When Your Race Is Almost Run, but You Feel You’re Not Yet Done: Application of the Propulsion Theory of Creative Contributions to Late-career Challenges

ABSTRACT

The propulsion theory of creative contributions is a theory that focuses on how a creative act or product builds on and adds to knowledge in various fields. In this article, we apply the propulsion theory of creative contributions not to creative discoveries or inventions, but rather to late-career decisions about future directions in which one can steer one’s career. We consider eight different kinds of career decisions one can make—replication, redefinition, forward incrementation, advance forward incrementation, redirection, reconstruction/redirection, reinitiation, and synthesis. Each offers a viable option for closing out a creative career.

Keywords: forward incrementation, propulsion theory, redefinition, redirection, replication.

There is nothing more exhilarating than realizing that you are close to the finish line of a race—unless it is your last race and you really like to run. That is the feeling many creative individuals have as they approach the end of their creative career, and vaguely feel that whatever it was they set out to accomplish, they didn’t quite accomplish it.

When RJS was an assistant professor starting his career, he thought that the hardest point of a career is the beginning—when you are making your early contributions and seeking recognition for them. He envied those who were senior faculty whose reputations were already established and wondered how one could get from where he was to where they were. Now, as a full professor, he believes that later-career issues are at least as challenging as early-career ones and perhaps more so.

creative potential for work in that area is slowly (or, sometimes, rapidly) consumed. One can then either change area of work or possibly watch one’s creativity stagnate. Moreover, the trajectories of peak performance are different in different creative careers, with the peak coming early in mathematics and physics and much later in the social sciences and humanities.

As a graduate student and then a junior faculty member, RJS recognized, with many of his colleagues, who constituted the “dead wood” in his respective psychology departments (Stanford and then Yale). He often wondered whether the dead wood recognized themselves for what they were, and why they didn’t do something about their status. At this point of career, RJS thinks he understands better why, and that is the topic of this essay.

THE PROPULSION THEORY OF CREATIVE CONTRIBUTIONS

We have proposed what we refer to as a “propulsion theory of creative contributions” (Sternberg, 1999b; Sternberg, Kaufman, & Pretz, 2001, 2002, 2003, 2004). Of course, our theory is only one of many of creativity (see for reviews Kaufman & Sternberg, 2006, 2010; Sternberg, 1999a). According to our theory, there are 8 different kinds of creative contributions, which vary in terms of their relation to existing ideas and paradigms.

TYPES OF CREATIVITY THAT ACCEPT CURRENT PARADIGMS AND ATTEMPT TO EXTEND THEM

Replication

The contribution is an attempt to show that the field is in the right place. The propulsion keeps the field where it is rather than moving it. This type of creativity is represented by stationary motion, as of a wheel that is moving but staying in place.

Redefinition

The contribution is an attempt to redefine where the field is. The current status of the field thus is seen from different points of view. The propulsion leads to circular motion, such that the creative work leads back to where the field is, but as viewed in a different way.

Forward Incrementation

The contribution is an attempt to move the field forward in the direction it already is going. The propulsion leads to forward motion.

Advance Forward Incrementation

The contribution is an attempt to move the field forward in the direction it is already going, but by moving beyond where others are ready for it to go. The propulsion leads to forward motion that is accelerated beyond the expected rate of forward progression.
TYPES OF CREATIVITY THAT REJECT CURRENT PARADIGMS AND ATTEMPT TO REPLACE THEM

Redirection

The contribution is an attempt to redirect the field from where it is toward a different direction. The propulsion thus leads to motion in a direction that diverges from the way the field is currently moving.

Reconstruction/Redirection

The contribution is an attempt to move the field back to where it once was (a reconstruction of the past) so that it may move onward from that point, but in a direction different from the one it took from that point onward. The propulsion thus leads to motion that is backward and then directive.

Reinitiation

The contribution is an attempt to move the field to a different as yet unreached starting point and then to move from that point. The propulsion is thus from a new starting point in a direction that is different from that the field previously has pursued.

TYPE OF CREATIVITY THAT INTEGRATES DIFFERENT CREATIVE STREAMS OF THOUGHT IN CURRENT PARADIGMS

Synthesis

The contribution moves the field by integrating ideas from what previously have been two or more separate strands of creative endeavor.

In this essay, we consider how this theory might be applied to individuals contemplating the latter years of their careers in terms of how they still can move forward. The object of the kinds of propulsion is not the creative ideas of the investigator about his or her work, per se, but rather, the individual’s ideas about his or her career.

THE PROPULSION THEORY APPLIED TO LATTER-CAREER CREATIVE CONTRIBUTIONS

Repetition

In replication, creators attempt to replicate in their career what they have done before. One way of coping with the challenges of later career is to keep doing, more or less, what you have been doing and hope that it will tide you over until retirement. In this case, the creative individual keeps on doing, to the extent possible, pretty much what he or she has been doing before. For example, a scientist might conceptually replicate old experiments with new populations or materials; an artist might paint again what he or she has painted before with slight variations; a musician might compose more of the same old same old. An academic who has been chair of a department for a number of years might sign on for a new term as chair. There are a number of reasons why a creator might choose this option.
First, one may have exhausted one’s fountain of new ideas. If one accepts Simonton’s view that creative individuals can only take a single idea or paradigm so far, the replicator may have simply run that particular race to its end. But the individual may not have found, or even sought, another race. Effectively, he or she has defined the space of possible work narrowly, and so has run out of work to do.

Second, one may have achieved some measure of success with a paradigm, perhaps even a great measure of success, and find oneself afraid to leave it. If one were to start something new, it might not be as successful, and might subject the creator to ridicule as a “has-been” or as a “one-idea person.” So one stays with the original paradigm because it is tried and true, if dusty.

Third, one simply may no longer have the energy to try something new. Some creators just run out of steam in the latter years of their careers. So the creator does minor variants, hoping to fill the years until retirement or until he or she has lost energy altogether.

Fourth, the cognitive capabilities to create in new ways may have diminished. Kaufman (2000, 2001) compared cohorts from the standardization samples of several different editions of the Wechsler Adult Intelligence Scales. He found that Crystallized Intelligence (acquired knowledge) did not decline notably until people were in their 80s. However, Fluid Intelligence (novel problem solving) was a different story—it peaked in people’s early 20s, and then dropped approximately 5 IQ points per decade (regardless of education level). Some older professionals may have significantly less ability to deal with new concepts than they did in their youth. This finding does not mean that older people are necessarily less creative; Ng and Feldman (2008) found that age and creativity (as measured by supervisor ratings) were not related, and Roskos-Ewoldsen, Black and McCown (2008) found that age differences in creativity disappeared when controlling for working memory.

As an assistant professor in the late 1970s, RJS talked to an aging experimental psychologist. He was doing mathematical models of concept learning, which had been popular in the late 1950s and early 1960s, but had since been eclipsed by other kinds of work. Nevertheless, he was sticking by his old paradigm in the face of a field that had passed him by. He simply was not prepared to change with the times, and so the times left him behind.

Rex Stout was a brilliant writer of detective stories who created the Nero Wolfe detective series. The stories set in the 1930s seemed to fit the period very well. But as the years passed, the age of Nero Wolfe and his sidekick, Archie Goodwin, passed with them. It became harder to imagine the still-single Archie dancing the night away in the 1960s at the Pelican Club with Lily Rowan, his paramour. The novels continued to be intriguing and deftly written, but they no longer fit the times.

Many singers or entertainers who were popular decades ago have turned the last half of their career into replication. They set up shop in a city like Branson, Missouri, or else tour the country to play at casinos, county fairs, and college campuses. People such as comedian Yakov Smirnoff and singer Tony Orlando may evoke faint recognition from most people, yet have shows that are well-attended in
Branson. Such shows can seem like time capsules, with artists exhibiting the exact same comedic or musical styles that they had years ago when they were in their prime.

**REDEFINITION**

In the case of redefinition, creators continue to do in their careers what they have been doing, but view it in a new way. For example, a scientist who has never gone outside the lab may see a practical application of what he or she is doing, and start to tout the practical application, doing essentially the same kind of work but “selling it” differently. A writer may continue to write the same kinds of books or articles, but target them at a new audience. An architect may use the same kinds of designs she has been using, but for buildings serving different functions from those she has designed in the past.

As creators age, they sometimes see old work in a new light. They come to view their work in either a broader or narrower light. If they see things more broadly, then they may seek out new audiences or at least seek to persuade their old audience that the work they have done has broader appeal than people have realized. If they see things more narrowly, they may retreat to their lab, studio, or study to work the remainder of their career in greater solitude. Finding new meaning gives them a new lease on a creative career.

In Sigmund Freud’s early and mid-careers, he worked out a theory of psychoanalysis that became one of the most famous contributions to the understanding of individuals anyone ever had made. As he approached his later career, and as challenges in society (the Nazi regime) became more acute, Freud’s *Civilization and its Discontents*, published in 1930, is not a book Freud would have been likely to write at the time he was working on *The Psychopathology of Everyday Life* (1901). In his later years, Freud found new meaning in his explorations of psychoanalysis.

Bandura (2002) has applied his important work on modeling to media by consulting with television producers and writers. Soap operas (or serial dramas) around the world have tackled such issues as domestic violence and condom usage by showing positive role models demonstrating positive behavior. Bandura’s (2006) work with these groups has enabled his empirical research to have an impact on an international population. It is also an example of how different people can demonstrate different types of propulsion on the same project. The television producer who first called Bandura to discuss applying modeling to soap operas, Sabido (1981), demonstrated advanced forward incrementation. He moved the field of television production greatly forward in using psychological theory in his plotlines to help educate the populace. It would be several years (and after the demonstrated success of Sabido’s work with Bandura) before the practice became more commonplace (Smith, 2002).

Outside of psychology, George Lucas has experienced two stages of redefinition in his moviemaking career. While Lucas worked on the original *Star Wars* trilogy and during the years immediately following, he grew his cinematic empire in numerous ways. He helped develop Pixar and THX sound. He wrote and produced
many movies and television shows (including the *Indiana Jones* trilogy). At some point in the mid-1990s, however, Lucas decided to expand the original trilogy by writing and directing three prequels to the original films. First, he redefined the *Star Wars* trilogy by telling the story of how the main villain (Darth Vader) turned to the Dark Side. After he completed these three films, he then had his second phase of redefining *Star Wars*. Using new advances in computer-generated imagery, many invented by his companies, Lucas reshaped the three original *Star Wars* films. He fixed flaws, added background characters, and generally tried to perfect the movies. Lucas made changes for theatrical re-releases and home DVD release, and has continued to tinker with the films for their Blu-Ray debut (Itzkoff, 2011). This revamping has met with mixed responses among fans of the movies (Gould, 2011).

FORWARD INCREMENTATION

In forward incrementation, one moves one’s career forward in the direction it has been going. As one approaches the end of a career, creative productivity often decreases, for any number of reasons, such as increased other commitments, lessened energy or possible problems of physical health, diminishment of ideas, or lessened match between one’s preferred paradigms and the times.

The choice of most creators probably would be to pursue forward incrementation, continuing to do what they did before, but moving their creative program forward in a fairly linear way. In this way, they continue to contribute and to “earn their keep.” For example, a department chair might attempt to become a dean. Someone who is grant-funded to study a particular phenomenon might try to get one more grant—perhaps the last one—to study that phenomenon further.

For many creators, however, forward incrementation at the twilight of a career is harder than it appears.

First, they may have run out their creative program, in which case they may make forward increments, but smaller ones than they or others ideally would like.

Second, if they are seeking a promotion, they may be judged by search committees as “over the hill” and therefore not worthy of that next promotion.

Third, if they are scientists, it is often harder, at least these days, to get a grant when one is near the end of one’s career than it was to get one earlier in one’s career. Perhaps reviewers and program directors believe that funds should go to investigators with more of a future career trajectory in front of them, or perhaps they think that the researcher’s research program has run its course, or perhaps they believe that the Zeitgeist has left the researcher behind. But grants are generally easiest to get at mid-career points and harder in earlier and later career years.

Fourth, if they are seeking to collaborate with students, students may be more drawn to creators who are younger and are going to be better able to support them throughout their entire career. Investigators who are near the end of their career are not going to be able, on average, to give the same kind of long-term career support that early-career or mid-career investigators can provide as lifelong mentors. As an extreme example, JCK had a friend in graduate school who chose an emeritus professor as her advisor. The professor was a brilliant scholar and
wonderful person, but died in her third year. She had to rearrange her research program (virtually shifting fields). She received her Ph.D., but is no longer working in academia.

Fifth, as noted earlier, late-career creators may have acquired so many other obligations—to administration, national organizations, family, and the like—that they simply do not have as much time or energy for proceeding forward.

ADVANCE FORWARD INCREMENTATION

In advance forward incrementation, creators take a huge leap forward, perhaps greater than their audiences are ready for. Advance forward incrementations are probably less likely during late-career than at other points. For one thing, as Gardner (1994) has pointed out, later-career creativity tends to be more of the synthetic type than of the giant-conceptual-leap type. For another thing, convincing people to believe in an advance forward incrementation typically takes a lot of time—time the later-career individual may not have.

In an academic career, a researcher running out of time may feel that it is now or never to make a large advance in one’s research. If a department chair is applying for administrative jobs, he or she may realize that it may well be the last job that is at hand, and the only way to rise to a high position is to skip a step, as in an elevation from department chair or provost (bypassing dean). In either a scientific or artistic career, one may feel that a radical advance is now possible because it no longer matters what people say—one is in one’s final years in any case so a negative reaction from an audience can only hurt for a short period of time.

One classic example of a late-career advance forward incrementation is Peter Mark Roget. Dr. Roget was a polymath; he worked as a medical doctor, invented an early slide rule, and conducted pioneering optics research. One of Roget’s other interests was writing entries for encyclopedias of the day and also popular manuals on a variety of topics. Always a list maker, when Roget retired as a doctor at the age of 61, he returned to a pet project: compiling a comprehensive list of synonyms (Kendall, 2008). The resulting book, *Roget’s Thesaurus*, became a landmark advance in public reference works. Roget’s classification system (based on the work of many classic philosophers) is still used for many current reference works, including Wikipedia.

REDIRECTION

Redirection is a viable option for later-career creators. In redirection, they decide to pursue a different direction than that they have pursued before. For example, a scientist who was getting large grants when he or she was younger but no longer is pulling in such grants may decide to look for a line of research that is less costly. Or the researcher may go into academic or corporate administration. Someone whose research required a lot of assistants may look for a line that he or she can pursue with less support by assistants. An artist may try an entirely new style or painting or a composer may try composing works of a kind different from those he or she has composed before.
In later career, redirection takes a willingness to defy the crowd (see Sternberg & Lubart, 1995). People, including oneself, may be so used to thinking of one in a particular role that it is hard to envision one in another role.

Perhaps the most common move is for creators to go into administration or into careers that allow them to utilize the knowledge and skills they have built up over time. They may become academic administrators, or corporate, foundation, or government administrators. Researchers who have devoted little time to teaching may throw themselves completely into teaching, realizing that their research careers are essentially done. Teachers who feel burned out may try research, even if on a small scale. Artists may open galleries, dancers who can no longer dance at a professional level may become dance instructors, musicians who have joint or other issues may become teachers.

Darryl Bem is an example of a psychologist who has engaged in redirective creative work while staying within the domain of empirical research and theory. After a distinguished career studying self-beliefs (Bem, 1972), in which he argued that people base their attitudes on their behavior (and not vice versa), he tackled two different completely different and controversial questions. For one of his new lines of study, Bem (1996) proposed the Exotic-Erotic theory of sexual orientation. He argued that people’s sexual orientation was dependent on whether they engaged in gender-typical or gender-atypical behavior as a child. Whichever gender was rarely interacted with as a child became “exotic,” and, therefore, sexually desirable. Bem’s (2011) second new area of research was to argue that empirical evidence validated “psi” (i.e., extra-sensory perception). This latter work has met with extensive controversy, such that the New York Times ran a series of articles debating the hazards of peer review if such a paper could be accepted (Gad-el-Hak, 2011).

One of the coauthors, RJS, engaged in what is essentially a redirection. For 30 years, his career was defined primarily by his research. After a stint as president of a large organization (the American Psychological Association) and after feeling for a number of years that his work was not having the societal impact he had hoped for when he started his career, he became an administrator so that he could apply his ideas directly to universities (Sternberg, 2008, 2009a, 2009b, 2010a, 2010b, 2010c, 2010d, 2011a, 2011b).

RECONSTRUCTION/REDIRECTION

In reconstruction/redirection, creators go back to an earlier point in their careers and try to redirect from there rather than from where they currently are in their careers. For example, researchers may feel, later in their careers, that they made a misstep somewhere along the line that led to a suboptimal line of research. They may attempt to go back to the point where they made the misstep and redirect from there. Artists may feel that they adopted a style or a medium that did not work for them, and return to restart.

For example, one of us, in talking to an artist, heard how the artist had switched from watercolors to oils because that was where the money was when she sold her paintings, but she later felt that her natural medium was watercolors and hence
returned to watercolors and attempted to find a new style of painting in the medium she loved.

Within psychology, some researchers believe that there is more information (or different information) that can be obtained by examining the original datasets used in classic studies. They obtain these data and re-analyze them, whether to use new statistical techniques, control for new variables, or test relationships previously unexplored. Two examples can be found in creativity research. Plucker (1999) re-analyzed data from a longitudinal study conducted by Paul Torrance. Plucker looked at how divergent thinking and IQ scores differed in predicting creative achievements, finding evidence for the importance of divergent thinking. Silvia (2008) re-analyzed data from other investigators using latent-variable analysis and found that the relationship between creativity and intelligence may have been initially under reported.

REINITIATION

In reinitiation, creators decide essentially to start with a new career. The individual decides that he or she has had a full career in whatever he or she was doing and now wants a radical change. In these reinitiations, creators decide that they have it within them to try something totally different, and they essentially begin a new career following a retirement. Such a path has become increasingly common in our society.

Someone who has been an entrepreneur, like Bill Gates, may decide instead to devote his or her time primarily to philanthropy (an activity he formerly delegated to others). A psychologist we know left the field to become a docent in an art museum. John Holt, a writer of books about education, devoted his later years to playing the cello in a series of musical groups. An editor at a textbook publisher in Texas opened a bed-and-breakfast in Vermont with her husband. Conversely, we also know several theater professionals who have earned Ph.D.s in Psychology and are currently doing research.

SYNTHESIS

In synthesis, individuals may find ways to interweave what they have been doing with new pursuits. For example, a writer who has also been an avid but avocational bridge player may decide to start writing about bridge. In syntheses, previously separated interests may be brought together, or a new interest may be brought together with an old one.

One of the coauthors, JCK, has engaged in career synthesis. Always an ardent musical theater buff (and one-time lyricist/playwright), he has begun to study musical theater performers and creators. The personal benefits of such synthesis-based creative propulsion can be equal to the professional benefits; in addition to the intellectual challenge, JCK has been able to reach out to artists whose work he admires and enjoys.

CONCLUSION

There are many books of advice for those starting careers (including one of our own—Sternberg, 2004), but there is less out there for those who are seeking to
finish their careers in style. The propulsion theory of creative contributions, when applied to careers, suggests a number of different options creators may follow as they think about their intellectual legacy. Clearly, there is no one path that works for everyone. But this theory perhaps provides options that some later-career individuals might not think of that would provide them with satisfaction beyond that they might otherwise achieve.

REFERENCES


Robert J. Sternberg, Oklahoma State University
James C. Kaufman, California State University, San Bernardino

Correspondence concerning this article should be addressed to Robert J. Sternberg, Office of Academic Affairs, Whitehurst 101 Oklahoma State University, Stillwater, OK 74078. E-mail:robert.sternberg@okstate.edu