Good Work Project Report Series, Number 5

Good Work Among Dedicated Young Professionals

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The Good Work Project
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Since 1995, three teams of investigators, under the direction of Howard Gardner, of Harvard University, Mihaly Csikszentmihalyi of Claremont Graduate University, and William Damon of Stanford University, have been researching the ways in which leading professionals in a variety of domains carry out good work. "Good work" is used in a dual sense: 1) work that is deemed to be of high quality and 2) work that is socially responsible. Through intensive, face-to-face interviews, the researchers have investigated several domains, including journalism, genetics, business, jazz music, theater, philanthropy, and higher education. Pilot studies have been conducted of medicine and the rapidly emerging domain of "cyberlaw", with plans to explore these areas more fully in the future.

In addition to this central line of study, several other related lines of investigation have been launched:

1. The Origins of Good Work project is an examination of teenagers who excel in extracurricular activities.

2. The Dedicated Young Professionals Study focuses on those who have just begun (or will soon begin) promising professional careers.

3. Good Work in Interdisciplinary Contexts. Pilot studies of new arts/science media and of the Massachusetts Institute of Technology's Media Lab have been completed. Plans are underway to study interdisciplinary work at the pre-collegiate, college, and research institution level.

4. The Role of Contemplative Practices investigates the ways in which contemplation/meditation influence how professionals carry out work.

5. Encouraging Good Work in Journalism. This project, carried out in conjunction with the Committee of Concerned Journalists, is currently developing a "traveling curriculum" for use in newsrooms around the country.

6. Good Work as Transmitted through Lineages examines how the principle of doing good work is passed down through continuous generations of teachers to students or from mentors to less experienced professionals.

7. Good Work in Other Societies is a project spearheaded by colleagues at Denmark's Royal Danish School of Education that investigates good work in Denmark and Latvia. In the future, additional international components will be added.

The Project expects to issue a variety of books, reports, and related documentation. The present series, launched in early 2001, includes reports on several of the lines of research mentioned above. For further information on the Good Work Project, contact Professor Howard Gardner's office at 617-496-4929, via email at hgasst@harvard.edu, or through regular mail at 201 Larsen Hall, Harvard Graduate School of Education, Cambridge, MA, 02138.

Papers On Good Work
February 2001

1. The Project on Good Work: A Description (April, 2000), Howard Gardner, Mihaly Csikzentmihalyi, and William Damon.

2. The Ethical Responsibilities of Professionals (July, 1998), Howard Gardner

3. The Empirical Basis of Good Work: Methodological Considerations (June, 1997), Howard Gardner, Anne Gregory, Mihalyi Csikzentmihalyi, William Damon, and Mimi Michaelson.

4. Good Work in Business (August, 2000), Kim Barberich and Howard Gardner.

5. Good Work Among Dedicated Young Professionals (July, 2000), Becca Solomon, Greg Feldman, and Marcy LeLacheur.

6. Contemplation and Implications for Good Work in Teaching (August, 1998), Laurinda Morway, Jeff Solomon, Mimi Michaelson, and Howard Gardner.

7. Good Work in a Complex World: A Cross Cultural Comparison (November, 1998), Hans Henrik Knoop and Howard Gardner.

8. Opportunities and Obstacles for Good Work in Medicine (August, 2000), Jeff Solomon, Jennifer DiBara, Sara Simeone, and Dan Dillon.

9. New Media Art: A New Frontier or Continued Tradition? (January, 2001), Kaley Middlebrooks.

10. The Origins of Good Work (April, 2000), Wendy Fischman and Grace Lam.

11. Good Work among Albert Schweitzer Fellows (April, 1999), Wendy Fischman, Becca Solomon, and Deborah Shutte.

12. High Abilities and Excellence: A Cultural Perspective (2000), Jin Li

13. Interdisciplinary Research and Education: Preliminary Perspectives from the MIT Media Laboratory (January, 2001), Dan Dillon.

14. Good Work in Cyberlaw (August, 2000), Evan Zullow.

15. Getting Kids, Parents, and Coaches on the Same Page (2000), Becca Solomon and Howard Gardner.

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I. Project Overview

In a component of the Good Work study devoted to Dedicated Young Professionals, we have interviewed journalists and geneticists completing their training and similar cohorts during their first job experiences. Speaking with young adults at these early career points offers us the opportunity to learn about how their training has prepared them for the realities of the work world and the challenges they face. We are also able to discern how they may perceive the profession differently than more veteran counterparts.

The study of Dedicated Young Professionals links the younger subjects from our Origins of Good Work project to the older professionals of our Core study of Good Work. Through our intensive interviews, we secure information about a pivotal time in professional life. Our comparisons of these different age and career levels will ultimately offer a developmental trajectory of Good Work across a variety of professions.

During the two-year study of Dedicated Young Professionals, we completed 40 in-depth interviews: 20 geneticists and 20 journalists. Our genetics sample included ten graduate students, five academic postdoctoral fellows, and five industry scientists. The journalism sample also included students as well as new professionals. We interviewed six undergraduate journalists and four journalism graduate students. The fledgling professionals included five television broadcasters (including reporters, a producer, and a newswriter) and five

newspaper reporters. In both groups of young professionals, the subjects were evenly divided by gender.

II. Findings

In our analysis, we endeavored to determine the revealing differences and similarities between the young professional journalists and the young professional geneticists, and between young and senior professionals in each field when possible. This report is organized according to the main themes that emerged from our study. We focused on a comparison between novice journalists and novice geneticists, drawing on data from our Core study of veteran journalists and geneticists when useful. The following are the themes we address in this report:

Responsibilities: In our analysis of five levels of responsibility, we found that journalists often speak about an obligation to maintain their ethical standards in order to "be able to look themselves in the mirror at the end of the day." By contrast, young geneticists speak about their obligation to do work that will help the domain grow. Additionally, young geneticists frequently imputed responsibility to others while veteran geneticists did not.

Ethical Issues: Novice journalists spoke about ethical issues more frequently, without prompting, than did novice geneticists. This difference suggested that ethical issues were more often on the minds of journalists than geneticists. Additionally, we found that young journalism subjects more often discussed facing ethical dilemmas than did young geneticists. Though both domains are ultimately influential, this difference was most likely due to the fact that journalism has a more direct and immediate impact on the public at large.

Domain Condition: Journalists spoke about the increasingly negative aspects of their domain, while geneticists viewed the future of their profession with great enthusiasm. These findings held true across professional stages in both domains.

Domain Attrition: Because young journalists viewed the future of their domain more negatively, they more often discussed leaving their field than did young geneticists.

Teaching and Training: Teaching and training involves the methods by which novice professionals learn to do "good work," whether through didactic relationships with professors in genetics or through on-the-job experiences in journalism. At times, young journalists described a lack of clear on–the-job mentors, whereas geneticists discussed structured, yet complex, mentoring relationships.

In the following sections we turn to an in-depth exploration of each of these themes.

Responsibilities

In writings emanating from the Good Work project, the principal investigators have identified five different responsibilities professionals should address: to one's self; to others (one's colleagues and intimates); to one's institution; to the domain (or one's calling); and to wider society. We have analyzed the extent to which the novice journalists, and geneticists at both professional levels, described feeling responsible at each of these levels. Additionally, we identified what we call "imputed" responsibility: the notion that someone other than one's self was, or should, be responsible.

Comparisons made across domains revealed similarities and differences in the nature of work in genetics and journalism. Comparisons of novice and senior geneticists suggest a developmental model of responsibility formation[1].

[1] Levels of responsibility could not be counted or analyzed in the sample of senior journalists because this issue was not systematically discussed during these interviews.

Comparison of Novice Professionals' Levels of Responsibility

	Novice Journalists (n = 20)	Novice Geneticists (n = 20)
Responsibility to Self	75% (15 / 20)	55% (11 / 20)
Responsibility to Others	75% (15 / 20)	80% (16 / 20)
Responsibility to Workplace / Institution	40% (8 / 20)	25% (5 / 20)
Responsibility to Domain	35% (7 / 20)	60% (12 / 20)
Responsibility to Society	100% (20 / 20)	90% (18 / 20)
Imputed Responsibility	55% (11 / 20)	85% (17 / 20)

Interviews with young geneticists and journalists revealed that each group had a somewhat different emphasis regarding the five levels of responsibility. Journalists more frequently discussed a responsibility to self; geneticists more often described their responsibility to their domain and imputed responsibility to others. Notably, young professionals in both groups expressed a strong sense of responsibility to society.

A. "To Thine Own Self be True": Two Responsibilities to Self

More journalists than geneticists in the sample discussed a responsibility to themselves. Before an interpretation of this finding is possible, delineation is

required between two distinct types of responsibilities to self, both of which are especially crucial at the novice career stage.

Responsibilities to self can be selfish or selfless. The different aspects implicit in a novice professional's notion of responsibility to self include: 1) a responsibility to take active steps to ensure career advancement, and 2) a responsibility to uphold personal standards of integrity. As novice professionals attempt to navigate successful entry into the domain, they must take certain steps to advance their careers, such as securing key internships in journalism or publishing scientific papers in genetics. However, in order to take some of these steps, we have learned that these young professionals are often asked to sacrifice deeply held beliefs.

One journalism subject described his responsibility to himself in terms of remaining true to a personal standard: "My responsibility to myself; again, that mirror test, can I look at myself in the mirror and be proud of who I am? Do I feel good about the decisions that I made morally, ethically?" He acknowledged that he had violated his own ethical standards in order to get a story. As a TV news program intern, he was assigned the task of requesting an interview of guests at the funeral of John F. Kennedy, Jr. He explained:

> I fought before I went; I said, "…if [Senator Ted Kennedy] requested that we not speak to these people, I think we should honor that." And I was basically told, "Listen, everyone else is going to be there…And if you're in a local [news] market and you refuse to do something like this, then your station isn't going to have the piece of information; you're going to lose out"—and I wound up doing it because of the pressure.

The subject did not procure any interviews, and he received several negative remarks from the individuals he approached. It was not clear that he would have been fired for refusing the task, but he was told, "…you'll lose a lot of respect in this place." In this case, the subject acted against his own sense of personal integrity to maintain professional respect (and perhaps his job). Thus, at times, even the two aspects of responsibility to self are in conflict.

On the other hand, some young professionals we interviewed described upholding their code of ethics despite pressures. A graduate student in genetics, for example, stood her ground in spite of pressure from her advisor and committee members. Her advisors wanted her to publish partial findings of an experiment even though one aspect of the data threw the argument into doubt. Ultimately, she said, "I decided it was unethical…much as it may be great for me to put it out there…I don't want to take the risk." She reflected, "all you have in science is your reputation…It was not worth my reputation and it would slow progress in the field…Especially when you're trying to put out something that you think is high-quality." For some young professionals, establishing a reputation as someone who does good work was more important in building a career than the lure of short-term gains.

Subjects in both professions made reference to both types of responsibilities to self; these subjects spoke both of working hard to establish their careers and also doing work in a way that would allow them to remain true to their personal

standards of integrity. Interestingly, the journalists were nearly three times as likely to discuss this latter responsibility[2].

Because journalists often receive feedback—both good and bad—from readers as well as interview sources, they face the social impact of their work with much greater immediacy and regularity than do geneticists (who work in a fairly secluded laboratory environment). When faced daily with such interaction and potential dilemma, they are regularly reminded to uphold a personal moral standard.

On the other hand, day-to-day work in genetics was viewed by some novice geneticists as a value-neutral undertaking. One subject noted, "Experimental science is not about values, it's about reporting the truth…the scientific process is blind to things like personal beliefs." In sharp contrast, journalists we interviewed acknowledged that absolute objectivity is not always appropriate or possible, especially when reporting on sensitive issues. Therefore, journalists may have to make "value-calls" more often. This difference in orientation underscores a finding that we will discuss in the section on ethical issues that suggests ethical considerations are more prominent in the minds of novice journalists.

[2] The young professionals in both groups clearly had high personal standards for their work. The groups were different in their explanations of what responsibility these high standards satisfied. While journalists tended to speak about maintaining a high personal standard in order to be able to "look yourself in the mirror at the end of the day," geneticists spoke more about doing

B. Responsibility to Domain

More young geneticists than young journalists reported a responsibility to their domain. For many of these novice scientists, this responsibility was manifest in reporting and interpreting data accurately so that other scientists in the field could trust and build upon their work. The importance of "doing experiments in the cleanest way possible" was a value that subjects often reported learning during their lengthy training. Because formal training in journalism is much shorter than genetics (or in many cases non-existent), this factor may account for the relative lack of responsibility towards the domain. The obligation to be accurate in journalism was often articulated as a responsibility to the news consumer, or to one's self, to uphold a personal standard. Or, in our terms, this obligation demonstrated a sense of responsibility to the society or to self, respectively.

C. Responsibility to Society

The highest responsibility reported for both novice professional groups was the responsibility to society. One newswriter at a network affiliate noted, "it's just a responsibility we have to the viewers to present the material as objectively as we can and present it in a tasteful manner." Similarly, a student newspaper

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rigorous science to allow the domain of genetics to move forward, thus upholding a responsibility to the domain.

intern commented, “more than anything, you feel a responsibility to the readers.”

Though journalists typically had a more direct relationship with the general public to whom they reported, many of the geneticists in the sample also spoke of a responsibility to make their work accessible to the wider world. Geneticists’ concern stemmed from what they viewed as the public’s unreasonable fears about hot-button topics in the domain, for example, cloning and genetically-altered foods. Additionally, some expressed an obligation to inform the general public because tax-paying citizens contribute greatly to federal funding in basic research. To make their work more publicly accessible, some subjects have worked with high schools, giving presentations to students about the scientific method, and sharing information on scientific advances with teachers. While genetics subjects described a responsibility to quell the public’s fears, they rarely talked about a responsibility to educate the public about potential risks associated with their work.

D. Imputed Responsibilities

Novice geneticists in the sample made more statements indicating a sense of imputed responsibility than did novice journalists. Additional distinctions also emerged in the types of responses given by the two groups. We delineate between two distinct types of imputed responsibility: 1) responsibilities ascribed

to others, and 2) responsibilities not currently held, but which the individual envisioned holding at a later career stage.

1. Responsibilities Imputed to Others

When genetics subjects identified responsibilities outside of their purview, they imputed the responsibilities to individuals within the field (for example, senior scientists), but also to society at large. For example, a graduate student conducting research on genetic factors in obesity remarked that the fate of potentially harmful applications of his work should be decided by the voting public and the legislators that they elect. He noted:

> Ethics and society get very mixed… I definitely try not to get into the realm of asking the questions "What is this going to be used for? What are the societal implications?" Because that's not my job. My job is to do the science. It's [up to] somebody else to figure out.

In contrast, when journalists identified issues that were beyond what they viewed as the scope of their current responsibilities, they largely imputed to others *within the field*. Difficult day-to-day decisions were often charged to editors and news directors. Responding to criticism from news consumers was seen as the job of ombudsmen. Critical consideration of larger domain issues befell domain gate-keeping institutions such as The Project for Excellence in Journalism at the Columbia School of Journalism. Thus, while responsibility was imputed to others, it was still viewed as the duty of those within the field of journalism.

2. Responsibilities the Individual Will Hold at a Later Career Stage

Several geneticists alluded to responsibilities that they do not currently hold because of the lack of authority granted to them in their novice position in the domain. However, many of these subjects said that they will inherit these responsibilities once they are in a higher position of authority. The journalists, on the other hand, made few statements to indicate that in the future they would assume a responsibility that they do not currently hold. This reflects the fact that relatively few journalists in the sample planned to assume positions as editors or news directors—the individuals to whom they most often imputed responsibility. Instead, they hoped to continue in journalism as reporters or broadcast anchors. On the other hand, many of the geneticists were training for leadership positions, teaching at universities and directing laboratory research.

These two findings taken together suggest that the young journalists viewed their field as one that polices itself (and where individual practitioners take primary policing responsibility), while young geneticists believed that the implications of their work should be considered by individuals both within and beyond the field. Encouragingly, the kinds of responsibilities that the novice geneticists did view as falling within the purview of senior scientists—such as educating the public or drafting regulatory scientific legislation—were responsibilities that they suggested they will increasingly act upon as they advance in their careers.

Comparing Senior and Novice Geneticists' Levels of Responsibility[3]

	Senior Geneticists (n = 55)	Novice Geneticists (n = 20)
Responsibility to Self	42% (23 / 55)	55% (11 / 20)
Responsibility to Others	62% (34 / 55)	80% (16 / 20)
Responsibility to Workplace / Institution	31% (17 / 55)	25% (5 / 20)
Responsibility to Domain	69% (38 / 55)	60% (12 / 20)
Responsibility to Society	82% (45 / 55)	90% (18 / 20)
Imputed Responsibility	58% (32 / 55)	85% (17 / 20)

In most of the responsibility categories, the differences between novice and senior geneticists were minor, although suggestive about the evolution of commitments that come with the assumption of positions of greater leadership. The largest difference between the novice and veteran scientists was that fewer senior geneticists (58%) claimed to "pass the buck" on the responsibility for making difficult decisions in the domain, as compared to their younger counterparts (85%). This trend was further supported by the finding that even

[3] A parallel comparison of levels of responsibility among novice and senior journalists could not be completed because the five responsibilities were not systematically discussed during interviews with veteran journalists.

among senior scientists, responsibility was imputed increasingly less as career phase advanced.

The sample of senior geneticists was broken down into three groups: midlevel practitioners, creator/leaders, and gatekeepers. Comments imputing responsibilities were far more likely on the part of midlevel practitioners (80%) than on the part of the most senior members of the field, the creator/leaders and gatekeepers (53% combined). We might speculate that although midlevel practitioners do possess more authority than novice geneticists, they feel that they have less power than do the creator/leaders and gatekeepers.

If, as these data suggest, the leaders in the field of genetics impute fewer responsibilities, this finding begs the question: Are increased responsibilities inherent in positions of leadership or do exceptionally responsible individuals gravitate towards positions of leadership? Most likely, it is a combination of both, a complex interaction between both the responsibilities inherent at each career stage and the leader's own stage of responsibility development. As we continue to conduct interviews with individuals in a variety of domains and career stages though the Good Work Project, we expect to learn more about the formations of responsibilities throughout the life-span.

Ethical Concerns

The finding that young journalists more frequently reported feeling a responsibility to maintain their personal integrity, suggests that these individuals may often find themselves in situations in which they need to "check their values," make difficult ethical choices, and proceed with caution. Additionally, young journalists were more than twice as likely as young geneticists to discuss ethical concerns without prompting.

During the interview, we asked subjects in both professions whether they had ethical concerns about their area of work, and then we surveyed them about various "hot button" issues that have raised ethical concerns both within and outside of their fields. For instance, we asked geneticists about germ-line gene therapy, and journalists about the influence of corporate owners on editorial content. While young geneticists spoke less frequently about ethical concerns, the concerns they mentioned mainly related to accuracy of data (both their own and others'), open sharing of scientific information as opposed to hoarding data, pending patents or publication, and appropriation of their data by peers or senior members of the field.

There was also a difference in how often novice journalists and geneticists discussed ethical concerns about their area of work *without prompting*. We found that while only 30% of geneticists spontaneously raised ethical concerns, 75% of the journalists mentioned ethical concerns without prompting. Ethical concerns,

therefore, appear to be on the minds of young journalists more than young geneticists. For this reason, this section highlights findings in journalism.

We suspect two factors that may account for the relatively higher levels of concern that the journalists express regarding ethical issues and personal integrity. First, the majority of journalists told us that journalism is changing in negative ways; geneticists predict exciting growth in their domain. With the influence of market pressures such as corporate ownership and new technologies such as the Internet, subjects observed journalistic standards as being sacrificed in order to make a faster, cheaper, and more profitable product. In fact, this decline in standards seems to have led the public to question the decency of journalists. At the same time, novice journalists seemed to express a greater commitment to their own integrity and ethics to counteract society's condemnation of their profession. A young journalism subject commented, "In a way, it's a struggle to maintain dignity in the field because there is such a loss of dignity, not within journalism necessarily, but within the way people view journalism."

As discussed earlier, another factor contributing to journalists' relatively greater ethical concerns may simply be the nature of their daily work. Journalists are often asked to report on delicate and controversial matters. They also see the impact of their work in their communities, most immediately in the form of critical feedback from news consumers or sources. In contrast, geneticists have

less regular public interaction and, as a result, may be less likely to consider the potential societal impact of their work.

A. Approaching Grieving Individuals

It was striking that 90% (18 of 20) of the young journalists we interviewed raised the challenge of approaching an individual after a tragic event has occurred, for instance, the death of a child. Often, approaching grieving individuals was described by journalists as the hardest part of their work. Most remarkable was that interviewers did not prompt any subject to discuss this topic. In 10 of these 18 interviews, the topic emerged before the interviewer even asked about ethical dilemmas. In the remaining eight interviews, the issue was raised in response to an open-ended question about ethical challenges subjects have experienced in their work. The data suggest that this complex issue was very prominent in the minds of young journalists.

Veteran journalists also mentioned interviewing victims as a challenge. However, this difficult task likely befalls younger journalists more often than their seniors. A student writer at *The Boston Globe* commented, “I get very excited thinking about a time when I will be a little higher up on the totem pole where I don’t have to do these sorts of things.” Paradoxically, as occurs in teaching in challenging urban school settings, novice journalists are being given assignments that may very well require the greatest levels of maturity.

Because so many young journalists discussed this as an ethically challenging issue, we investigated why they approach grieving individuals, what strategies they use to get the story, and how, if at all, they maintain their integrity.

1. Why Young Journalists Approach Grieving Individuals

Subjects pointed to three main reasons that they approach grieving individuals even when they feel uncomfortable about this task: 1) *external pressure* from editors and competitors, 2) a desire to *affect a beneficial outcome*, and 3) because it is a standard *domain requirement*.

a) External Pressure: We predicted that many young journalists pursued interviews with the victims of tragedy because they were pressured by their editors. Four subjects confirmed the role played by pressure from higher-ups, and one specifically mentioned that he feared losing his job. Subjects also mentioned pressure to obtain better quotes and footage than competing news sources. This tension was often magnified for young journalists by their editors' desire to beat the competition. A television news anchor and reporter described being swept up in the competitive spirit when he pursues a crime victim for a quote or news footage. He commented, "I hate the competition…it takes on a bit of a pack mentality. And it isn't until it's over that you think about whether it was wrong."

b) Affecting a Beneficial Result: While external pressures can serve as a motive to pursue interviews with individuals in mourning, another incentive is

the possibility that these interviews can produce positive outcomes for both the grieving individual and society at large. While all subjects spoke of the discomfort they associate with this kind of assignment, six subjects commented on the potential to affect a beneficial result, in other words, to make the best of a bad situation. These "framing" rationales help journalists we interviewed to cope with this challenging, and potentially distasteful, task.

Novice journalists noted that including quotes from the deceased's intimates personalizes the individual in the story. One subject commented that mourning individuals often "want to tell people about their relatives and, the good things that they did."

Covering a tragic situation in the news can also serve the survivor of a tragedy. A television reporter recalled being asked to report on an economically disadvantaged child who had been sexually assaulted. He was initially uncomfortable with the assignment, especially because it was presented to him by his news director as "a great story."

> The people in the newsroom were excited about it. And that was disturbing to me. However, when I actually talked to the boy and interviewed him—we disguised him…we didn't identify him—I realized that there was a bigger story there, and putting him on television was therapeutic. So, in the end, I didn't have a problem because I realized that he was reaching out.

After the story ran, a psychotherapist called the station and volunteered his services to the boy.

Subjects pointed out that reporting stories of wrong-doing like this one offers journalists the opportunity to affect broader positive social change. This

television reporter explained how he transformed what could have been an exploitative piece into a story that would help many children in the same community:

> I told the story, I told it but I told a bigger story. The fact that all of the children in this housing project are going through this, and it was hell. And I told the story to bring attention to the fact that there were serious problems going on in that community. And it got a lot of people talking. The councilman for that ward got involved…So, I used it for a good purpose. Even though I had an ethical problem in the beginning, I realized that, well, perhaps some good could come of this.

Even in attempting to accomplish a greater purpose with a story, there may still be obstacles; for example, the possibility of further upsetting the individual whose remarks would strengthen the story's impact. A reporter and morning anchor at a network affiliate commented on why she pursued an interview with the mother of a murdered child.

> [It] doesn't serve that mother, but it serves—she's compelling, she's lost a daughter, maybe there is public outcry. They work harder to find the killer; he goes to jail, he doesn't kill some other child. It serves a greater purpose, but it certainly doesn't serve that person's immediate purposes. And so it's hard to pursue them, and they spit on you sometimes. I've been called a vulture a million times. And it's very heart-wrenching.

As this subject noted, there is no guarantee that a grieving individual will appreciate being pursued in service of a greater good.

c) Domain Requirement: Four subjects discussed reporting on victims as a standard responsibility of journalists. A number of subjects told us that approaching victims for stories is "part of the job." One student preparing for a

career in broadcast journalism described this task as “the worst part of journalism.”

> You have to go into it knowing that that’s something you’re going to have to do…the people have a right to know about it. And if journalists were to go out there—and this is something that the public doesn’t realize necessarily—and say…“I’m sorry we don’t have a story about this because we were afraid to ask,” we wouldn’t be doing our job.

While subjects felt uncomfortable about the task, ultimately they saw the role of journalists of informing as more important.

2. How Young Journalists Get the Story and Maintain Integrity

Many journalists reported struggling to find the balance between reporting a story for the sake of informing the public, and minimizing harm to the story’s protagonists. Overwhelmingly, most subjects said that they usually cover the full story for the “greater good” at the risk of placing story subjects in an unfavorable light. However, when discussing the specifics of approaching an individual for an interview after they have suffered a loss, many of these reporters said that there was more at stake than “getting the story” and that a grieving person should be afforded respect, sympathy, and in some cases, complete privacy.

a) Compassion: Clearly, subjects were able to identify the reasons why this kind of reporting, although uncomfortable, can be essential to a journalist’s role. We have already seen that reporters often used tragic events as a catalyst for positive social change. Additionally, subjects identified strategies for conducting sensitive reporting in a way that they felt was honorable.

The novice journalists most often described the importance of being empathetic when approaching grieving individuals. One subject told us that because he is compassionate, grieving individuals open up to him.

> In one case, I just left this woman a very nice message…And I could tell by her answering machine that she had like thirty messages on it before me. I said, "look, I know you're getting all these calls from the media, and people want to talk to you, but I wanted to let you know that I know what you're going though, and I hope that you get through it." She called me back. She didn't call anybody back, and she said so…I might just use that as a method to get someone to talk to me. But, I do feel what they're going through. I haven't experienced it, but I can feel it, especially when they talk.

Veteran journalists in the Core study also discussed the importance of empathy in their work. A reporter at *The Commercial Appeal* in Memphis, Tennessee spoke about how her compassion towards victims has helped her to procure difficult interviews, as well as to maintain her own sense of integrity about her work:

> I think my being sensitive is one way of…me staying in the business because I'm trying not to be insensitive to their feelings, insensitive to what's going on in their lives...if I just came up to them and said, "Are you the mother of the two boys who drowned?" they're going to back away. And if there's a sensitivity there…it's looking at them as humans first and a story second...They seem to sense that there is a compassion there. Or at least I think they do, or they wouldn't be telling me some of the things they do tell me...[I try to both] help them and hopefully tell their story in a way that is meaningful.

b) <u>Avoidance</u>: Instead of approaching an individual who has just lost a family member, some subjects reported that they solicit quotes from someone outside the family, a member of the clergy or a neighbor. Other young journalists simply will not approach grieving families and friends. They may justify this decision to

an editor after the fact, or even "fudge" the details of the situation to protect the individual.

One subject we interviewed was preparing to leave his current position for his "big break" as an overnight anchor at a major network. He told us that he has managed to carve out a niche for himself and increasingly has been able to simply avoid being assigned this kind of story altogether. Of all of the young journalists, he was the furthest along in his career and the only one who mentioned this strategy. The fact that at this stage he is able avoid reporting this type of story supports our hypothesis that this work most often befalls the least senior journalists.

c) Limits: Some subjects described high personal standards that they tried not to violate. For some, reporting on a funeral was inappropriate. Others emphasized exercising caution and good taste in choosing the footage in a television news story. Some subjects with whom we spoke had established a personal code when approaching a grieving individual. For instance, after leaving two telephone messages without receiving a response, they do not attempt further contact.

For young journalists, placing limits on assignments that they feel are ethically unsound is a laudable first step towards doing good work. However, at this vulnerable early career stage as the newest member of a newsroom, the novice journalist is not always able to uphold his convictions. One reporter told us that he "had to cover funerals, which was… in [his] opinion…totally wrong."

However, he explained that if he refused, he would be fired: “That personal belief is not one that I’d risk being fired over. There are so many that I would…this one just happened to be a smaller belief.”

The pressures on young journalists to compromise their principles can place them in the uncomfortable position of deciding which principles are essential and which can be sacrificed. If young journalists must regularly prioritize their ethical convictions or risk losing their jobs, the spontaneity with which they mention this and other ethical dilemmas comes as no surprise.

Young Professionals' Views on the Future of Their Domains

	Novice Journalists (n=20)	Novice Geneticists (n=20)	Core Veteran Journalists (n=85)	Core Veteran Geneticists (n=55)
Domain change positive	45% (9 / 20)	75% (15 / 20)	24.4%	89% (49 / 55)
Domain change negative	70% (14 / 20)	50% (10 / 20)	51%	24% (13 / 55)
Domain change neutral	5% (1 / 20)	10% (2 / 20)	24.6%	47% (26 / 55)
Domain change mixed	60% (12 / 20)	40% (8 / 20)	NA	16% (9 / 55)

There was a striking contrast in the views of young journalists and geneticists on the future of their respective professions. The majority of novice journalists

observed and predicted negative changes in their domain, whereas most of the young geneticists in our sample observed and predicted positive domain changes. This polarity between the two groups of young professionals mirrored results from the Core study of veteran journalists and geneticists (see table above).

The predominant reason for this pessimistic view among journalists in both cohorts was a concern about the sacrifice of accurate journalism for increased profit. Geneticists, on the other hand, at the threshold of a burgeoning domain, anticipated facing a future of exciting questions they would investigate with greater knowledge and more efficient technology.

A. The Condition of Journalism

Across professional stages, journalists were overwhelmingly negative about the current and future state of their profession. Among the younger professional cohort, as well as among their veteran counterparts, these concerns focused on 1) the sacrifice of accuracy for immediacy due to the influence of television and Internet journalism, and 2) profit driving the news across media. The findings below are primarily based on our study of novice journalists.

1. Increasing Inaccuracy in the News Due to the Influence of Television and Internet Journalism

Many novice journalists acknowledged the value of the rapidity with which information can be disseminated via television and the Internet. At the same time, however, roughly a quarter of the young journalists[4] were concerned about the accuracy of the information being reported. News has always relied on the "breaking" story, but as the possibilities for real-time broadcast increase, some journalists are concerned that the immediacy of news on the Internet and 24-hour television news networks may push journalism away from accuracy and objectivity. A subject explained that "by constantly trying to pursue the newer angle, there may not be a newer angle, and you're going back into the speculation or the commentary."

Subjects' discussion regarding the decline of accuracy in journalism usually related to television and Internet news, though journalists also spoke about how the pressure of competing with these mediums "cheapens" newspaper journalism as well. One subject pointed out that the focus in print journalism has shifted already from paper to the net because "that's where newspapers are going to make money and stay alive. Not print." Some subjects suggested that as a result of having to compete for readers, newspapers would improve their information presentation. In spite of the pressures on print media, almost half of the print journalists in our sample were confident that newspapers would persevere.

[4] It may be worth pointing out that most of these were print rather than television journalists.

> I think that people, as long as they are humans, will have human desires to hold in your hand what is always drawn me to newspapers. Getting news print all over your fingers; and the smell; and the touch; and the feel of newspapers. I mean, that sounds nostalgic, but I think people will desire that. They will desire having something besides a screen, and having something that is really labored over, and worked at, and well written. And, I think that changes will occur; newspapers will probably; the circulation will fall even more. A lot of newspapers will probably lose out and fold, but I think that, in general, as long as there is media and information and news makers, there will be newspapers.

At the same time that young journalists were optimistic that newspapers would endure, almost all of them (18 of 20) acknowledged the increasing (and competitive) presence of the Internet. The strongest trend among subjects' comments was that the Internet offers information quickly at any time (a positive), but with a lack of accountable sources for this information, much of it is unreliable (a negative). Several subjects remarked on the usefulness of the net for researching stories, but again cautioned against inaccuracy because the information was based on uncertain sources. A journalist pointed out that both "legitimate institutions" like *The New York Times* and "Joe Shmo in his basement" have websites, making it "hard to regulate what's a legitimate press." One print journalism student predicted, "as misinformation on the Internet proliferates, there's going to be a lot more mistrust of journalists in general," which will effect all journalistic mediums. Another student commented that "with the Internet, anyone can post anything, and call themselves a journalist, so you could be getting stories…that are just basically lies, so who's the real journalist? What is the real media?"

2. Profit Driving the News

Novice journalists we interviewed were also troubled by the increasingly bottom line mentality of news institutions. Several spoke about the commodification of their profession as contributing to the demise of journalism. Journalists mentioned that corporate ownership may be driving the increased pressure for profit. With this pressure, subjects told us that news was becoming increasingly focused on entertainment and sensationalism.

a) Corporate Ownership: Approximately a quarter of our subjects were troubled by the move towards corporate ownership and away from family-owned businesses. As fewer companies own more media outlets, the emphasis on profit seems to increase, and the corporate "spinning" of information makes it more difficult for both journalists and readers / viewers to find the truth in the news. One print journalist described her concern about a fear of censorship that may take place as a result of corporate control:

> Everybody's struggling. So, it's more profit-focused than it ever has been before, I think. And I haven't been in the business that long, but I feel it, just in the time that I've been here, dramatically… I see more corporate ownership of newspapers which, I have not had an incident where I've been told you have to do this or you can't cover this, because we're owned by Fidelity [investment company]. But sure, I'm sure that can happen. I'm sure that can happen when a corporation owns a newspaper.

As a strong counter to corporate control, the Internet was suggested by at least one print journalist we interviewed as a useful tool with which to allow numerous voices to be heard.

> I think the Internet is a fascinating tool that adds so much and it completely changes the dynamics of journalism…So while you have the problem of less and less companies owning more media outlets, the Internet can be anti-that

> [corporate monopolies]. Anyone can start a web page…So if I wanted to, I could just go start my own site and do my thing and I could be a real journalist there without any constraints for the $70 a month, or whatever, that it costs a host.

b) News as Entertainment: News as entertainment was a complaint most frequently heard regarding television journalism. It was perhaps a telling contrast that print journalists commented negatively on television news as entertainment, while broadcast journalists considered television newscasts' purpose to both entertain and inform as legitimate. While each of these subjects agreed that entertainment was a part of the television newscast, the newspaper journalists saw this as negative, whereas the broadcasters accepted it as part of the role of television journalism. Both print and broadcast subjects commented that the public seems to view the newscasters themselves as contributing to the entertainment, as evidenced by television's emphasis on journalists' physical appearance. In fact, well-known television broadcasters often become celebrities, potentially compromising the value of their journalism.

With the drive for profit, even newspapers—often viewed as the last stronghold of journalistic integrity—sometimes bow to the pressure. A subject pointed out that even someone known to have fabricated stories, for example, Mike Barnicle of *The Boston Globe,* may still be assured of employment[5] because the entertainment value he provides brings in revenue: "[Y]ou're not going to get

rid of him because you don't want to get people mad…because there's people who legitimately would just buy *The Globe* to read him. And so you're going to be alienating that whole group."

c) Sensationalism: Sensationalism was discussed as a negative trend across journalistic media, but especially in television. Several young television journalists in our sample spoke about the positive attributes of television journalism, especially the advantage of having visual imagery to support spoken news stories. Depending on the selected graphics and the context in which they are presented, however, imagery can cross the line to being sensationalistic. Subjects pointed to the increase of salacious reporting on television news as an attempt to gain viewers, especially as increasing media outlets make competition for ratings even more fierce. A print journalist described this as "the big bang theory. 'I need to make it bigger than everyone else's because, then, I'll get the viewers.' And, I think that's really unfortunate."

As an interesting exception, a lone broadcast journalist defended sensationalism in TV as inherent in the medium, "the reason why TV journalism is often so sensational is just because of its visceral appeal. Visual. It has nothing to do with the people that practice it." He suggested that the medium itself creates sensationalism that cannot be prevented by the journalists involved. Print journalism, he argued, does not have the visceral appeal of visual imagery

[5] Mike Barnicle is currently a regular contributor to "Chronicle," a news program on Channel 5 WCVB-TV in Boston.

broadcast on television, and this has nothing to do with the "inherent goodness" of newspaper journalists. He did acknowledge that "it may be true over time that those who have a proclivity for sensationalism would lean toward TV over print because of the visceral— again, because of the inherently visceral appeal of the medium."

Another broadcast journalist had an ultimately hopeful outlook on the cycle of sensationalism in the profession.

> I think people are starting to get sick of it…People are getting tired of the violence and the gore and all that. So, I think there may be a shift back somewhat…I think it might, actually, get worse before it gets better. But, I think it does go through cycles, so I don't think it's going to get incredibly worse.

B. The Condition of Genetics

As evidenced in the table on page 24, the majority of geneticists in our study across professional levels anticipated a healthy future for their domain (novice geneticists = 75%; veteran geneticists = 89%). Novice geneticists most frequently discussed current scientific advances as leading to more exciting questions, and increases in knowledge and technology were cited as helping them to do their work. Though fewer, there were some notable negatives tempering this positive outlook.

1. Advancing Science

Several young geneticists spoke about how the completed map of the human genome will affect their domain. Interestingly, the moment of completion is understood as a moment of increased opportunity, rather than an end to new questioning. Young geneticists commented that the excitement "will actually increase because there will be much greater accessibility to genes that are responsible for human disease…So, I think that there's probably a lot to come after the genome is done." This view, that "sequencing the gene is more or less, giving you a tool to start making that analysis," was predominant among young geneticists.

Sequencing genes in a variety of organisms was generally viewed as progress that would help geneticists to work more efficiently. A postdoctoral fellow told us that because the budding yeast genome has already been sequenced,

> [I]f I want to know something about a gene sequence or some feature of the chromosome, all I have to do is go to the Internet and say I want to know the exact DNA sequence of this segment of the chromosome. And I can get that in five minutes…You know, it's so easy. And so it makes designing experiments much easier, things go much faster.

With the yeast, human, fruit fly, and worm genomes sequenced, scientists will be able to compare the four, opening even more possibilities for scientific advancement.

2. Concerns

If there was a downside to this rosy view of the future of genetics, it lay in a concern about how the race for profit drives the domain. As mentioned earlier, this concern was expressed much more frequently by novice journalists than novice geneticists. Nevertheless, professionals across domain, and age group, worried about the pressures (and lure) of focusing on profit.

Young geneticists, for example, pointed to constant collaboration between university researchers and those working in the biotechnology industry. They expressed concern that the "the corporate ethic, where things have to look good" is encroaching on the university "where it shouldn't matter how things look" and that "the sort of free inquiry of the university could be stifled a bit…that a lot of the basic research might get pushed aside in favor of more directly immediately applicable stuff." Another geneticist commented,

> I think the field is getting much more like sort of, "business-y"…It seems like scientists now, successful scientists, now are a lot more like successful businessmen or women. They sell their stuff and they have a certain slant, and they, like I said, accentuate the positive and minimize the negative and get people to believe in their system by overloading them with talks and papers and stuff…I think you have to sell yourself more.

As science moves toward the market model, emphasizing the importance of profit, some young geneticists also worried about how gene patenting may retard scientific discovery. Scientists patent genes in order to profit from applications relating to these genes that are developed. While they are able to

patent individual genes, many conditions—for example, cancers and heart disease—involve numerous genes. A postdoctoral fellow described his anxiety,

> [Y]ou might run into the situation where you can't study your diabetes gene because it's also the cancer gene, and someone already has the right to [it]—so I think that's one chilling consequence of what's going on now that's going to have to be addressed, and I don't know how it's going to turn out.

Several veteran geneticists also commented on these concerns during interviews, and are in more influential positions to address them. At present, these concerns have neither stopped nor slowed the lightning speed of scientific advance in genetics. Perhaps as the situation yields results (or disappointment), geneticists will more seriously address their concerns about sacrificing collegial collaboration to the bottom line.

Domain Attrition of Young Geneticists and Journalists

	Novice Journalists	Novice Geneticists
Serious Consideration Domain Attrition-Self	35% (7/20)	10% (2/20)
Serious Consideration Domain Attrition-Other	25% (5/20)	20% (4/20)

We were particularly interested in whether or not novice journalists and geneticists consider leaving their domain. To that end, we divided our analysis

into two categories: 1) whether subjects considered leaving the domain (and, if so, how seriously), and 2) whether they were aware of others in their field who had left the domain.

There seemed to be a connection between the level of concern that young professionals expressed about the future of their domain (see section III. Young Professionals' Views on the Future of Their Domains), and the number of young professionals who discussed leaving the domain. Journalists, more cynical or concerned about the future of the domain than geneticists, spoke of the possibility of their leaving more than geneticists. In fact, 35% of young journalists seriously considered leaving journalism whereas only 10% of young geneticists discussed the topic.

A. Domain Attrition in Journalism

Young journalists in our study gave two reasons that they or others might leave journalism: 1) ethical concerns about the profession, and 2) personal lifestyle concerns.

1. Ethical Concerns

The most common reason young journalists considered leaving the profession involved ethical concerns. Subjects' greatest concerns involved sensationalism in the news, the influence of corporate ownership or the growing

profit motive on their ability to report the truth, and a lack of journalistic standards. One subject described how the profession has declined:

> I think the line's not as clear between sensational supermarket tabloid journalism and newspapers because we have to sell newspapers…Newspapers are trying to compete…What happens then? Well a lot of people wind up saying the same things. A lot of people wind up saying things that aren't really genuine. …I just think [journalism] is really heading down hill significantly…I question whether I am willing to work so hard and get paid so much less than I could in another profession.

2. Lifestyle Concerns

Journalists also mentioned personal lifestyle concerns that might influence whether or not they remain in the domain. Those who considered leaving journalism because of personal concerns described the low pay, long hours, and difficulty of balancing work and family. As one young broadcast news professional remarked,

> [Journalism] is a really tough way to make a living. I'm working a lot harder than most people. This is a much more stressful—there's a lot more yelling. There are a lot more deadlines. I'm working weekends; I'm getting up at 2:00 in the morning. I'm working New Year's, Christmas, and Thanksgiving. I'm not with my family. How could this possibly be worth it? And then you think "what else would be so exciting?"

As is evident in this comment, the excitement and pleasure of being a reporter seemed to compensate for the pressures. In fact, several young journalists suggested that they would consider leaving journalism only if their work became less exciting.

B. Domain Attrition in Genetics

While geneticists did not seriously consider leaving the domain at this point in their careers, they did identify three key hypothetical concerns that might dissuade or prevent them from pursuing a future in genetics: 1) difficulty with advisors, 2) lack of good employment opportunities, and 3) difficulties balancing work and family.

1. Difficulty with Advisors

Several subjects described how problems with an academic advisor or research project, or some combination thereof, could hurt a student's chance for career success and discourage them from continuing in the profession.

One graduate student recounted witnessing the negative experiences of peers. He explained that more than once he had observed a colleague begin a project that was too large and complicated, "the post-docs or graduate students pretty much terminated their career because of the choice of the project. Of course they're responsible, but the PI [principal investigator] should be as well." Another student described the way in which an advisor made a habit of insulting her students and consequently turned some "very smart people off [to] science." Whether or not students can rely on an advisor for advice on choosing a good project, and for support in establishing their own careers can make a difference in whether or not students continue in science.

2. Lack of Employment Opportunities

Geneticists also described how a scarcity of tenure track positions drives talented people out of science. “People are not getting tenure. People are having trouble—I mean we have one professor who is a Howard Hughes Fellow that moved here from North Carolina and now she is just dropping out of science altogether.” Another subject described the intense competition for employment in his recent job search. “Essentially [there are] 200-300 qualified applicants for about 20 to 30 jobs…It’s really hard to climb the academic ladder, and that’s where the pressure is, that’s where the frustration is.” He projected that the situation will only get worse over the next five to ten years, as research opportunities diminish and current genetics students continue to enter the job market[6].

The combination of inadequate assistance from an advisor, along with fierce competition for jobs, can make geneticists reevaluate their careers. A subject described postdoctoral fellows’ prospects as “very bleak” because of the limited availability of professional positions. She added that while postdoctoral fellows “need projects to take away and form a new lab, sometimes advisors don’t like to give out those kinds of projects because they want to keep

[6] The 1998 publication by the National Research Council, “Trends in the Early Careers of Life Scientists,” reported that a scarcity of desirable jobs in the life sciences may drive the best and brightest to seek employment in other professions. p. 80

everything in their own basket." As a result, she was seriously considering leaving genetics and looking for a job in business or law.

3. Balancing Work and Family

Some novice journalists and geneticists anticipated that difficulties balancing work and family might drive them to leave their respective professions. Subjects described the demanding time and energy their professions require, leaving little time for friends and family.

Women, in particular, expected that as their family responsibilities increased over time, they might be forced to choose between work and family. One geneticist indicated that a career and family are incompatible and thus she and her husband chose not to have children. She commented that she knows other female scientists who have made the same decision.

Other subjects explained how a desire for balance between work and family affected the direction of their careers. One genetics subject remarked that she would never be able to balance the responsibilities of work and family if she did not work in an industry job which offered a more flexible schedule than an academic position. Similarly, a journalist anticipated that when she is eventually married with children, she will have to move to a less exciting role as editor or pursue a different career.

Notably, journalists spoke about the possibility of leaving more seriously than geneticists who generally discussed it more hypothetically. Two factors

which may account for this difference are the average age of young professionals in each domain and the number of years subjects have invested in training. Since the average age of journalists is younger and minimal formal training has been, journalists may not feel as committed to their profession. Geneticists, on the other hand, invest between seven to ten years in genetics training, and therefore, are more committed to their profession despite the increasing family pressures which are characteristic of their life stage.

Training Young Professionals

Young professionals in the domains of genetics and journalism evaluated their training according to how well they acquired practical skills to do their daily work, as opposed to abstract concepts such as the historical importance of their work.

Young genetics professionals evaluated how well their training prepared them to do "good science"—performing research in the "cleanest" way possible, with appropriate protocols and controls. At least half of the young geneticists spoke about the importance of learning the standards of rigorous scientific inquiry and critical thinking. As one of many subjects said, "I think I have been taught to have pretty high standards: to reproduce things multiple times, to show them to other people."

Similarly, young journalists we interviewed frequently spoke about quality of training in terms of their ability to complete the practical tasks regularly required

of journalists—writing objectively, acquiring sources, approaching police for information, or reporting on-camera. One subject who learned the craft of broadcast journalism on-the-job spoke about learning fundamentals from his news director and other reporters:

> First of all, the hardest thing to learn about in journalism is writing. Even TV, it's a writing job. And that was what we really concentrated on. But there are these fundamentals—you learn about core beliefs of fairness, of not accepting the first answer, of digging for the truth.

A. Formal Training Versus On-the-Job Experience

The genetics and journalism fields have distinct approaches to training. Education and preparation of young geneticists involves a rigorous and formalized training process. Students spend seven to ten years in graduate and post-doctoral training, taking classes, teaching less advanced students, and performing lab work under the direction of senior advisors.

In contrast, aspiring journalists often learn the practical aspects of reporting on-the-job. While some aspiring young journalists we interviewed pursued graduate or undergraduate degrees in journalism, subjects remarked that a liberal arts education is more valuable. One student who took the academic route explained,

> The journalism degree, I think is fairly useless…You don't need to learn journalism; you can come in, you can start at a weekly, a small weekly, and you can learn how to do it the right way. It's more important to be educated, and looking back on it, taking a good share of English and history classes.

1. Journalism Training

Most of the students who earned journalism degrees said that the most effective part of their training took place outside the classroom. Of the students we interviewed, nine said that experiences in internships, co-ops or on the school newspaper were a critical part of their training. On-the-job experiences provided practical training as well as resume-building experience to help them gain employment after graduation. One young journalist commented, “I usually say that I learned as much in four years of journalism school as I did, probably, at my first internship.”

While there was nearly complete agreement among young journalists that the best way to learn journalism was through real-life experience, several novice reporters said it was difficult to get feedback on their writing in the workplace. The fast-paced newspaper environment allows little time for trainees to consult with others. Editors and peer reporters are so busy that many novice journalists are forced to learn the mechanics of writing and reporting through observation and trial and error. One subject speculated on the lack of mentoring and feedback,

> [T]he problem arises from the fact that *The Globe* is a newspaper and a professional company, not a school. So they are not thinking about the fact that they could better train people. And I don't think that's an excuse; they should be, especially with interns and running an intern program. You should be thinking about how you can best train and help people. So that's a big flaw.

Academic journalism programs, by contrast, were praised by students for providing the opportunity to interact with professors. Subjects valued the chance to interact with successful journalists who passed on their understanding, experiences, and values. They received consistent and constructive feedback on their writing. One broadcast student at Columbia School of Journalism acknowledged the practical aspects of real-life training, but said,

> [Y]ou don't get the kind of editing that you get in graduate school. Literally, and this is something that our dean used to say…that his professors spent more time editing his work than he spent writing it. And that's true; that is absolutely true. So you know how to operate a machine and you know how to film and do editing, but that's not really what journalism is about. It's about learning the fundamentals behind it and it's about understanding it and being criticized and having people question your work.

2. Genetics Training

The young geneticists, by comparison, spoke of more structured, if complicated, relationships with their academic advisors. Under the current training system, doctoral students might spend years working on their advisor's research with no guarantee that they will be allowed to continue the same research when they begin their own labs. Graduate students commented that they initially needed their advisors' training and guidance. Later, students found themselves pulling away as they advanced, and advisors become more like research peers with whom to compete. Several subjects expressed a desire for

independence from advisors to explore their own interests[7]. This difficulty with advisors, as discussed in section IV. Domain Attrition, was frequently mentioned as a reason that geneticists leave the profession.

Young geneticists suggested that more of their training should focus on activities preparing them for employment in a highly competitive job market. To be sure, academic advisors benefit from having inexpensive student researchers work in their labs for as long as possible; yet, it is more beneficial for students to be informed of career prospects and receive training on how to network for employment, publish in the "right" journals, and interact with the greater scientific community. Several subjects mentioned the value of presenting their research outside of their academic program. One graduate student commented,

> I think I could have done better had I been given more opportunities to present my work outside of [school name] and sort of been supported to step out once I leave into a better position. I am speaking from examples I know where PIs [principal investigators] from other institutions have pushed their people up and out. They make sure they get out of here with something good—with good funding—they go into a good position.

Perhaps the greatest training gap identified by young geneticists was that their scientific training did not prepare them for the financial, managerial, and interpersonal responsibilities of running their own lab. One quarter of the

[7] The 1998 publication by the National Research Council, "Trends in the Early Careers of Life Scientists," in fact, asserts that creative production in the life sciences is at risk because the current training of life scientists is so protracted that it prevents talented young scientists from doing their own research during their most creative years. Advisors and programs benefiting from cheap research assistance are not motivated to help their students gain independence. This situation is declining as more doctoral students compete for fewer jobs, and post-doctoral fellows are trapped in temporary positions under more established researchers.

subjects interviewed suggested that business or managerial training be available during graduate training. A graduate student explained,

> The stuff that they don't teach you…is people skills. And you don't learn those when you're a post-doc, because when you're a post-doc you're all by yourself working at your bench...And then let's say it goes really well. You get a couple of really exciting papers, and then you go out on the job market…and then suddenly you have to run a lab. You've never organized and supervised before in your entire life, and suddenly you have technicians and graduate students and post docs, committee responsibilities…You go from being your own little person to literally running a small business that's interacting with a number of other small businesses and you're the sole source of income. So you're writing grants, trying to get money to run this small business…No one's given you a managerial course to tell you how to make sure that people get along or smooth over rough spots.

B. Ethical Training

Young geneticists and journalists agreed on the value of ethical training. Outside the practical training they received, subjects said that ethical training was important preparation for doing their jobs well. One genetics graduate student commented, "Scientists are responsible for pointing out the dangers. So I think all scientists should also be trained in ethics…I think that scientists should know something about ethics in order to practice science effectively."

Novice geneticists were especially concerned with learning how to navigate ethical issues surrounding publishing in a competitive environment. Of the six subjects who mentioned the value of genetics training, three wanted more ethical training in determining when data are ready for publication and how to share data or collaborate with competitors. With the urgency to establish themselves in

the field by publishing in reputable journals, students anticipated pressure to publish incomplete or inaccurate data to avoid being "scooped."

Young journalists also pointed to a need for training in solving ethical dilemmas they encounter. One subject explained that while journalists can learn ethics on the job, having considered ethical issues in a more directive venue would be helpful: "[Y]ou never know what's going to come up…But if you've learned about it in a class and you're aware of things that have happened in the past, I think it's good to have that background."

Opportunities for ethical training in journalism seemed limited to formal degree programs. Despite the fact that young journalists described real-life experience as being more effective than classroom training, seven out of eight journalists who mentioned the importance of ethical training received theirs through a journalism school program. This was consistent with the reported finding that newspapers and broadcast stations, preoccupied with the bottom line, were not providing training opportunities that would prepare novice journalists to confront the many ethical dilemmas they face daily. Lack of on-the-job feedback, along with the fact that journalism novices within and outside of degree programs were troubled by ethical concerns, indicates that formalized ethical training is both needed and desired by the many journalists who do not pursue journalism degrees.

Perhaps the focus of formal journalism school should be shifted away from simply teaching the techniques of journalism and targeted more directly to the

ethical issues that journalists will face in the field. Role playing activities or studies of classical ethical dilemmas in journalism allow individuals the opportunity to develop their own standards and decide where they will draw the line. Additionally, because not all journalists will elect to attend journalism school, institutions such as student newspapers and post-baccalaureate workplaces may need to assume some of the responsibility for providing ethical training in journalism.

C. Training Venues

While academic training offered a promising intervention point in genetics, journalists did not necessarily participate in formal training. This suggests that the institutions where journalists receive informal training may also be an appropriate place for delving into ethical considerations.

We found that more young journalists than geneticists in the sample reported a responsibility to the workplace/institution, specifically to a student newspaper or a professional news organization. Subjects who articulated this responsibility to an institution usually worked at student newspapers with long-standing reputations for quality (such as *The Crimson* at Harvard University), or at widely respected newspapers (such as *The Boston Globe* or *The (Quincy) Patriot Ledger*). The excellence of these institutions, and in some cases, their positions as professional "destinations" within journalism, inspired great loyalty to uphold these conditions.

In the sample of high school journalists interviewed for a related Good Work study (the Origins of Good Work), responsibility to institution was remarkably prevalent. Interestingly, peer mentorship was also a strong value as senior high school students felt an obligation to share values with entering student journalists in order to preserve the paper's standard of excellence. Thus, at institutions where journalists sense more investment from senior staff, they, in kind, may feel more responsibility to the institution[8].

We are hopeful that respected institutions in journalism will continue to set high expectations for new inductees in the field and to encourage novice journalists to do good work in the name of their news organizations. However, we are also concerned by reports from some subjects on how market pressures can lead to conflicting responsibilities. For example, one print journalism student intern noted, "my main job is to inform the public. But to my boss's boss, it's to make money." Another journalist spoke of this issue as "a daily concern" and "a constant struggle," especially for journalists working in television.

Clearly, a mixed message would be sent by a news organization that both provided ethical training to new employees and compromised the integrity of news content in order to satisfy monetary and corporate concerns. Nonetheless,

[8] Among the geneticists, this responsibility to workplace was not mentioned by any graduate students or post-doctoral fellows that we interviewed; however, it was noted by all members of the sample currently employed in the biotechnology industry. Perhaps students and post-doctoral fellows did not express a responsibility to institution because both graduate school and post-doctoral fellowships are temporary positions leading towards permanent positions in industry or academia. Those who hold positions in industry may feel a greater commitment to

the power of respected news organizations to effect the values of young journalists remains a hopeful entry point for ethical training.

III. Conclusion

Our study on young professionals working in genetics and journalism has been useful in revealing differences and similarities between the two domains, as well as between professional stages in journalism and genetics. While journalists across all ages described a decline in standards of their profession, they also demonstrated a keen awareness of the ethics of journalism. And though the geneticists almost unanimously predicted a flourishing future in their science, they were less attentive to the fault lines already appearing in their profession. How do we then determine the health of a domain? Is the healthiest moment when pressures are few and expansion is rapid? Or would we be more prudent to consider healthiest a domain in which individuals are considering the impact of their decisions on a daily basis?

In collaboration with other strands of the Good Work Project, the Dedicated Young Professionals study is a crucial bridge linking our understanding of children who are deeply committed to a domain with our knowledge of veteran professionals engaged in important domains. With these studies, we are

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their work place since their positions may be professional "destinations" rather than stops en route to permanent positions.

approaching an understanding of professional development at different junctures across a variety of domains.

Journalism and genetics are professions immediately and consequentially affecting society today. There are many additional areas worth exploring to better understand how individuals make sense of their work, and how we can encourage and promote work that is at once high in quality and socially responsible.