The Making of Prolific Academic Researchers in the Philippines

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ABSTRACT

This study explores the variables and socialization processes involved in the shaping of prolific academic researchers in the context of a developing country, the Philippines. A qualitative methodology using narrative interviews of six exceptionally productive male scholars were analyzed to come up with a data driven model of the pathways to prolific publishing in the context of Philippine realities. Categories and relationships that emerged from the analysis provided a cross-validation of previous quantitative investigations on research productivity. Two significant insights are highlighted in the model: the role of a "cognitive contrast" dimension, and the transformations that a set of "core characteristics" undergo throughout critical periods in a scholar's life. Theoretical and practical implications of the insights were discussed.

Keywords: Prolific researchers, Research productivity, motivation

The scientific culture in most of the reputable universities around the world is such that scientific publication is central to academic careers. However, despite the premium for research productivity, it has been noted that only a small fraction of exceptionally prolific scholars contribute disproportionately to the scientific literature in any field (Samson et. al. 1984).

In the Philippines, we expect the same pattern. In fact, it would even be more stark considering the lack (or absence) of a scientific culture where publication is highly valued (Lacanilao, 1999). This is compounded with the realities in most developing countries which include the lack of funding and other research related resources. Even in the case of the country's largest and most productive research university (based on publication counts of the Institute for Scientific Information database), surveys showed that majority of the science faculty members have not produced any international scientific publications at all in the recent years (Bacani, 1999; Lim and Saloma, 1998; Valencia, 2004). The same surveys indicated that less than 5% of faculty members meet the world class benchmark for research excellence of at least one international publication per year.

Despite the same research culture and limiting realities that face local scholars, why is it that a few exhibited exceptional publication behavior? This study explored the factors and socialization processes involved in the making of prolific researchers in the Philippines.

Literature on research productivity identified two interactive broad categories that contribute to superior research productivity: personal factors and contextual factors. Personal factors include demographic aspects, personal characteristics, and internal (to the person) mechanisms. Contextual factors include barriers and supports from external sources.

Demographic correlates of publication activity reflected that: men publish more (Zuckerman, 1991; Xie and Shauman, 1998); those who got doctorates at an early age and published early tended to be more productive (Cole, 1979; Levin and Stephan, 1991); age has a curvilinear pattern in relation to productivity (Cole, 1979); being married and having children lowers productivity (Hargens, et al. 1978; Carr et al., 1998). Prolific scholars are intrinsically motivated, have high performance standards, curious, task

oriented, motivated as much by a need for appreciation and recognition as by financial rewards, adaptable and respond positively to stress and pressures (Hunter and Kuh, 1987). Internal mechanisms recently explored used the social cognitive career perspective (Lent, et al. 1994). In this perspective, self efficacy and outcome expectations have been found to affect interest and research productivity (Vasil, 1992; Bieschke et al., 1998; Philipps and Russel, 1994; Kahn and Scott, 2001).

Contextual factors affecting publication productivity include organizational elements such as: availability of facilities, research incentives, and clear institutional expectations for research, (Allison and Long, 1990; Hunter and Kuh, 1987). Hunter and Kuh (1987) further noted that intellectual stimulation through continuing contact with a network of active researchers positively relates to productivity; and a supportive home environment contributes to prolific scholarship.

I would like to emphasize that most of the cited studies are quantitative in nature, and thus, tended to take on a mechanistic view of the phenomenon. While there is substantial literature that tells us what factors relate to research productivity, there is a lack of understanding how the underlying mechanisms behind the motivations for doing research are developed. It is in this context that this study explored the making of prolific researchers in the Philippines.

Method

Semi-structured narrative interviews with six exceptionally prolific university faculty members were carried out. Pre-identification of prolific faculty members in the Philippines was based on bibliographic records from databases, records of research related awards, and reputation perceptions from faculty members within each field or discipline. Curriculum vitae of these academics were also requested to provide additional data source. Two of the interviewees came from science disciplines (Marine Science and Geology) while the rest were from the social science fields (Economics, Political Science, Public Administration, and Psychology). All of them held the rank of full professor and they earned their PhD from universities in the United States. Their ages range from 37 to 76 years, and except for one, all of them are married.

In qualitative research, large sample sizes and statistical representativeness is not sought (Merkens, 2004). What is crucial is whether the respondents qualitatively represent and cover the significant theoretical points essential in understanding the phenomenon being explored (Flick, 2002; Denzin and Lincoln, 2000). In the case of this study, "prolific-ness" is the relevant theoretical point and the succeeding paragraphs elaborate how the respondents fit into this criterion.

In terms of publications productivity, the two interviewees from the science fields were the top (in their field) in the country. This is based on raw data from a survey (Valencia, 2004) and records from the Marine Science Institute library of the University of the Philippines. These two interviewees have averaged more than two international scientific articles per year since they obtained their PhD. As a comparison, we could consider the fact that the average international publications productivity of faculty members in two major universities in the country is roughly two publications for every five years (Saloma and Lim, 1998; Valencia, 2004). In the case of the social science interviewees, their average journal publication rates range from 2 to 6 per year and they were sole authors of 2-7 books.

By Philippine standards, the above scientific productivity figures put the interviewees of this study among the top in their respective fields, if not the best. Therefore, they could be qualified as prolific researchers. And as a reflection of the caliber of the works produced by these academics, it could be noted that all of them were recipients, in more than one occasion, of various local and international scientific awards and recognitions. The group includes an academician (National Academy of Science and Technology), a national social scientist, and nationally recognized outstanding scientists.

The narrative interviews lasted from fifty to seventy five minutes. The conversations were started with a generative question that led interviewees to talk about early experiences which they felt had a connection with the path that they have chosen which involves scholarly work in the academe. In the subsequent exchanges, the interviewees were led to talk about school experiences (undergraduate and/or graduate), post PhD academic experiences, challenges faced in relation to scholarly pursuits, and

family life. Interviewees were also queried in terms of their work styles, habits, and motivations for doing scholarly work.

All interviews were audio-taped, transcribed, and analyzed with the aid of a qualitative research software. The initial phase of the analysis involved the extraction of descriptive level categories, or themes that were not predetermined and were not mutually exclusive. The subsequent phase involved generating analytical categories by grouping or reanalyzing the initial set of descriptive categories that emerged in the initial phase. At this point, connections or relationships between categories were explored and integrated. The transcripts were repeatedly read across the analysis phase with an eye to provide further support or challenge categories that have emerged or to identify further emerging categories.

Results

This section presents categories that emerged from the analysis. It is organized into three periods: 1) early shaping period, 2) critical socialization period, and 3) post doctoral period.

Early Shaping Period

This period includes relevant life events and experiences prior to the phase of actual socialization into a scholarly career which is for most academics, the graduate training. The early shaping period for the respondents of this study was varied in focus. Some traced their relevant experiences only in the college years while others traced it as far back as their elementary school years. For some of the interviewees, relevant elements during this period were school-based, while for others it was a combination of elements in school and the family. The major categories that emerged in connection with this period included internal factors, an external factor, and fortuitous events.

Internal Factors. The internal factors are made up of two subcategories, intellectual ability and personal characteristics. Four of the respondents had clearly high academic intellectual ability as evident from their undergraduate honors which were at least magna cum laude. Equipped

with high intellectual capital, these individuals also possessed personal characteristics of having a strong motivation to achieve in academics and they coupled this motivation with hard work and discipline. Early on, they have already set high standards of excellence in whatever they do.

External Factors. The external factor that emerged involved the shaping of efficacy to do research. This is a belief that one can do research. It was formed through experiences of research related successes as well as verbal encouragements from other people. As an example, one of the respondents felt that there was an indication that he could do research because of winning an undergraduate research paper competition.

Fortuitous Events. All of the respondents acknowledged that their career as knowledge-producers was not anticipated and planned. Fortuitous events interestingly ushered the graduate training phase for most respondents. Three of them talked about serendipitously meeting people who eventually became instrumental to their getting accepted for graduate studies abroad or landing a scholarship.

Critical Shaping Period

The graduate training experience is the primary phase of socialization to the knowledge-generation career. This is the critical socialization period for all the respondents of this study. However, there was one respondent whose critical socialization period started with his work as a researcher in a non-academic government institution prior to his graduate studies.

A pattern worth noting is the fact that all of the respondents pursued their masteral degrees and doctoral degrees without a gap period in between. So in a sense, there was no break in their experience of the critical socialization period. And consequently, they were able to get their doctorate degrees at an early age of 29 on the average, with one getting it at 25 years old. All of them took their advanced degrees from universities in the United States.

In the critical socialization period, three significant categories of processes emerged: 1) socialization into an ideal research culture, 2) modeling of a person or a system, and 3) experience of a cognitive contrast.

Socialization into an ideal research culture. A general theme in the talk about their graduate school is the perception of a stark contrast in the research culture when compared with the local scientific culture. In this respect, three categories emerged to refer to the ideal research culture: state of things, ways of thinking, and ways of doing.

State of things pertain to descriptions of research supportive environments (laboratories, libraries, and other physical resources), presence of eminent faculty members, and a general default mode that everything is about doing research. The general ways of thinking in those departments are such that advancing knowledge is desirable and highly valued. Excellence and high levels of standards were common denominators in their descriptions of their graduate schools. Most of the respondents narrated a sense of competition within themselves and against other graduate students that is naturally induced by the atmosphere in their graduate schools. As one respondent aptly puts it, "I suddenly saw what is going on behind all… that there was a very exciting process, very lively, dynamic, very exciting. I was in a school which was really at the thick of things and everyone was there because they wanted to be part of this endeavor which is advancing knowledge in the field."

In terms of ways of doing, respondents narrated how everyone in their departments is actively doing research. The pervasive work ethics are marked by high levels of discipline, professionalism, and the value of being productive and being a hard worker. The interplay of all these elements provides the context for the critical socialization to "the way of life, the values of an academic, the work ethic of the academic… the standards you maintain," as one respondent expressed it.

Modelling. The process of modeling was salient in the transcripts. Respondents talked of varying degrees of importance in the role that their mentors played during the critical socialization period. The relationships with mentors and the styles of mentoring were quite varied. But what is common is the perception that mentors emulated desirable characteristics in terms of discipline and having high standards of excellence. In a sense, mentors provided a live model of the discipline and drive that it takes to contribute significantly in a field.

In another level, modeling also occurred in terms of systems and ways of doing. The graduate studies abroad provided a concrete picture of a system behind the production of significant scientific knowledge in their respective fields. Respondents commonly used the systems and practices of their graduate school as a benchmark when they got back to the Philippines.

Cognitive Contrast. The graduate training experience abroad provided a contrast between an academic culture in Philippine universities and that of a reputable university in a developed country. What is important here is not just the difference in the experience, but more on the awareness and mental reaction that the contrast has created within the individual. This is the contrast felt by one respondent, upon coming back from his studies abroad, when he said, "How come nobody is working here?…I felt like I'm the only one working…" In the universities where they took their PhDs, it was very explicit that to become an academic, one has to do research. And this is not the case in the Philippines.

Post Doctoral Period

This is the period of occupational (re)entry after finishing graduate studies abroad until the end of an academic career. The processes all throughout this period involve the continuing interaction of contextual and internal factors that lead to a particular level of scientific productivity.

Contextual supports to productivity. Most of the respondents highlighted the advantages that they have gained because of interaction with individuals or networks of scholars abroad. For them, these contacts with outside scholars provided intellectual stimulations and sources for research ideas. In many cases, the contacts became means for addressing problems such as lack of library materials or laboratory equipment.

Supportive and very understanding spouses and children became a contextual support for all the married respondents. They acknowledged that there were sacrifices and strains felt as a consequence of the lack of time spent with the family. Although family members may not have directly helped them in their scientific endeavors, but by understanding the work of the academic, they did not become a hindering factor. In fact, as one respondent

puts it, the family served as his anchor and a reason for doing what he was doing.

Another contextual support that emerged was the role of fortuitous events. There were respondents who attributed some of the major research projects in their entire career to fortuitous events. But while they viewed it as such, they did acknowledge that they had the capital and personal resources to recognize the chance opportunities and they were able to optimize these opportunities.

Barriers to productivity. There were only two categories of productivity barriers that emerged from data: administrative work and lack of resources. Most of the respondents currently hold administrative positions and all of them, in many points of their life, have held administrative positions. They all perceived administrative work as a hindrance but it was also common to them that such situations did not deter them from doing research. And for some of them, if you look at the chronology of publications and administrative posts that they have held, it seems that administrative work did not slow them down at all in their research tasks. The lack of resources mentioned included physical resources such as facilities, equipment, or materials. Personal experience of lack of funding for research was interestingly never mentioned.

Internal Factors. Two categories emerged under internal factors: personal characteristics and motivations for doing research. All of the respondents described themselves as disciplined and a hard worker. It is common for them to work long hours and way beyond the regular expected number of working hours. Weekends and even holidays were often spent for research work. Excellence is on top of their minds. They set high levels of standards for their work.

It was noted that the set of characteristics that the respondents viewed as important for their being prolific are the same set of characteristics that have previously emerged in the early shaping period. The only difference is the shift in the object of these characteristics. Before, the object of their discipline, hard work, and excellence is schoolwork. However, in the post-

doctoral period, research and writing became the object of these characteristics.

The motivation for doing research was primarily internal in nature. All of the respondents are motivated intrinsically by the joy of publishing itself. When asked why he writes, one respondent simply said, "it's what I have to do." The joy of discovery and communicating it through publications is within all of them. One respondent even said that the awards and recognitions that he has gained were not really that important for him. He feels happier and finds it more satisfying every time he sees his name in a publication. The other forms of motivations for doing research were notably non-material in nature. These include recognition and respect from the relevant scientific community abroad, opportunities to engage in intellectual discussions with scientists abroad, and positive regard from family or former professors and mentors. No one expressed being motivated by material outcomes such as promotions or monetary incentives.

A Model of the Making of a Prolific Scholar in the Philippines

A model (see Fig. 1) was derived to integrate the various descriptive and analytical categories that emerged from the data. It depicts interrelationships of variables within successive processes of socializations. The model assumes that prolific research behavior is primarily a function of two necessary elements: 1) intrinsic joy for doing research and publishing, and 2) possession of "core characteristics" that include high levels of being disciplined, being a hard worker, having high standards of excellence, and having a general positive outlook. Discipline, hard work, and excellence are behavior manifestations of a common underlying motivation to achieve. The model considers the impact of contextual supports and barriers but there is an indication that in general, the impact of contextual barriers is mediated by the core characteristics and intrinsic joy elements.

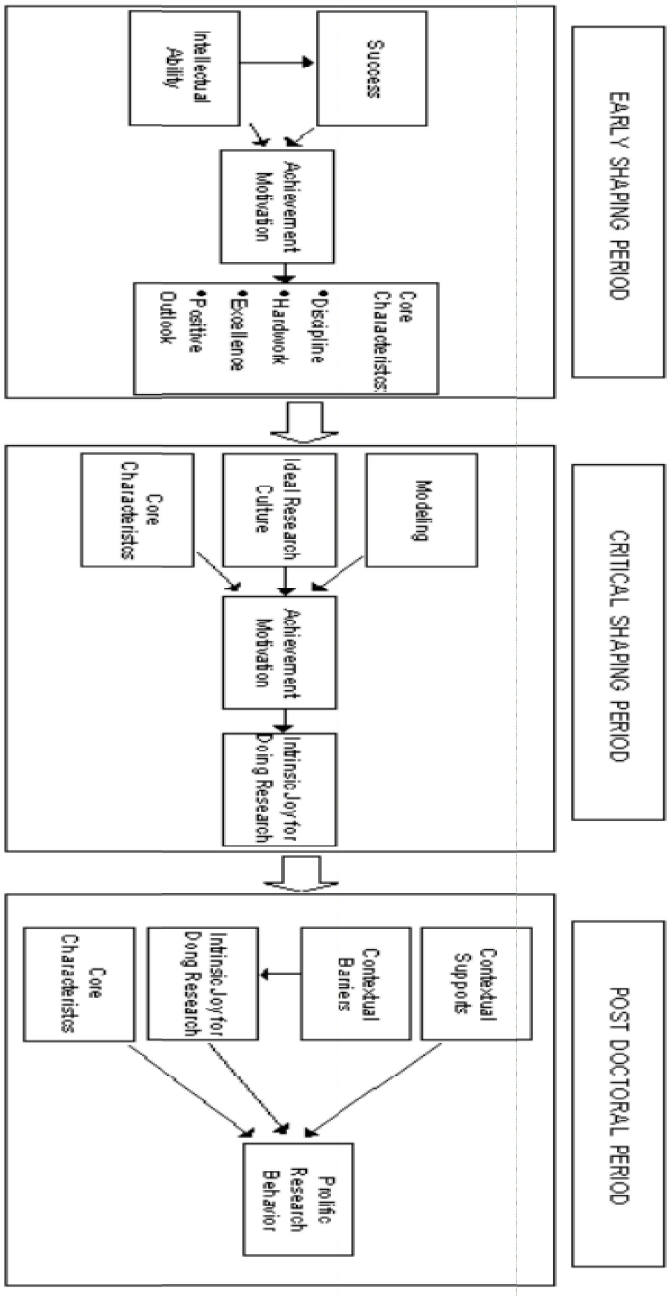

Fig. 1 *A Model for the Making of Prolific Academics in the Philippines*

The core characteristics have been forged early in life and the target object of these characteristics was primarily academic achievement. High levels of intellectual ability and early experience of successes in academic related endeavors are hypothesized to relate to the formation of high motivations to achieve. Consequently this motivation led to the development of the core characteristics described earlier. So by the time the individual undergoes the critical socialization period, the core characteristics are already well entrenched within the person. Note that at this point a career in research is almost certainly not anticipated or planned yet. Fortuitous events, as in the case of most respondents in this study, ushered the opportunity to be socialized in the critical shaping period.

As the model depicts, basically what happens in the critical shaping period is a process of redirecting the object of the core characteristics (discipline, hard work, excellence, and positive outlook). Academic activities as the object is replaced by research and publishing pursuits. And within the process, standards of excellence and benchmarks are redefined through modeling. Prolific researchers have an experience and interaction with concrete benchmarks in terms of people (mentors or professors) and systems that are embedded in an idealized research environment. A crucial element during this period is the experience of a "cognitive contrast" between the overall research culture of the graduate school abroad and that of local Philippine universities. The reaction to this contrast will depend on whether the individual possesses the core characteristics that are consistent with the requirements of the idealized research culture. Otherwise, the reaction would be that of resignation or simply an appreciation of the stark contrast. Individuals who come into the critical socialization period with the desired levels of the core characteristics will most likely take on the challenge posed by the contrast. In effect, the critical shaping period has two significant outcomes. First, it redirected the object of the core characteristics to research pursuits. Second, the intrinsic joy and satisfaction for doing research is developed.

Upon coming back to the country and re-entry to the academic career, local contrast realities will impinge and the cognitive contrast will continue. The direction of the reactions to the constraints of doing research in local contexts is primarily shaped by internal motivations. The intrinsic

joy for doing research (developed during the critical shaping period) is primary among these motivations. So in the case of prolific researchers, the impact of contextual barriers that are typically present in Philippine universities, may not be as hampering as compared with those who are motivated to do research because of external factors such as access to resources or monetary incentives.

Discussion

The findings related to the authentic inner joy for doing research, the core characteristics, contextual supports and barriers provided a cross validation (using a qualitative methodology) for previous studies mentioned in the first section of this paper. It seems then that the variables and the clusters of relationships that emerged from the analysis generally present nothing new. However, a relatively fresh insight is provided by two sets of framework within the model that emerged from the data. One is in relation to the role of the processes of cognitive contrast in the overall scheme of socialization that a prolific scholar undergoes. The other is in relation to the transformations that the core characteristics undergo from the early socialization period to the post-doctoral period. Looking at the dynamics of these two processes, we can extract some significant theoretical and practical implications. The succeeding discussion will focus on these dimensions.

First, we consider the cognitive contrast aspect. If we take the case of scholars in the Philippine context, we assume that they are within a relatively underdeveloped research culture. Prolific scholars have managed to break out of the norm while paradoxically operating within the culture. And just like in any culture, breaking out from the norm ways of doing and benchmark standards of performance is very difficult to do unless you move out of the situation, experience alternative cultures, and consciously imbibe the alternative culture. The process may not be that simple. Consider the observation that not all those who studied in good universities abroad turn out to become exceptionally productive. This is the case despite evidence that graduate training environment and quality of graduate school is positively correlated to scientific productivity (Baughman and Goldman 1999; Gelso and Lent 2000). Not everyone who has the "core characteristics" and

experienced the effects of modeling and the positive research culture abroad have the same reaction tendencies in relation to their subsequent scientific productivity. A cognitive mediator is most likely at work here and perhaps the mechanism of the cognitive contrast described in this study can provide some answers. It could extend an underlying theoretical frame for explaining the variations in the outcomes of studying abroad. We should also note further that the contrast does not always involve foreign studies. It can also be brought about by extensive and consistent interactions with local prolific scholars but perhaps the impact is not as much.

At the practical level, the cognitive contrast dimension highlights the importance of exposures to ideal research cultures found in most universities of developed countries. In practice, some local universities do encourage and promote opportunities for faculty members to study abroad. But with the dynamics of the cognitive contrast as suggested in the findings of this study, it might be worth noting that there are other crucial elements that have to be considered. For example, we may look at the aspect of whether the individual being sent abroad possess the desired levels of the "core characteristics."

Now we consider the aspect relating to transformations of the core characteristics (hard work, discipline, excellence, and positive outlook). As emphasized earlier, the impact of the core characteristics to prolific scientific behavior does not stand alone. It is important that the core characteristics are specifically directed towards the inner drive and satisfaction of doing research and publishing. The core characteristics are not new to the literature on related factors to scientific productivity. However, previous studies have not looked at how these characteristics developed and what are the underlying mechanisms that forged it with the inner drive to do research. Findings strengthen the point that prolific scholars are not born, they are shaped (not in a Skinnerian sense). And if we look at the ingredients of this shaping process, it involves common characteristics that many people can potentially develop. What is crucial here is to understand the critical points of transformations that common characteristics such as discipline, hard work, excellence, and positive outlook must undergo until they are eventually directed towards scientific pursuits. Note that superior academic ability is not necessarily a major ingredient in the process. Although all the respondents

of this study possessed superior levels of academic ability, note that in the model, intellectual ability emerged only in the early shaping period. And if we look at it closely, it functioned more as a leverage to open up opportunities in the early shaping period and ushering the critical shaping period. Perhaps this explains the findings of Hunter and Kuh (1987) that most prolific scholars in the higher education discipline are "B" students in high school or college. Similarly, there was no relationship found between undergraduate honors and research productivity of Philippine academic scientists (Valencia, 2003). It seems then that during the post-doctoral period, where the prolific behavior manifests, intellectual ability is not as crucial as one would expect. In fact, respondents of this study did not view their intellectual ability as a major contributor to their prolific behavior.

Conclusion

In conclusion, let me reiterate some limitations and reflexivity notes that bind the findings and interpretations of this study. First, the respondents were six male academics in a limited variety of discipline. So the emergent data left out a wide set of different possibilities coming from female prolific scholars knowing that there is a wide gender difference in various aspects of socialization. Perhaps, this accounts for the noted general pattern of the conversations between me and the interviewees which were so cognitive and rational in tone.

Second, the interest of this study is about research behavior and the parties involved (interviewer and interviewee) in the data gathering phase are both researchers. Therefore, the shaping of the responses made in the interviews and in my process of analyzing the data has the character of persons conscious of being the seeker and sought at the same time.

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