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Studies of the Next Generation of Air Traffic Control Specialists II: Job and Career Expectations

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16. Abstract

This study compared the job expectations of two cohorts of air traffic controllers, one hired in the period 1986–1992 (“Post-Strike” controllers; N=13,227) and the other hired in the period 2007–2014 (“Next Generation” controllers; N=5,622). Job expectations were compared using Z-tests for independent proportions on data collected during their initial training at the FAA Academy. Overall, the Next Generation controllers had much higher expectations than Post-Strike controllers on eight factors (e.g., expect to be challenged by job, expect job to provide good pay, benefits, job security, and opportunity for advancement). However, a smaller proportion of Next Generation controllers expected the job to be equally challenging five years from entry on duty compared to Post-Strike controllers. Despite the differences in proportions, examination of a cross-plot of expectations found the two generational cohorts were more similar than different. These results and those of a previous study by Cannon and Broach (2011) show that the two generations of controllers have similar motivations for and expectations of their employment. Longitudinal research assessing the degree to which initial job and career expectations of the controllers have or have not been met is suggested.

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The opinions expressed in the report are those of the authors and do not necessarily reflect the official position of the Federal Aviation Administration, the Department of Transportation, or the United States government.

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STUDIES OF THE NEXT GENERATION OF AIR TRAFFIC CONTROL SPECIALISTS II: JOB AND CAREER EXPECTATIONS

In August 1981, Federal Aviation Administration (FAA) air traffic control specialists (ATCSs or controllers) went on strike. Following a presidential ultimatum to return to work or face termination, 11,345 of about 16,000 controllers were summarily fired (National Transportation Safety Board, 1981). The FAA then began hiring and training replacements. Hired between 1981 and 1992, this cohort has come to be known as the Post-Strike generation. The majority of the Post-Strike generation were born in the 1950s and 1960s —"Baby Boomers" for the most part. By 1995, the FAA had rebuilt this critical aviation workforce of about 15,000 controllers. Now the Post-Strike generation of controllers is reaching retirement age. According to the FAA Controller Workforce Plan (FAA, 2015) some 2,975 controllers have retired from the agency since 2010. As a result, the FAA is once again hiring new controllers. FAA hired approximately 4,400 new controllers between 2010 and 2015. Like the Post-Strike generation, members of this Next Generation of air traffic controllers have generally been between 18 and 30 years of age, the minimum and maximum ages at entry to the controller occupation, at the time of hire. The Next Generation controllers were born between 1980 and 2000, making them members of the so-called "Millennial" generation.

As "Millennials," members of the Next Generation cohort are expected to have significant impact on the workplace, supposedly bringing with them different values and expectations than previous generations. The stereotype is that they "want it all, now" in terms of pay, benefits, opportunities for rapid advancement, interesting and challenging work, and making a contribution to society (Ng, Schweitzer, & Lyons, 2010).

With the growing number of Millennials entering the workforce and Baby Boomers, born between the years 1946–1964, retiring, the perceived differences in the expectations of the younger workers are thought to present major challenges for management in recruitment, retention, and engagement (Ng et al., 2010). Thus, a better understanding of generational differences in the workplace is seen as useful for management in meeting the needs of the organization as well as the needs of the employees (Cennamo & Gardner, 2008). This has resulted in a veritable flood of books, seminars, and courses on management of multi-generational workforces in recent years.

However, genuine differences on work-related dimensions between generations have not been conclusively demonstrated. Some studies have found differences between generations on certain work values, work attitudes, and job expectations (e.g., status, freedom, job satisfaction, job security, higher pay and career development and advancement; Cennamo & Gardner, 2008; Kowske, Rasch, & Wiley, 2010; Ng, Schweitzer, & Lyons, 2010). Other research suggests few true differences between generational cohorts (Costanza, Badger, Fraser, Severt, & Gade, 2012; Costanza & Finkelstein, 2015; Treuren & Anderson, 2010). Nevertheless, whether or not distinctive differences truly exist between the generations, people *believe* that such differences exist.

We undertook this assessment of generational differences in the controller workforce to identify differences and similarities between the two generations of controllers. We believe that understanding differences and similarities between the generations in their expectations of the job and of the FAA will help facility management teams understand, accommodate, and manage those expectations. For example, if Next Generation controllers have high expectations of promotions in the occupation, frontline managers might invest time in setting realistic expectations about what promotion opportunities are likely to be available and how to apply for such opportunities.

Previous research on generational differences in the controller workforce focused on the importance of different factors influencing persons to choose the ATCS occupation. Cannon and Broach (2011) found the two generations of controllers were more similar than different in terms of the extent to which various factors such as pay, benefits, and prestige influenced their choice of the ATCS occupation as a career. In this second report, we investigate differences by generation in their expectations of the job and agency. Several decades of applied psychological research suggest that job and organizational expectations held by an individual are important in that unmet expectations, even if they are unrealistic, tend to reduce individual commitment and engagement, increase intent for turnover, and reduce job satisfaction (Buckley, Fedor, Veres, Wiese, & Carraher, 1998; Laschinger & Grau, 2012; Mowday, Porter, & Steers, 2013; Moser, 2005; Steers, 1977; Turnley & Feldman, 2000).

The analytic question we address, then, is straightforward: What are the job expectations of Next Generation controllers, and how do those expectations compare to those held by the Post-Strike generation? Based on past research and general press about generational differences, we hypothesized that Next Generation controllers would have, overall, higher expectations than did Post-Strike controllers.

METHOD

Sample

As in the Cannon and Broach (2011) study, we used data collected from two non-overlapping cohorts of ATCS trainees, Post-Strike (N = 13,227), and Next Generation (N = 5,622) during their initial phase of occupational training at the FAA Academy in Oklahoma City, Oklahoma. Data from the Post-Strike Generation of controllers were collected during the years 1986–1992 on the second day of employment with the FAA. Data from the Next Generation controllers were collected during the years 2007–2014, generally within the first few days of employment with the FAA. The mean ages at entry for Post-Strike generation controllers was 25.9 (SD=2.96) and 26.9 (SD=3.76) for the Next Generation controllers. Both groups were predominantly male (Post-Strike was 80% male; Next Generation was 79% male) and white (Post-Strike was 86% white while the Next Generation was 73% white).

Instrument

The CAMI Biographical Questionnaire[1] (BQ) is a multidimensional research survey encompassing topics such as educational achievement, prior aviation-related experience, occupational choice, and job and organizational expectations (see Farmer, 2002). It is a tool for investigating biographical factors that influence success in ATCS training and job performance. The instrument has gone through several iterations since its introduction in the late 1970s through the addition of questions, growing from 60 items in 1977 that covered high school education, post-high school education, and prior aviation and air traffic control experience (Van Deventer, Taylor, Collins, & Boone, 1983), to 195 items in 2014 that covered the original topics plus expectations, coping styles, computer experience, and other areas.

While the instrument has grown, core items such as those relating to career and job expectations have remained stable through the decades. This provides a unique opportunity to assess newly hired controllers from two non-overlapping cohorts with the same instrument at about the same age and point in their careers. This avoids the common confounds in generational research where an instrument is administered to two or more age groups in cross-sectional research, for example, administering a survey to a group of 20–30 year olds and to a group of 40–50 year olds and comparing the responses of the two groups (Costanza & Finkelstein, 2015).

[1] The CAMI Biographical Questionnaire (BQ) is *not* the APT Metrics, Inc. Biographical Assessment used in the 2014 and 2015 controller hiring process.

Nine BQ items related to career and job expectation were selected for analysis (Table 1). Seven of the nine items were phrased with the general stem, "To what EXTENT do you believe that your job with the FAA will provide the following?" The other two items were presented as straightforward questions concerning the extent to which the trainee expected the job would be challenging now and in the future. All items were rated on a five-point extent Likert-type scale where 1="Not at all" and 5="To a very great extent."

Analysis

First, the proportion marking "To a considerable extent" or "To a great extent" for each item and generation was computed. Second, we compared those proportions by generation with a standard Z-test of proportions (Kanji, 1999). Given the sample sizes for both generations, we had substantial statistical power and therefore selected a threshold of $p < .01$ for considering a difference as statistically significant. With the sample sizes available, differences as small as about 2% would be statistically significant at the 99% confidence level and 95% power (e.g., 1% chance of making a Type I error—false positive, and 5% chance of a Type II error—false negative). All statistical analyses were performed with SPSS v20. We also plotted the proportions of positive endorsement by generation to examine differences in the relative ranking or patterns of job and career expectations.

RESULTS

The results of the Z-tests are shown in Table 1. For purposes of description, the items are grouped thematically: expectations around the challenges of the job; expectations about material aspects of the job such as pay, benefits, and promotions; and other expectations. With respect to expectations about the challenges of the ATC job, nearly all Post-Strike (96.3%) and Next Generation (97.6%) controllers expected to be challenged by the job to a considerable or great extent. While the difference of 1.3% between the generations was statistically significant, basically all new controllers expected to be challenged by the work. A smaller proportion of Post-Strike controllers (85.8%) believed that the ATC job would provide intellectual challenge to a considerable or great extent than did Next Generation controllers (92.9%; $Z = -15.50$, $p<.001$), with an absolute difference of 7.1%. In contrast, more Post-Strike controllers (80.0%) expected the ATC job to be equally challenging five years from entry-on-duty to a considerable or great extent than did Next Generation controllers (74.0%; $Z=8.71$, $p<.001$), with an absolute difference of 6%. Despite these practically but statistically significant small differences, overall, it appears that the generations are very

Table 1
Proportion of controllers indicating expectation that job will provide a given factor to a considerable or great extent by generation

Factor	Post-Strike (N=13,227)	Next Generation (N=5,622)	Z
(To what extent do you)			
Expect to be Challenged by Your Job	96.3	97.6	-4.81***
Expect Job to be Equally Challenging in 5 Years	80.0	74.0	8.71***
(To what extent do you expect your job with the FAA to provide)			
Intellectual Challenge	85.8	92.9	-15.50***
High Salary	76.7	83.3	-10.48***
Good Benefits	75.7	92.2	-31.43***
Good Job Security	77.5	91.5	-26.64***
Opportunity for Advancement	78.4	80.5	-3.19**
Autonomy	34.5	43.9	-11.93***
Opportunity to Work with Competent People	77.3	87.6	-17.78***

**ρ < .01, ***ρ < .001

similar in that very large majorities of both generations expected to be challenged by the ATC job to a considerable or great extent.

In contrast, the generations appear to differ in their expectations of the material aspects of the ATC job. For example, a smaller proportion of Post-Strike controllers (76.7%) expected the FAA to provide a high salary to a considerable or great extent than did Next Generation controllers (83.3%; Z=-10.48, p<.001), with an absolute difference of 6.6%. A smaller proportion of Post-Strike controllers expected FAA to provide good benefits (75.7%) compared to 92.2% of the Next Generation controllers (Z=-31.43, p<.001), with an absolute difference of 16.5%. The pattern was similar with respect to expectations of job security, with 77.5% of Post-Strike controllers indicating that to a considerable or great extent they expected the FAA to provide good job security, compared to 91.5% of the Next Generation controllers (Z=-26.64, p<.001), with an absolute difference of 14%. The two generations were closer with regard to their expectations for opportunities for advancement. About three-quarters (78.4%) of Post-Strike controllers expected the ATC job to provide opportunity for advancement to a considerable or great extent compared to 80.5% of Next Generation controllers (Z=-3.19, p<.01), with an absolute difference of just 2.1%. Overall, however, while expectations for the material aspects of the ATC job were high in both generations, those expectations were statistically higher for the Next Generation of controllers.

The same pattern appears to hold for other expectations of Next Generation controllers. Most controllers in both generations expected the ATC job to provide the opportunity to work with competent people to a considerable or great extent (77.3% for Post-Strike controllers and 87.6% for Next Generation controllers; Z=-32.84, p<.001; absolute difference=10.3%). In contrast, just about a third (34.5%) of Post-Strike controllers expected the ATC job to provide autonomy to a considerable or great extent, compared to 43.9% of the Next Generation controllers. (Z=-11.93, p<.001; absolute difference=9.4%).

Figure 1 shows the proportion for each generation indicating expectation that the ATC job would provide a given factor to a considerable or great extent. Overall, the expectations by generation appear to be very similar. That is, while the difference in proportions endorsing "Expect to be challenged by the job" was statistically different, both generations indicated having very high expectations on this factor. Most importantly, there were no instances where one generation had a high expectation for a given factor and the other generation had low expectations. Thus, the generations appear to be very similar in their expectations of the job.

DISCUSSION

Previous research suggested that generations could be defined by certain work values. We were interested in whether the expectations of two distinct generations existed in the controller workforce. Our research objectives were twofold. First, we wanted to determine what the job and career expectations the Next Generation air traffic controllers have. Second, we wanted to understand to what extent the job and career expectations of the two generational cohorts were similar or different at the time they entered the job.

Overall, members of the Next Generation cohort had somewhat higher expectations than Post-Strike controllers on eight of the nine dimensions. With the very large sample sizes, even very small differences (1.3%, for example) were statistically significant. On one hand, differences of just one or two points are unlikely to have much practical significance. On the other hand, larger differences of about 10% or greater signal expectations that might need careful attention. However, examination of the cross-plot of the expectations by generation indicated that there were no instances where one generation

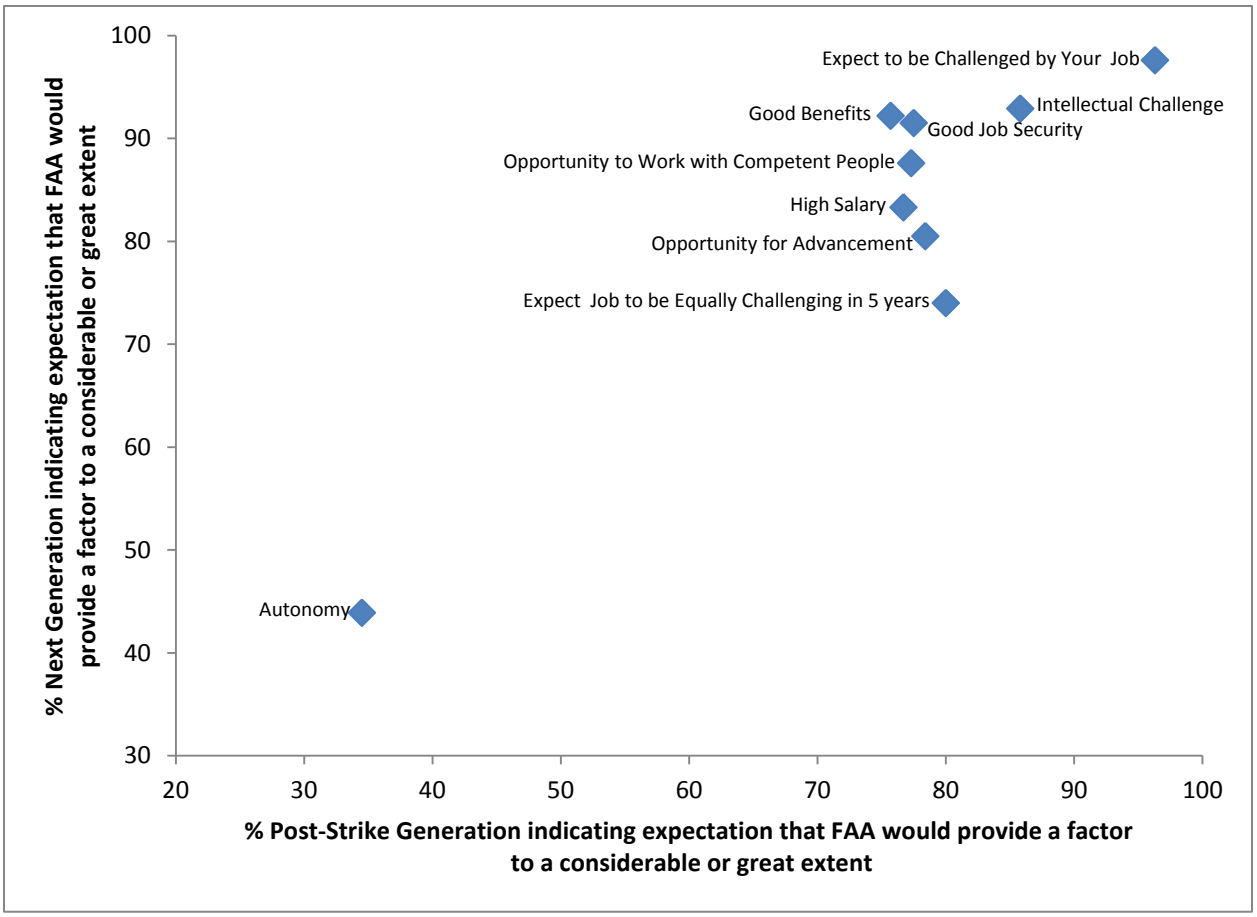

Figure 1. Scatterplot of the proportion for each generation indicating expectation that ATC job would provide a given factor to a considerable or great extent.

had a high expectation for a given factor and the other generation had a low expectation. This indicates that the two generations are more similar than different in their overall patterns of expectations of their jobs.

In both the first study of generational differences among controllers and this analysis, we thought socio-economic effects might be one plausible explanation for both the statistical differences but high similarity between generations: Next Generation controllers might hold higher expectations for economic or material factors such as pay, benefits, security, and opportunity for advancement due to their perceptions of or beliefs about federal employment relative to the economic uncertainties they have experienced over the last decade. This might make these material expectations salient to the Next Generation cohort. In contrast, the economy generally was expanding through the late 1980s when data were collected from the Post-Strike controllers, so economic and material factors might have been less salient to that generation. Regardless, it is clear that both generations highly value the material aspects of employment as an air traffic controller. These material factors were important in their choice of the ATC occupation (Cannon & Broach, 2011), and it appears that the Next Generation controllers have high expectations of receiving those material benefits in their jobs.

Given the controller pay system, it is unlikely that the expectations of high pay for the Next Generation controllers will be unmet; air traffic controllers are well paid, with a median pay of $122,340 per year in 2014 (Bureau of Labor Statistics, 2015a). The ATCS occupation is 19th in the top 20 highest paid occupations in the U.S. (Bureau of Labor Statistics, 2015b), ahead of Pharmacists ($120,950) and behind Marketing Managers ($127,130 per year). In contrast, the median pay across all occupations in 2014 (the most recent data available) was just under $45,000 (Social Security Administration, 2015). Similarly, medical, retirement, and leave benefits for federal employees are still relatively generous compared to the private sector, particularly for jobs requiring only a high school diploma (Congressional Budget Office, 2012). Overall, it seems unlikely that the Next Generation controllers will be greatly disappointed with their pay and benefits.

However, the Next Generation controllers had higher expectations for the opportunity to advance than did the Post-Strike controllers. There are characterizations of the Millennial generation, of which the Next Generation controllers are members, as "wanting it all, now" and being impatient for advancement (Ng, et al, 2010). However, advancement in air traffic control requires patience. A new controller spends the first two or three years earning his or her first facility certification, a prerequisite for competing for higher level positions. Often, advancement requires moving from lower to higher level facilities and recertifying in the new facility. Such moves are competitive and governed by merit principles[2] in federal employment and the collective bargaining agreement between FAA and the National Air Traffic Controller Association (NATCA). If successful, the controller must then recertify at the new facility, a process that takes six to nine months on average. Advancement into management is also competitive and governed by civil service rules. The controller must be certified and generally have at least two years of post-certification experience to be competitive in a bid for a supervisory position. Therefore, expectations for promotions will need to be managed in view of the time required to complete training and certify and the competitive process for moving upwards.

Finally, job and career expectations at entry should be compared with a measure of reality after organizational entrance (Moser, 2005): To what degree is an organization meeting the job and career expectations of employees? Research suggests that the consequences of unmet job expectations include job dissatisfaction, less organizational commitment, increased attempts to leave the organization, and higher turnover (Moser, 2005; Turnley & Feldman, 2000), all of which could have negative effects in the context of air traffic control. For example, unmet, and perhaps unrealistic, expectations might undermine the level of effort and commitment required for an individual to complete the intensive, extensive, and expensive facility training process to achieve Certified Professional Controller (CPC) status. Current research on factors influencing success and failure in facility training might be expanded to determine what role, if any, expectations played in training outcomes.

Turning to future research, it is important to keep in mind that this line of current research is based on data collected at the beginning of what is likely to be a 25-year or more career in ATC. Longitudinal research assessing the degree to which initial expectations have or have not been met at different points in the career of controllers is suggested. Differences between initial and mid- and late-career expectations could then be linked to outcomes such as voluntary turnover and career burnout (Martinussen & Richardsen, 2006). Understanding the trajectory of controller job and career expectations might also provide insight into how to manage those expectations and help maintain commitment and engagement in this mission critical workforce.

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[2] While FAA was exempted from much of Title V in 1995 (*Fiscal Year 1996 Department of Transportation and Related Agencies Appropriations Act*, Public Law 104-50, November 15, 1995, Section 347(a)), the act required the FAA to comply with merit principles in all its personnel actions and, in effect, the relevant case law. As a result, as recently noted by the U.S. Department of Transportation Office of the Inspector General, "…the only difference between FAA's personnel system and the rest of the Government's is compensation" (p. 9).

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