Editorial: Open Science Initiatives at *Emerging Adulthood*

Moin Syed
University of Minnesota
moin@umn.edu

Emerging Adulthood

Version: 09/23/18

In the editorial published when I assumed the editorship of *Emerging Adulthood* (Syed, 2016), I stated that the journal would be committed to several open science practices, largely with respect to transparent reporting. I return with this current editorial to report on concrete changes in expectations and practices at *Emerging Adulthood* that are effective immediately.

The changes described herein align with what I view as current best practices in the field. As I indicated in my 2016 editorial, I developed these initiatives slowly and carefully to avoid quick and uninformed decisions that would have unintentionally negative consequences. Indeed, none of these changes were determined hastily, and they should not be seen as knee-jerk reactions to other initiatives in the field, nor should they be seen as faddish. Over the last several years I have been reading about new developments, monitoring social media discussions, and consulting with colleagues, all of which have convinced me that these changes will not only help improve our field, but that by *not* making these changes—by doing nothing—I would effectively be harming our field. All of the initiatives outlined here are *simply sound research practices* that can bolster our confidence in individual studies and the cumulative literature. Additionally, the initiatives outlined here do not necessarily require researchers to do anything differently, but rather require researcher to change how they report on what they already do. The fundamental guiding principle is *transparency*.

One of the challenges to thinking about how to implement open science at *Emerging Adulthood* is that the journal is welcoming to diverse methodologies: quantitative, qualitative, and mixed methods. Nearly all open science discussions and initiatives have come from a quantitative perspective. There are clearly some unique challenges for research using qualitative and mixed methods designs, particularly regarding data sharing. That said, all of the initiatives described here can apply to these designs as well, and below I provide some examples of what this would look like. In what follows I provide an overview of these new initiatives, but more detailed information is available on the journal website, <https://us.sagepub.com/en-us/nam/journal/emerging-adulthood>.

***Emerging Adulthood* and the Transparency and Openness Promotion Guidelines**

The recently developed Transparency and Openness Promotion (TOP) Guidelines (Nosek et al., 2015) serve as a broad structure through which to understand potential reforms. For over a year *Emerging Adulthood* has been a TOP signatory, indicating that we endorse the guidelines and commit to making changes to the journal that align with them. The TOP guidelines consist of eight standards pertaining to transparency, citations, pre-registration, and replication. The journal will address each of these domains as follows:

Transparency. Emerging Adulthood will now require explicit statements about whether the data, analysis code, and study materials are openly available for sharing. If they are available, a verifiable link must be provided (in the Method section, as a footnote, or in the acknowledgements). To be clear: at this point, *Emerging Adulthood* is not *requiring* that data, code, and materials be shared. There are certainly cases where doing so is not feasible (e.g., potentially identifiable data). What we are now requiring is a clear statement about whether or not data, code, and study materials are available. All manuscripts will now include a Transparency and Openness Statement that will be included as part of the peer review process and will ultimately appear in the Author Note section of accepted manuscripts (more information at <https://us.sagepub.com/en-us/nam/journal/emerging-adulthood>). For qualitative and mixed methods studies, this may not include the raw qualitative data, which could be sensitive data, but can include data files of coded data (if applicable), coding manuals, a detailed account of the coding process, and any other relevant documentation. Importantly, these statements about availability of data, code, and materials will not be used as criteria for manuscript decisions (i.e., authors who do not make their data available will not be adversely judged during the review process) but manuscripts without these statements will not be sent out for review until they include them.

In addition to statements about openness of data, code, and materials, *Emerging Adulthood* will continue to require design and analysis transparency. The following five bullet points are quoted directly from my 2016 editorial and continue to apply to new submissions:

- Ensure transparency in all aspects of reporting. This includes the sampling plan, number and reason for excluded participants, a full description of included and excluded variables, and rationale for inclusion of covariates.
- Routinely engage in robustness checks. Any subjective design decisions should be examined for how they impact the findings, and the nature of the impact should be reported in text or as a footnote. This includes running models with and without covariates, on transformed and raw variables, and testing across different methods of grouping (e.g., age as categorical vs. linear).
- Report estimates of effect size for all statistical tests.
- All analyses should have sufficient statistical power, generally regarded as 80%, and there should be a statement in the Method section about power to detect the expected effect sizes for the different tests reported in the manuscript.
- No more HARKing (hypothesizing after results are known; Kerr, 1998). I am a fan of exploratory research. We need exploratory research. Too often, however, exploratory research is framed as confirmatory research. This needs to stop. If you had hypotheses, state them. If you did not have hypotheses, indicate such in your papers. Do not drop variables from your analysis because they were not consistent with your hypotheses. Report those analyses too.

Whereas previously authors were left on their own to ensure compliance with the above issues, submitting authors must now actively indicate that their practice was consistent with these standards. This will be accomplished by indicating adherence to a specific set of disclosures when submitted new manuscripts (see <https://us.sagepub.com/en-us/nam/journal/emerging-adulthood>). In addition to this, authors may also include a statement of disclosures in their manuscript if they wish. One way to succinctly indicate this is to use some version of the 21-word solution: “We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study” (Simmons,

Nelson, & Simonsohn, 2012). This statement can be quoted verbatim in manuscripts, or it can be modified to suit the particular circumstances of the manuscript.

Citation standards. There is increasing recognition of our collective intellectual work that goes beyond the final, published article. Indeed, we are all well aware that there is substantial work that occurred for an article to be produced, and much of that work is not well documented or reported. Accordingly, there is an increasing trend towards citing these products. Datasets, analysis code, coding manuals, interview protocols, and other study materials are all potentially useful for other researches and thus are citable products. These can be assigned a persistent identifier, such as a Digital Object Identifier (DOI), which can be accomplished via the Open Science Framework (<https://osf.io/>). We recommend that researchers do this for all manuscripts, but will require it for data, code, and materials that are indicated as openly available.

Pre-registration. The vast majority of articles contain both confirmatory and exploratory analyses, and there has been a persistent problem of re-framing exploratory analyses as confirmatory (see HARKing). Both confirmatory and exploratory analyses are useful, important, and should continue to co-exist. However, we must be clear and transparent about what was truly confirmatory vs. what was exploratory. Pre-registration, in which *a priori* design and analytic designs are formally specified, helps to achieve this aim (Nosek, Ebersole, DeHaven, & Mellor, 2018).

Emerging Adulthood now encourages researchers to pre-register their studies and analysis plans. Importantly, pre-registration can be used for both design and analysis (i.e., prior to data collection) or for analysis only (i.e., secondary data analysis). Authors are encouraged to use the pre-registration template available on the OSF because it is the most comprehensive, but any verifiable form of pre-registration is acceptable (e.g., van't Veer & Giner-Sorolla, 2016)

Manuscripts that contain pre-registered components must include a link to the pre-registration plan in the text of the manuscript (in the Method section, as a footnote, or in the acknowledgements). This link must be verifiable by the editor and the reviewers, and can be anonymized for blind review. Additionally, throughout the manuscript authors must clearly demarcate the parts of their work that adhere to their pre-registration plans and the parts of the work that deviate from it. Deviations are perfectly acceptable, but must be labeled as such.

Replication. Replication studies, whether successes or failures, direct or conceptual, have always been welcome at *Emerging Adulthood*, and this will continue to be the case. In many situations replications are most suitable for our Brief Report format, but that will always depend on the scope of the manuscript.

New Features and Formats at *Emerging Adulthood*

Registered Reports. Publication bias is a major issue across most, if not all, scientific disciplines. Editors and reviewers are biased towards positive findings and against null findings and/or those that run counter to norms and expectations in the field. However, research ought to be judged based on sound conceptualization and design, and not on the findings themselves. Registered Reports are a submission format in which authors submit only the Introduction, Method, and Analysis Plan sections of their manuscript for review (Chambers et al., 2015). This Stage 1 Proposal is reviewed and subsequently rejected or revised just like any other manuscript. The positive outcome of this process is an “in-principle acceptance,” which provides the green light for the researchers to conduct the study and is a

guarantee of publication so long as the researchers adhere to the approved plan. Thus, acceptance of the paper is based on conceptualization and design, and not on the specific pattern of findings. This general approach should sound familiar to many readers, as this is how most institutions in the U.S. handle students' dissertations (i.e., students propose a dissertation plan that is revised and subsequently approved by a committee).

At *Emerging Adulthood* we are currently processing a special issue (edited by me and Brent Donnellan) consisting of Registered Reports of manuscripts drawn from the second iteration of the Emerging Adulthood Measured at Multiple Institutions project (<https://osf.io/te54b/>; see Reifman & Grahe, 2016, for details on the first iteration of the project). This process has raised many issues with using this format for non-experimental research (which we will detail in an introduction to the special issue), but has convinced me of their potential. Accordingly, I am pleased to announce that *Emerging Adulthood* will now accept Registered Reports as a submission option. For those readers who are serving as editors at other journals, I highly encourage you too do a special issue on Registered Reports prior to committing to the format, largely because I think doing so will allay any trepidation about implementing them.

Commentaries. Too often published works are left to stand as is, with challenges to the conceptualization, methods, analysis, or conclusions being confined to hallway chatter (or more recently, blogs). Science should be a process of ongoing communication and correction. Accordingly, *Emerging Adulthood* will now accept brief commentaries on previously published articles. Following the lead of the new journal *Meta-Psychology* (Carlsson, et al., 2017), we will not limit consideration of commentaries to articles published in *Emerging Adulthood*. Rather, we will consider commentaries on articles published in any journal, so long as the relevance to emerging adults and emerging adulthood is clear. All commentaries will be evaluated and reviewed to ensure they make a substantial contribution to the issues at hand.

Open Science Badges. Following many other journals in the field, *Emerging Adulthood* will now offer badges for articles that contain pre-registration, open data, and/or open materials. There is some evidence that implementation of badges may be associated with increased quality of articles (Kidwell et al., 2016), but clearly badges are a very low-level change to research practice (Bastian, 2017). Nevertheless, badges signal the use of positive research practices, and perhaps the more articles that feature them the more the practices behind them will become normative.

I sincerely hope that these new initiatives will be embraced by researchers doing work on emerging adulthood, and that they are understood in the spirit in which they are intended: to ensure that we are publishing the most rigorous work in the field. If you have any questions or concerns, or have ideas about additional initiatives to pursue, I warmly welcome you to contact me to discuss further. Thank you for your ongoing support of the journal.

References

- Bastian, H. (2017, August 29). Bias in Open Science Advocacy: The Case of Article Badges for Data Sharing [Blog post]. Retrieved from <http://blogs.plos.org/absolutely-maybe>
- Carlsson, R., Danielsson, H., Heene, M., Innes-Ker, A., Lakens, D., Schimmack, U., Schönbrodt, F. D., van Assen, M., & Weinstein, Y. (2017). Inaugural editorial of *Meta-Psychology*. *Meta-Psychology*, 1, 1-4.

Chambers, C.D., Dienes, Z., McIntosh, R.D., Rotshtein, P., & Willmes, K. (2015). Registered Reports: Realigning incentives in scientific publishing. *Cortex*, 66, A1-2. DOI: 10.1016/j.cortex.2015.03.022

Kerr, N. L. (1998). HARKing: Hypothesizing after the results are known. *Personality and Social Psychology Review*, 2(3), 196-217.

Kidwell, M. C., Lazarević, L. B., Baranski, E., Hardwicke, T. E., Piechowski, S., Falkenberg, L. S., ... & Nosek, B. A. (2016). Badges to acknowledge open practices: A simple, low-cost, effective method for increasing transparency. *PLoS Biology*, 14(5), e1002456.

Nosek, B. A., Ebersole, C. R., DeHaven, A. C., & Mellor, D. T. (2018). The preregistration revolution. *Proceedings of the National Academy of Sciences*. Online first.

Reifman, A., & Grahe, J. E. (2016). Introduction to the special issue of *Emerging Adulthood*. *Emerging Adulthood*, 4(30), 135-141

Simmons, J. P., Nelson, L. D., Simonsohn, U. (2012). A 21 word solution. Retrieved from ssrn.com/abstract=2160588

Syed, M. (2016). Editorial: Continuity and change in *Emerging Adulthood*. *Emerging Adulthood*, 4(6), 375-377.

van't Veer, A. E., & Giner-Sorolla, R. (2016). Pre-registration in social psychology—A discussion and suggested template. *Journal of Experimental Social Psychology*, 67, 2-