange (Baskerville et al., 2015) [p. 552] between these forms and ideas.

The Scholars' Spirals model reifies the following principles:

1. Scholarship may be co-creative — especially in systemic design, where co-creativity is an essential part of systemic design practice. Hence, the use of the plural possessive “Scholars”.
2. (Systemic design) scholarship should be multiplicative. One conference presentation may inspire dozens of responses, iterations, and offshoot publications. Systemic design researchers should be encouraged to interact with, build upon, challenge, and inspire other works, and should aspire to have others do the same to them. Hence, the use of the plural “Spirals.”
3. (Systemic design) scholarship may be nonlinear. An idea may be developed in a series of iterative conference publication. A significant research stream may begin as a gigamap or synthesis map (Sevaldson, 2018) that leads to both a book and a conference presentation. Scholars' Spirals acknowledge these complex pathways.
4. In transdisciplines such as systemic design (Jones, 2017), scholarship may be multiand cross-disciplinary. Systemic design research may draw on examples from one field to create a design artifact for another. The Scholars' Spirals model does not prescribe a disciplinary track for each form of knowledge, encouraging these transdisciplinary inputs and outputs that connect achievements in systemic design scholarship.
5. Scholarship should strive to de-centre publications and publishing in favour of scholarly impact and knowledge innovation (*San Francisco Declaration on Research Assessment*, 2012). Contributions themselves are cardinal; the ideas they provoke are secondary; the conversations and practices they inspire are tertiary; and everything else is simply part of the process.

A few other nuances are worth explaining.¹ First, I conceptualized a collaboration as a combination of conversations and practice. Surely, many scholarly works — conference proceedings, journal articles, and the like, are collaborations. I do not argue against that whatsoever. However, the model only attempts to explain and predict how innovative scholarship is evolved into the non-exhaustive list of forms of knowledge it contains. To that end, I am asserting that a collaboration is practice we talk about together.

Collaborations generate new ideas — it is those ideas that become the collaborative journal articles we see with multiple listed authors. For a proof-by-example of this, consider the (in)famous article “Combined Measurement of the Higgs Boson Mass in pp Collisions at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS Experiments” (Aad et al., 2015), which lists over 5,000 co-authors. Surely, not every author was added to a collaborative Google Doc and had opinions about the semantics of the title. Yet, every author included contributed in shaping the project that led to the ideas that generated the insights of the paper.

Second, you may wonder how this model applies to a sole author developing and publishing their ideas independently. How does this path apply to the model’s emphasis of cyclical conversations and exchanges of ideas? It is simple, and it does not require that we talk to ourselves. At least, not out loud. Instead, I argue that writing is a conversation with yourself. When we write, we instantiate our ideas and arguments as unstructured and semistructured data (Negash, 2004), creating a kind of personal information system (Murphy, 2021). So, as we write — and read what we’ve just written — we engage in a kind of conversation with this information system.²

Pathways to impact

Of course, a model that reflects the “true” complexity of an idealized systemic design scholarship system is unlikely to help an individual scholar or team navigate that system, as the possible “next best steps” may be overwhelming. The map should not be

1 Albeit hopefully only to add detail to the model, not to evade refutation of the theory of the Scholars’ Spiral (Healy, 2017) [p. 121].

2 This is an information system because it is a way of maintaining, representing, and interacting with your mental models (Olivé, 2007) [p. 3].

the territory (Korzybski, 1933) [p. 58]. To provide guidance, the Scholars' Spirals model offers a set of pathways to impact for a scholar to adopt and/or adapt.

However, like the forms of knowledge represented in the model, the paths presented here are not an exhaustive list, nor do they represent the best or most important methods of achieving impact.

0. Publishing ladder

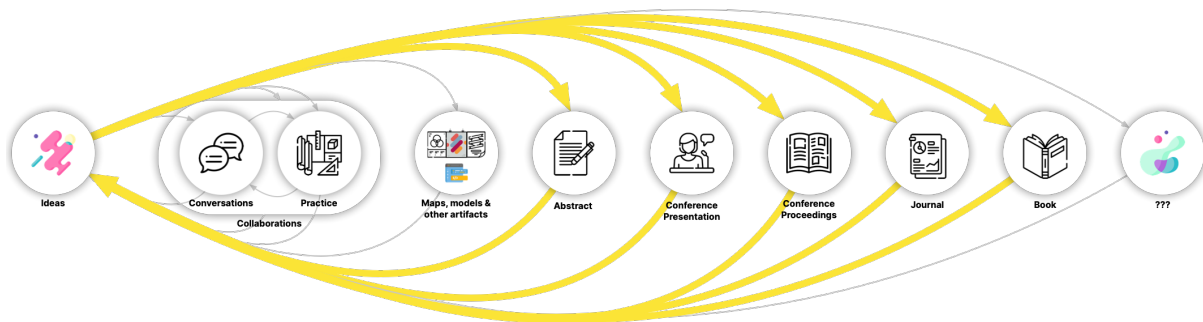


Figure 3. Publishing ladder

This pathway is labelled 0 as it is the default model of scholarly impact, as represented by the publishing ladder (Lockwood, 2018) and the first version of the scholar's spiral ("SDA Adopts the Scholar's Spiral," 2022). It follows the same structure as those scaffolds: a scholar puts their ideas into an abstract, converts the feedback on the abstract into a conference presentation, translates the conference presentation into a proceedings paper, levels that work up to a journal article, and maybe eventually elaborates on the concepts in a book.

1. Practice to Theory

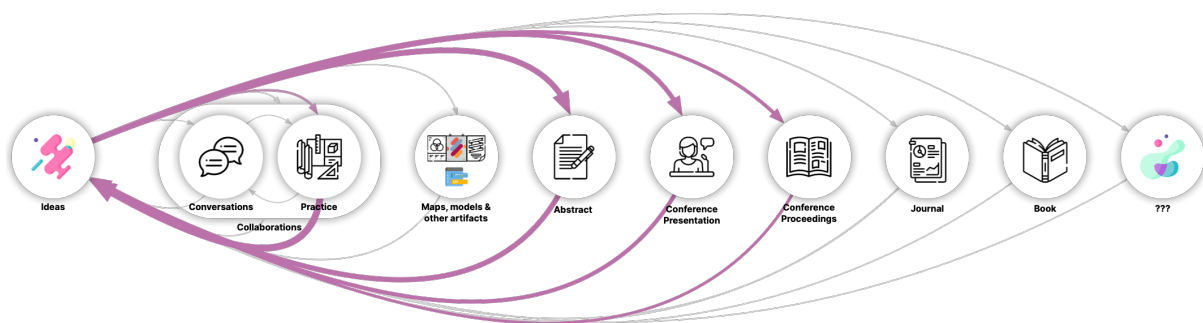


Figure 4. Practice to Theory

The Practice to Theory pathway illustrates how a practitioner might draw from their experience to publish theoretical contributions at a conference like RSD. In this path, practice generates ideas that the author captures in an abstract, which is accepted for a conference publication and then later written up as part of conference proceedings. Note: in this diagram, connections are weighted to indicate a “beginning” (the heaviest strokes) and an “end” (the lightest strokes) of the pathway, by way of demonstrating how the Scholars’ Spirals model may be used to show such progress. However, I want to reiterate the nonlinearity principle of the model: ontologically, there may not be a “beginning” nor an “end” in knowledge innovation.

2. Theory to Practice

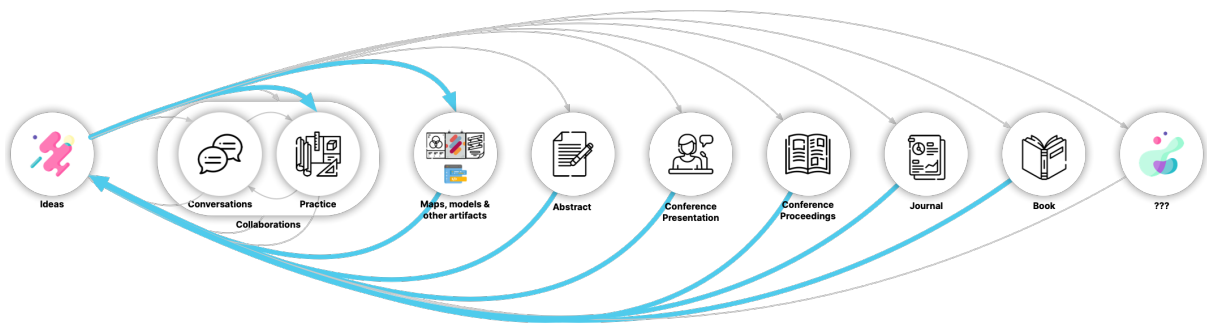


Figure 5. Theory to Practice

The Theory to Practice pathway highlights how publication is not necessarily the key outcome of knowledge innovation. Instead, in this model, insights are drawn from scholarship and translated into practice and artifacts.

3. Conference Conversations

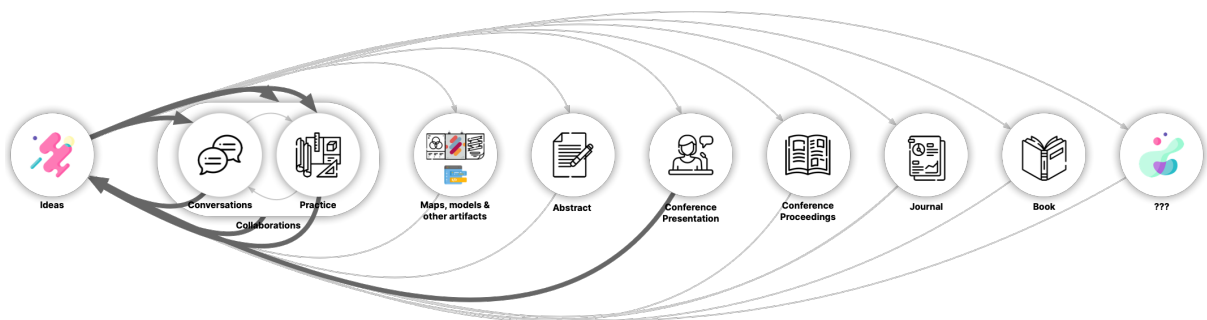


Figure 6. Conference Conversations

The Conference Conversations path captures the conference experience hosts endeavour to facilitate. Presentations at the conference generate new ideas for

participants, who engage in conversations. Those conversations, in turn, lead to new projects and collaborations.

4. A concrete example: *Design Journeys*

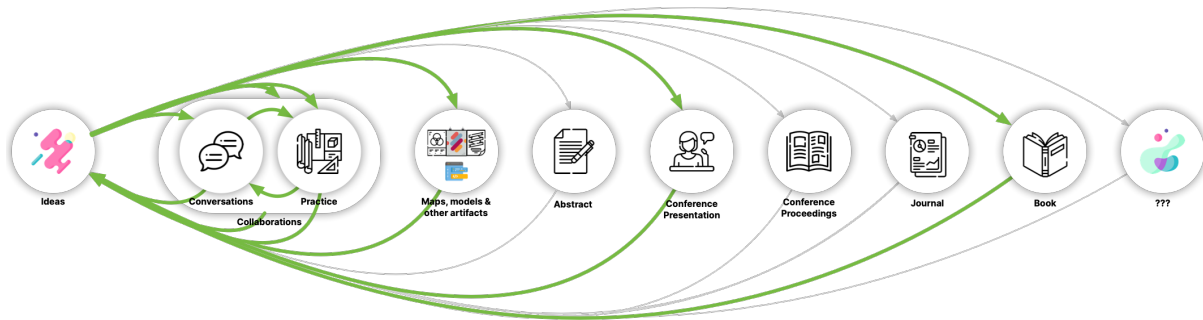


Figure 7. Design Journeys

This final example pathway infers the path taking by Peter Jones and Kristel van Ael in the publication of the recent book *Design Journeys through Complex Systems: Practice Tools for Systemic Design* (Jones & Ael, 2022). They write...

Based on years of work in social and health sectors, we developed the Systemic Design Toolkit as a collection of systems power tools that enable service and strategic designers to bridge design research with stakeholders for complex systems. (p. 3)

... and ...

These values were inspired by or taken from the vital ideas presented at several Relating Systems Thinking and Design (RSD) Symposia, which, for a decade, have built up a research community and foundation of practices supporting these methods and tools. (p. 18)

As you can see, ideas and conversations that were developed in practice and inspired through conference participation became the Systemic Design Toolkit (*Systemic Design Toolkit*, 2021), which itself was first workshopped at conferences across disciplines in 2015 (*Presenting Systems Thinking Tools at EuroIA 2015*, 2015; "Systemic Design Workshop at RSD5," 2016). Further engagement with conferences, especially RSD, and use of the tools in their own practices eventually led to the publication of the book.

Questions and directions

The Scholars' Spirals model may inspire some important conversations in systemic design scholarship. Crucially, it suggests we take as fundamental the idea that scholarly achievements and knowledge innovations are the products of a system, and not a scholar. If that is the case, it provokes two questions:

1. How should scholars be incentivized, rewarded, recognized, and compared, if they are no longer the "heroes" of the story of knowledge?
2. What is the design of our scholarship system? Is it working as "intended"?

The model also challenges the conventional notion that the prestige of a publication destination is paramount. If the Scholars' Spirals model is accepted wholeheartedly, it means that contributions published in classically-less-prestigious destinations (such as conference presentations) and formats (such as gigamaps or tools) should potentially be considered just as important as those published in classically-more-prestigious forms (like journal publications). Yet, one of the functions of prestige is efficiency: when competition for funding or positions is fierce, it is impossible for an adjudication or hiring committee to thoroughly review the scholarly impact of numerous applications with diverse backgrounds. Prestige and other metrics like impact factors and citation counts provide a measure facilitating comparisons of impact. This leads to a classic systemic problem: when a measure becomes a target, it stops being a good measure. Researchers adapt their behaviour to perform better on these measures, possibly at the cost of their potential contributions (e.g., imagine a researcher who abandons a publication with profound implications because it is not accepted in a major journal) or even through fraud and misconduct (Biagioli, 2016). So: what else might we assess or measure in order to judge the systemic impact of a scholar or their contributions? How can we effectively judge the systemic impact of a scholarly contribution while managing fair and equitable competitions for positions, grants, and contracts?

What other forms of knowledge might be important to include in the model? The Scholars' Spirals model shows how knowledge innovation may be shared in many formats, but the list visualized by the model is incomplete. What of, for instance, YouTube videos, social media posts, or perhaps policy and law? There may be more useful ways of representing the many forms of knowledge in the model.

Finally, just as it suggests, the model itself unlocks possible future innovations. For instance, there may be utility in further pioneering and pathfinding. What other common routes to impact might exist? What are some interesting outliers, and why did they succeed? What additional guidance or supports might be useful for scholars pursuing a given pathway? I can imagine, for instance, a compass-style tool in which a scholar chooses a heading — i.e., the kind of progress they want to make in their career — and provides their recent contributions, and the tool helps the scholar decide which contributions to evolve further, and how to do so. Last, while the Scholars' Spirals model is contribution-centered, it could be used to develop a scholar-centric complementary tool. Perhaps there are multiple kinds of scholars who each pursue similar patterns of contributions over time to different ends.

Conclusion

The SDA's adoption of the Scholar's Spiral underscored the importance of reevaluating our mental models of knowledge innovation, scholarly impact, and publishing. The Scholars' Spirals model I present here furthers the efforts of the Scholar's Spiral while acknowledging the systemic undercurrents influencing the interaction between scholars, knowledge, and knowledge's many instantiations. It centers the contribution, not the scholar, emphasizing how knowledge innovation occurs as a result of interactions between scholars and their ideas. Finally, the model provides flexible pathways such that a diversity of scholars can see themselves and their contributions in the model. Still, metrics like citation counts and Journal Impact Factors remain the shorthand standard for gauging merit (*San Francisco Declaration on Research Assessment*, 2012). The challenge of our modern era of scholarship is to use tools like the Scholars' Spirals model to find novel, effective ways to accurately assess the systemic impact of scholarship and knowledge innovation.

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