The Hong Kong Manifesto for Assessing Researchers: Fostering Research Integrity

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If research is going to benefit society it needs to be prioritized, designed, conducted and reported according to the principles and standards of individual and organizational research integrity.

From at least the 1960s there has been a recognition of problems throughout the research enterprise (1). Almost 40 years ago Altman noted the misuse of statistics was unethical (2); in a recent national US survey nearly 400 consulting statisticians reported on requests from investigators to engage in inappropriate statistical practices, presumably to enhance the likelihood of publication (3). In 2014 The Lancet’s ‘waste in research’ Series reviewed problems across the research spectrum, from the prioritization of research through to reporting of research, typically through publications (4). One impact of these problems has been an increase in publication retractions and a crisis in reproducibility (5,6). A recent egregious example of irreproducibility in biomedicine was an effort by Bartoldy and colleagues to replicate 133 exercise interventions recommended in 10 international practice guidelines of osteoarthritis of the knee (7). No intervention was completely described (median description = 33% of the essential information was provided). This has direct impact on patient care. Across multiple disciplines the United States’ National Academy of Sciences report ‘Fostering Research Integrity’ (8) noted that detrimental research practices, such as fabrication, falsification, or plagiarism and questionable research practices, pose substantive risks to the validity of and the trust in science.

Yet some researchers have seen their careers advanced partly due to adopting damaging research practices. Several scholars have noted the moral and ethical perils of this situation (9,10). Promotion and tenure occur because researchers have been able to satisfy the current criteria needed to advance their careers. These criteria are narrow, potentially flawed and not evidence-based, and mainly concern counts of publications and citations; the journal impact factor (JIF) and Hirsch index (h-index) are widely used. Most promotion and tenure committees focus on easily collectable quantitative data with arbitrarily stated thresholds about the number publications required in journals with particular JIFs. There is almost no focus on the content of the publications or on qualitative measures, such as value to society or citizen involvement in helping determine the research priorities. There is a growing awareness that current reward criteria are of limited value, do not foster research integrity and might even function as a set of
perverse incentives (11,12). More appropriate reward criteria may help improve the impact of research, and researchers, including its societal value and enhance research integrity within academic organizations and beyond. How researchers are evaluated reflects what we value most in the research enterprise and powerfully influences researchers’ behavior, including research integrity.

There is an emerging view that this is a crucial time in the movement of research assessment reform; a movement that is crossing disciplinary and national borders. There is a window of opportunity now to make changes that were previously thought impossible. It is important that we take full advantage of this opportunity, striking the right balance between promising new approaches and the possible harm of abandoning current assessment tools, which do serve as a partial buffer against advancement based on personal connections of claimed reputation. Such changes will have a greater chance of success with a cultural change and concerted effort globally and across all disciplines. We need to make changes with the same care and scrupulous standards we apply to research itself.

We hope that the Hong Kong Manifesto (HKM) will further enhance these efforts, ensuring that the assessments of researchers are conducive to research integrity. Six principles to improve academic assessments were proposed by a group of researchers, funders, academic administrators and biomedical editors (13). Some of the principles are more conceptual while others are operationalized to include several examples of indicators that can be used to assess career advancement. The principles were discussed and amended by the authors of this article. A draft version was made available on the website of the 6th World Conference on Research Integrity with a view to get input from the conference participants. A revised draft will be discussed in two focus track sessions during the conference and an updated version will be presented at the final plenary session and made available for final comments. Finally, we anticipate the formulation of the HKM outlined below will be endorsed by the Governing Board of the World Conferences on Research Integrity Foundation (GBWCRIF) and the Steering Committee of the Reduce research Waste And Review Diligence (SCREWARD). We envision later updates and welcome suggestions of other indicators, particularly if there is a strong conceptual rationale and an evidence base for them. What follows is a brief description of the
principles, the evidence-base for their inclusion, and how they can be implemented into a 21st century assessment of researchers. The HKM is aimed at a broad spectrum of players, especially institutions and funders.

While we consider the principles important, their usefulness will depend on active implementation strategies. Along with the HKM we have included a Word document that provides readers with an opportunity to share any general comments about the HKM and specific examples of implementation at their organization of interventions related to any of the six principles. Such information will help us develop an effective tool box for any organization interested in ways to implement good research integrity practices related to the six principles.

**Principle 1: Contributing to societal needs is an important goal of scholarship and new knowledge.**

**Context**

Understanding ourselves and our culture is a societal need, as is satisfying curiosity. To demonstrate impact is complex, not necessarily a causal exercise, can take considerable time to occur, if at all, and is likely difficult to demonstrate in most instances. Assessing research impact is a rapidly emerging multi-disciplinary field (14).

**Evidence**

Conducting research that assesses the merits of interventions or outcomes that are not valued by intended users is likely of limited value (15, 16). To better reflect societal values, citizen involvement needs to be integrated into all phases of the research enterprise and society as a whole, such as asking them to participate in research priority setting exercises or helping develop relevant outcome measures. Community engagement also appears to be missing from career advancement criteria (13). Transparent and truthful open access publications (and open science, more broadly) and public communication are ways to facilitate value to society and enhance research integrity.

**Implementation**
This principle likely requires considerable reflection and action by universities which do not often articulate what they mean by societal value or knowledge dissemination beyond, for example, commercialization and academic incubators. Several engagement activities to solicit the perspectives of faculty members, citizens, and the university’s community in which they exist is likely a useful starting point. Similarly, there is a broad movement towards open science and organizations should articulate how they are achieving this and how it is incorporated into career advancement.

Principle 2: Assessing faculty should be based on responsible indicators that reflect broadly the contribution to the research enterprise.

Context

Traditional criteria used to advance the careers of faculty are flawed and not evidence based. More responsible indicators reflecting a greater focus on evidence and research integrity should play a more prominent role in faculty hiring, promotion and tenure.

Evidence

The quantity of publications and total volume of grants are still dominant metrics used by universities for rewarding their faculty (13). Along with ‘simple’ citation counts these metrics should be downgraded in any revised promotion and tenure scheme. This is also the same for the JIF and the h-index. Both criteria are key incentives to career advancement as is providing fiscal rewards to academics for publishing in certain journals (i.e., merit pay) in many parts of the world (17,18). These are not responsible indicators and likely tell universities little about their faculty members. The JIF or h-index tells universities very little about the quality of a specific publication and is not a good predictor of future citations. These metrics can be gamed and provide little information about a publication’s contributions to science; one of the most highly cited (later discredited and retracted) papers advocated against vaccinating children for measles, mumps, and rubella (19). For the research enterprise to work meaningfully citizens need to be an integral part of the enterprise. Similarly, researchers need to openly make their full study protocols available with a view to facilitate reproducibility and to detect selective reporting (20). Prospective registration of research is associated with increased publication quality (21); sharing
data is associated with increased citations (22); and patients support of sharing their data (23).

Incentivizing and rewarding these, and similar behaviors, will ensure promotion and tenure is a step towards robust research integrity.

Implementation

Academic institutions, funders, and journals should explicitly endorse efforts to reduce the importance of JIFs and other similar metrics when assessing faculty (e.g., 24,25) and make this known to their constituents. Promotion and tenure committees should be explicit about giving less weight to these metrics when considering career advancement. Integrating and rewarding responsible indicators when assessing researchers will help ensure that research integrity and evidence are central to career advancement. Research institutions will need to prepare the landscape to ease the implementation of rewarding responsible practices. For example, to facilitate data sharing, it is likely that the FAIR (Findability, Accessibility, Interoperability and Reusability) principles will need to be in place (26). Similarly, implementation of data sharing as a career advancement reward will be enhanced if universities, perhaps through their library system, include educational outreach about FAIR and other data sharing questions. Data sharing is not without costs and universities may need to make funds available to help researchers prepare for data sharing. Funders can help as well by allowing grant applicants to include these expenses as allowable costs in their budget requests. Similarly, funders can implement policy such that data sharing is an expectation of all grant applications.

More generally, researchers need to be part of any implementation process of this principle and the other principles as well. To assess the effects of implementing this principle universities can audit (random) a sample of CV publications for data sharing statements, prior study registration and other responsible indicators.

Principle 3: we should reward publishing and/or reporting all research completely and transparently, regardless of the results.

Context
Reporting biases (e.g., publication bias, switched primary outcomes without attribution, and spin) are a substantial problem and call into question the truthfulness of scientific enquiry and undermines research integrity and society’s trust of science.

Evidence

In an update of their previous review of journal publication following initially presented abstracts, Scherer and colleagues report on data collected from 425 studies (27). Publication bias is on the rise: only 37% full publication compared to 44% in 2007. Furthermore, the frequency of reporting biases at about 30% is unacceptably high (28), which diminishes the completeness and trustworthiness of bodies of knowledge (29). Even though there is evidence for the utility of reporting guidelines to improve the completeness and transparency of reporting they are not being used sufficiently. For example, editors do not sufficiently recommend their use to peer reviewers (30). Promotion and tenure committees appear silent on the importance of registering protocols and data analysis plans and on publishing completed studies and their associated data, code, and materials (31).

Implementation

Academic institutions need to update their career advancement regulations (and make them transparent) to reward faculty who register their clinical research protocols (e.g., in clinicaltrials.org or Open Science Framework). Faculty also need to be rewarded for all completed research, including registered studies that are fully completed and reported. When submitting CVs to their promotion and tenure committee, faculty can ensure that each publication includes: a registration number and/or DOI and reporting guideline used, where they exist (e.g., 32). Some disciplines will have different mechanisms to ensure transparency, completeness, truthfulness, which are pillars of research integrity; these should also be incorporated into promotion and tenure guidance. Funders can also invoke policies such that nominated principal investigators cannot apply for new grants without making publicly available previous research funded by funders.

To assess the effects of this principle, promotion and tenure committees can use (or adapt) automated tools to provide data about registration (e.g., trials tracker
https://trialstracker.ebmdatalab.net/#/) and quality of reporting (e.g., www.statereviewer.com). To foster openness and transparency these audits should be fed back to faculty members and overall anonymized results made available on universities web sites. Solutions have also been proposed for the social sciences (33,34).

**Principle 4: The culture of open research needs to be rewarded.**

**Context**

Openness is an emerging principle across many disciplines with several indicators, examples of which are discussed below.

**Evidence**

A considerable number of public budgets is used to fund research; its results can have profound societal consequences. Therefore, being open and transparent about the design, execution and results of scientific research is important. Transparency is not only essential for the ability to detect biases when they occur (29; principle 3) but may also prevent them from occurring and restrict other questionable research practices (35). These other misbehaviors can for instance concern p-hacking or HARKing (Hypothesizing After Results are Known) and can effectively be prevented by registration (36), including registered reports, of study protocols and data-analysis plans (37).

To the culture of open research also belongs adoption of open access publication and data sharing (38), preferably following the FAIR (Findable, Accessible, Interoperable and Reusable) Guiding Principles (26). In the same line of reasoning open peer review, encouraging and supporting the posting of preprints and post-publication peer review can be advocated. All these phenomena are rather new or emerging for most (but not all) disciplines. It is too early to say what the best arrangements for open research and optimal transparency across disciplines are. What is clear is that faculty should be incentivized and rewarded for transparency; this is in keeping with robust research integrity.

**Implementation**
It is important that the assessment of researchers also contains criteria and indicators that reflect the way the candidate contributes to the culture of open research. It seems possible to base this judgement on the approach used by the Transparency and Openness Promotion (TOP) guidelines (39). These guidelines were designed to reflect the level to which scientific journals have adopted or wish to adopt the culture of open research. With some minor adjustments TOP guidelines can probably be used for the analysis of the CV and the list of publications of individual researchers.

Some aspects of open science are not yet included in the TOP guidelines, like being engaged in open peer review, the usage of preprints and utilizing post-publication peer review. These indicators might be added when assessing researchers. Furthermore, also in assessing the adoption of a culture of open research it is important to strike a fair balance between quantitative and qualitative indicators and to take the context into consideration (discipline, topic field, institute, funding climate etc.).

**Principle 5: Recognize and reward a broad range of research activities, such as innovation (including out-of-the-box thinking), replication, synthesis, and meta-research.**

**Context**

Currently rewards have been focused on quantitative metrics that can be gamed. Rewards need to be broader with a rationale and evidence base.

**Evidence**

When deciding on research priorities and societal value of research, it is not always immediately clear whether an idea or hypothesis will lead to the desired outcome. So-called blue-sky research building on accidental findings or curiosity-driven research based on out-of-the-box thinking should be possible and encouraged in an academic reward system that values societal progress (40). For example, the discovery of graphene at the University of Manchester, UK, was the result of Friday afternoon discussions outside the normal research activities (41). Commercial entities, such as Google and Deepmind, are investing in this kind of research by employing researchers with the understanding that not all efforts will immediately lead to important outcomes. The
short-term nature of academic research assessment exercises and reward cycles make this kind of research less attractive for funders, institutions and individual researchers. Equally, replication studies or research synthesis efforts are often not regarded as innovative enough in research activity assessments despite their importance for the trustworthiness of research (42) or for the summary presentation of all available evidence, respectively (43,44). Meta-research as practiced, for example at METRICS (Stanford, USA) (45) and QUEST (Berlin, Germany) (46), a recent phenomenon, is important to inform and improve research practices and therefore contribute to make research more reliable and relevant.

Implementation

A reward system for the benefit of society and one that encourages trustworthy and important research needs to take the different types of research into account. Different indicators and criteria need to be developed that are relevant to these different types of research. This includes different timeframes of assessment for different types of research. For example, the importance and relevance of blue-sky research might only become apparent over a researcher’s lifetime.

**Principle 6: Include the range of contributions to advancing research endeavors in the assessment and reward structure.**

Context

Researchers also perform other tasks that are not research in the strict sense although essential for the quality and climate of research in general, for example grant and journal peer reviewing, and mentoring.

Evidence

Research assessments frequently just consider publications and funding income. Other research-related activities are given less importance in the current reward system. Yet, for instance peer review remains the cornerstone of quality assessment and contributions to an overall improvement of research infrastructure and climate would go beyond an individual-centered approach for assessment. How best to do this without creating further barriers and tick-box exercises, however, has long been debated (47). However, any reward system that has the whole
research enterprise at heart and aims to foster a climate conducive to trustworthy and useful research with the highest regard to integrity, needs to find ways to incorporate these vital roles into its overall assessment structure.

Implementation

Give credit and develop indicators for peer review activities and timely, constructive comments on research by other authors. Funders, institutions and journals can develop policies to meaningfully reward researchers for contributing to a broad range of activities that enhance the activities of these organizations and by default research and society. It is important to create an open culture of education, mentoring, and learning about research planning, conduct, and reporting with particular attention to research integrity. Activities that benefit the institutional research culture and climate beyond an individual’s conduct need to be part of the reward system.

Dissemination, endorsement and implementation

Academic institutions are prime agents to disseminate and implement the HKM. They are the home of current and future researchers where promotion and tenure assessments are carried out. Funders and journals also need to enhance their efforts to downplay the reliance on the number of publications and citation-based measures. Universities need to recognize that a range of research behaviors should be valued, including innovation, including out-of-the-box thinking, replication, synthesis, meta-research. Similarly, promotion of good science through mentoring or public engagement is also of value and should meaningfully contribute to career advancement. Other activities, such as peer review contributions to journals and funders, should also be part of promotion and tenure as should contributions to research infrastructure and/or regulation. These activities are currently largely missing from promotion and tenure committees (31). Universities need to embrace research integrity practices and modify their current metrics to include responsible indicators (48). Collectively, these organizations need to be vanguards for implementing more evidence-based and qualitatively relevant indicators for assessing researchers and rating universities. There may be academic institutions, funders or journals that have implemented these principles or other ones. Sharing such experiences, whether successful or not is important; we hope our Word document is a venue for this.
There are similarities between the principles we are putting forth and those put forth by others, such as the Declaration on Research Assessment (DORA) (24). For example, implementing data sharing in principle 4 is similar to DORA’s third recommendation. Having more than one group call for change will perhaps reinforce the message and speak to complementary audiences. There are also differences between our initiatives and other efforts. For example, the HKM focus is on ways to implement change that a broad range of players will find useful to implement. Similarly, the HKM has a specific goal to strengthen and reward research integrity.

For the HKM to be successful requires robust implementation. Here we discuss how other organizations can endorse and implement the manifesto. Beyond journal publication we are developing adjuvant dissemination outputs. The World Conferences on Research Integrity and the REWARD Alliance will make available the HKM on their websites. This includes the manifesto, the signatories, some infographics about the manifesto for dissemination purposes, a place to endorse it, translations into several languages (ongoing) and future implementation plans (ongoing).

We need active ways for individuals and organizations to implement the HKM. We are inviting individuals and/or organizations to deliver brief (2-3 minutes) YouTube testimonials as to how they have implemented the HKM (categorized by stakeholder group). This approach can serve as a pragmatic way for individuals and organizations to disseminate how they are endorsing and implementing the HKM and as a nudge to others about implementation. Such efforts constitute a ‘bottoms up’ approach to implementation. Whether implemented at the local or national level, changes in researcher assessment criteria should be fully documented and made openly available. Institutions making changes to their promotion and tenure criteria and faculty assessment should implement an evaluation component as part of the process. Evaluations using experimental approaches are likely to provide the most internally valid results and may offer greater generalizability.

It is likely hard for the GBWCRIFF and SCREWARD to ‘drive’ implementation other than explicitly acknowledge that it likely occurs in many ways (e.g., individuals writing to promotion
and tenure committees, institutions sharing their updated career advancement template) and
settings (e.g., local, regional). To help facilitate knowledge translation of the HKM key opinion
leaders should be included in any plan. The GBWCRIF and SCREWARD will provide regularly
audit and feedback on dissemination, endorsement and implementation data it receives. The
ultimate assessment of the HKM is whether there is an improvement in the scientific enterprise.
We will report any progress at the forthcoming QUEST/REWARD/EQUATOR conference in
Berlin in February 2020 and at the 7th WCRI in 2021.

We think the HKM is unique because the principles are driven by evidence, whenever possible,
and reflects a commitment to research integrity when advancing the careers of faculty. Current
university promotion and tenure schemes may well have been useful when initially developed
decades ago. They are out of step today and implicitly maintain the substantive problems of the
current research enterprise. We invite individuals and organizations to endorse the HKM and
help implement it.
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