

Tracking Biotechnology Graduates of Forsyth Technical and Alamance Community Colleges

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Introduction: The focus of this project was to assess the employment status of biotechnology graduates of Forsyth Technical Community College (Forsyth Tech) and Alamance Community College (ACC). Both schools are members of the North Carolina Community College System (NCCCS) which has invested heavily into workforce training for the assembly of a large pool of highly trained biotechnology workers. This is a follow-up study to the *Tracking Biotechnology Graduates in the Piedmont Triad, North Carolina* report completed in June 2009, which can be accessed online at www.biotechworkforce.org, and confirms its findings that once graduates matriculate from their institution, follow-up is a difficult process. Economic developers are continuously looking for workforce availability information when promoting the region to Biotech companies seeking to relocate. This project worked with graduates and faculty of these community colleges and utilized a database compiled in earlier studies. Graduates of these two institutions represent the Piedmont Triad region of North Carolina which is designated as an emerging cluster in biotechnology and the life sciences.

Background: The NCCCS BioNetwork trains Biotechnology workers for the state. In its short history it has set up a system of workforce training that is internationally recognized. For the most part, the people who take NCCCS courses are either new to the biotechnology arena and are pursuing entry-level job training, or they are incumbent workers taking training upgrades, or they are pursuing an academic degree, such as an Associates. Forsyth Technical Community College, in the Piedmont Triad area, has strong ties to BioNetwork and is a leader in NC Biotechnology training. It is home to the National Center for the Biotechnology Workforce and it currently offers an Associate of Applied Science Degree in Biotechnology. The program is one of the largest in North Carolina with a total of over 300 students who have, at some point, entered the program during its short history dating back to 2003. It has already graduated over 100 students and averages about 80-100 students per semester. It presently offers the second year of training to 9 surrounding community colleges through a one-plus-one agreement. In 2006 the college was awarded a grant by the North Carolina Biotechnology Center to track student outcomes from its Biotechnology Program. This also included following up on graduates of Alamance Community College, which has the most established biotechnology program in the state, having delivered programs for twenty-four years. In this study's final report, it was noted that traditionally, community college students are difficult to track once they have graduated. A model was designed that would make contact early and lead into a series of events to promote contact between the school and the graduate. This report can be accessed online at www.biotechworkforce.org. Students who take Biotech training at the Associates level

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are job-oriented and are older. The data from the Forsyth Tech Biotech program points to an average age of 35 with two-thirds of the students being female. We believe for economic reasons, pertaining to return on investment, following up with our graduates is a college and possibly a statewide priority. The aforementioned model provided a procedure for following up with students and graduates in a consistent and professional manner. It had been assumed, however, that Biotechnology students and graduates go into the biotechnology workforce after graduation, but data from our previous tracking study suggests that (at least for Forsyth Tech), employment into biotechnology positions is not always immediate. While we know that biotechnology graduates may change employers, we also know that community college graduates have a desire to work within or adjacent to their home counties. If a plant or commercial enterprise is being built in an area, a surge in demand for local biotech workers occurs. It would be ideal to have a working mechanism for tracking and communicating with our community college trained biotechnology workforce and, furthermore, a statewide volunteer tracking system of this cohort would be an invaluable asset to economic developers and the NCCCS BioNetwork.

Methodology: The database of graduates from both Forsyth Tech and Alamance Community College was compiled in the previous graduate study (2009) and through the process of this current study, was updated with information voluntarily contributed by graduates, where possible. ACC and Forsyth Tech have a combined total of 203 graduates, whose graduation dates range from 1998-2008. SURVEY MONKEY™, an online surveying tool, was utilized to generate a questionnaire. A link to this survey was sent to each email address in our database of graduates. Seventeen surveys were completed anonymously online. Phone calls were made to each graduate for whom a phone number was recorded to provide increased participation. One hundred twenty of the phone numbers had been disconnected and thus contact with many graduates was lost. In our database we have current contact information for 83 graduates while contact with twenty-six graduates was unsuccessful. Even though calls were made and messages left, contact was not accomplished. Forty were successfully contacted to inquire about their status by verbally completing the Survey Monkey™ questionnaire. This 40 and the 17 online surveys represent the 57 surveys completed by the graduates, which is the source of our data.

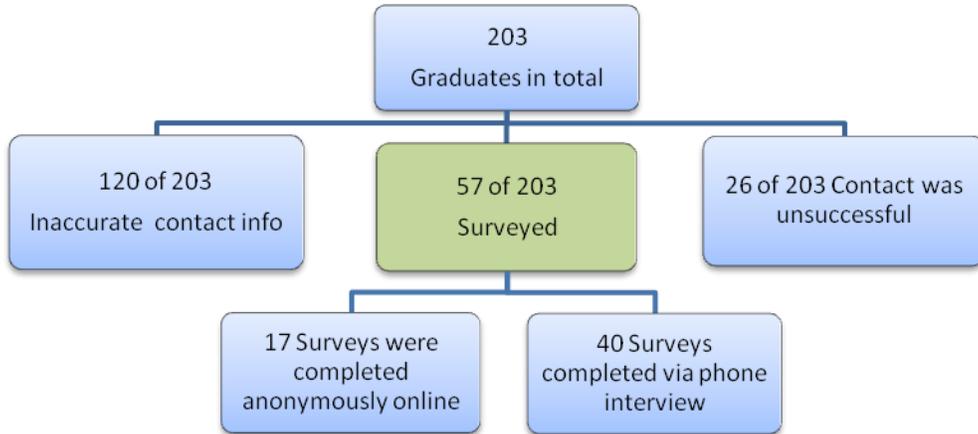


Figure 1: Flowchart demonstrating the 203 graduates: 120 lost through inaccurate contact information; 57 who completed surveys; and 26 with whom contact was attempted, but not successful. Of the 57 surveyed, seventeen completed the survey anonymously online while 40 were interviewed by telephone.

Alamance has had 118 (58% of the 203) graduates since 1998, according to our records and Forsyth Tech has had 85 (42% of the 203) graduates since 2004. The 40 telephone interviews were divided between Alamance, accounting for 26 of those surveyed (46%), and Forsyth Tech was represented by 15 of the responses or 26%. The 17 surveys completed online were done anonymously, with the exception of one in this group. The one from the anonymous online group is known to be a Forsyth Tech graduate. We do not know from which school the remaining 16 online respondents graduated. See Figure 2. The graduation dates of those surveyed ranged from 1999 to 2008. See Figure 3.

Respondents by School

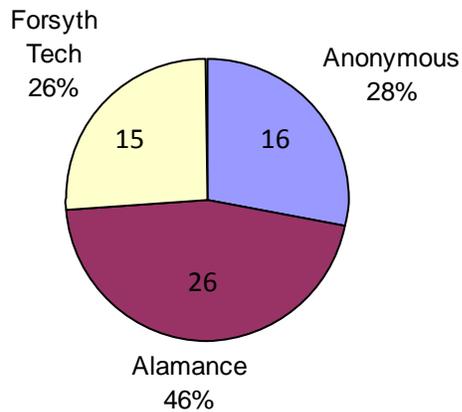


Figure 2: Chart depicts the school of graduation for those surveyed

Year of Graduation

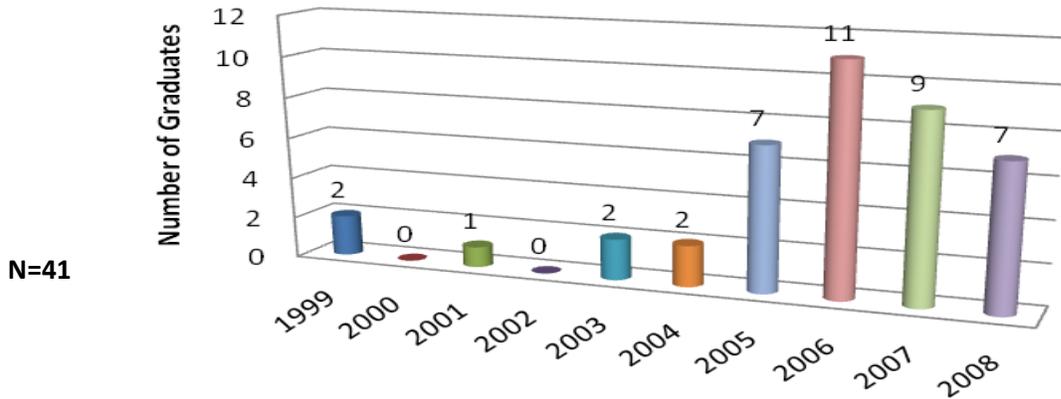


Figure 3: Distribution of 41 graduates based on their year of graduation.

Results: The survey revealed that 33 of the 57 surveyed are active whereas 24 are inactive. The active category includes those currently employed and those who have chosen to continue their education. Twenty-eight are employed, 19 in biotech and 9 in another field. Two of those employed in another field reported they were utilizing the training they received in the biotech program for their current jobs. Five are continuing their education, 3 in life sciences and two in unrelated fields. See Figure 4.

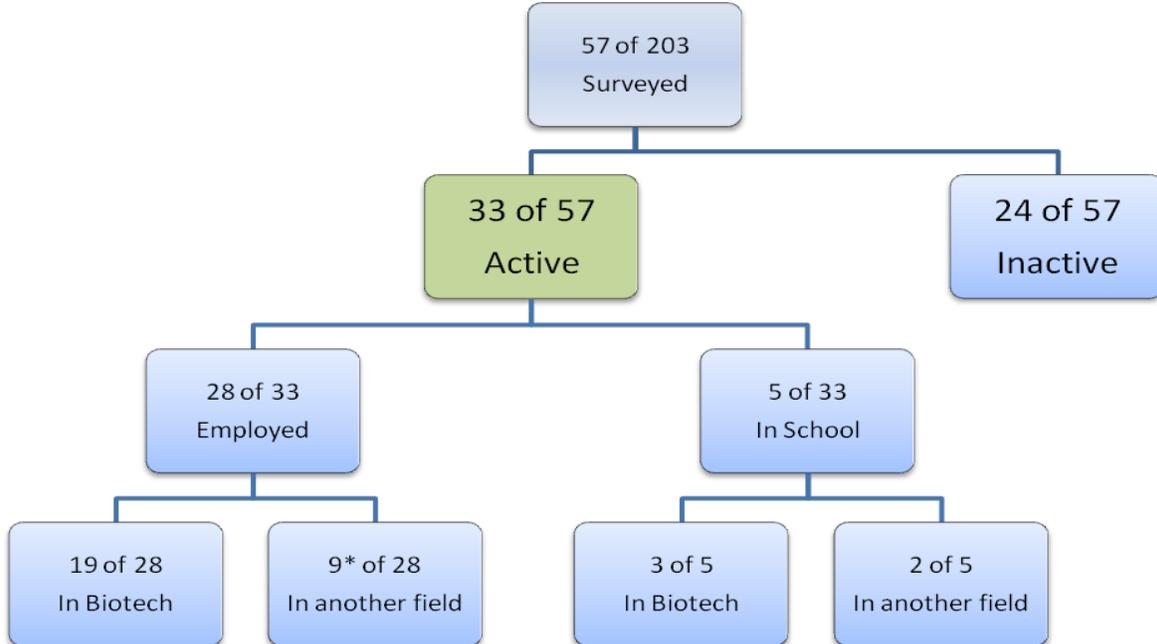


Figure 4: Flowchart demonstrating the current status of those graduates surveyed and considered active. *denotes the 2 employed in another field, but relying on skills acquired during biotech coursework.

The 19 employed in biotechnology volunteered some information about their current positions. Ten of the 19 people surveyed divulged their earnings and the distribution is relatively balanced with 40% earning in the \$20,000-\$30,000 range; 30% in the \$30,000-\$40,000 range; and 30% in the \$40,000-\$50,000 range. Of the same 19, thirteen graduates expressed their satisfaction with their current employer and position. Four of them (31%) indicated they prefer to stay in their current position; 1 respondent (8%) prefers an equivalent position with another employer; 3 indicated that they (23%) prefer a higher position with the same employer; and 5 (38%) prefer a higher position with another employer. See Figure 5.

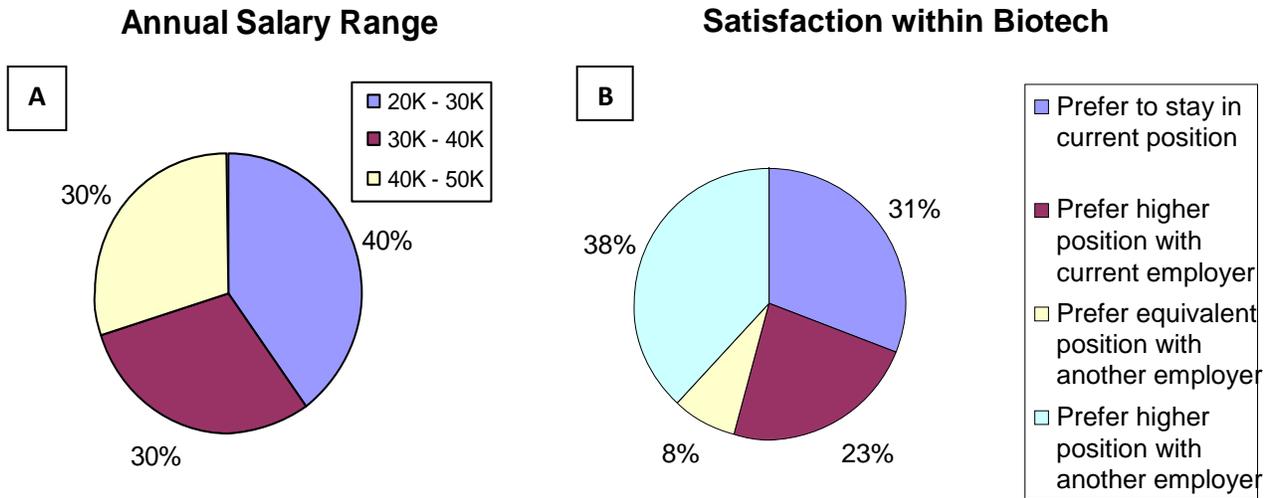


Figure 5: Information from graduates employed in the biotech field. **(A)** Salary range of 10 of the 19; **(B)** Preference to change position of 13 of the 19

The inactive category includes graduates who are unemployed and the category can be broken down further as 15 unemployed, two being victims of economic layoffs, and 9 who have experienced a change in their circumstances which led to a change in their career goals. These circumstances include medical needs of themselves or their families or a simple loss of interest in the biotechnology field. These 9 are no longer considering a career in biotechnology within the foreseeable future. Four respondents gave no explanation for their change of career goals. See Figure 6.

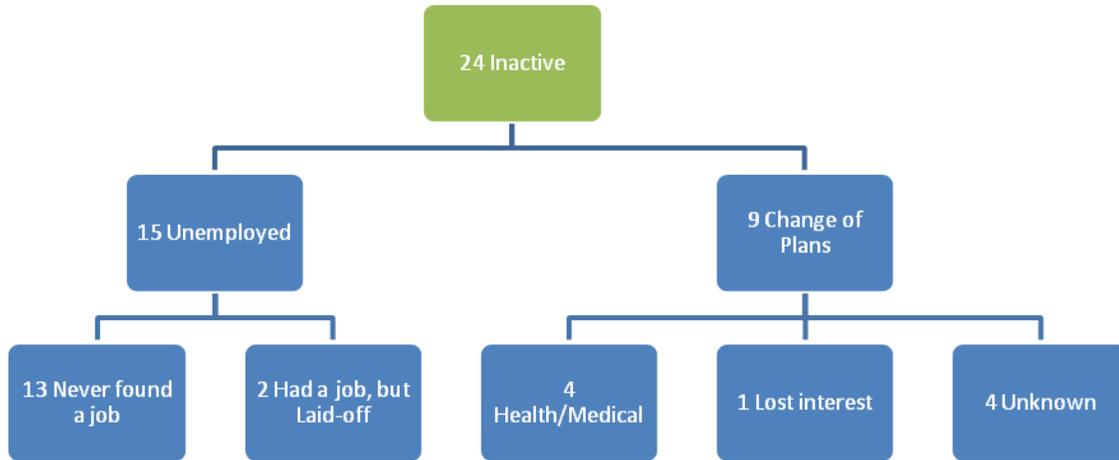
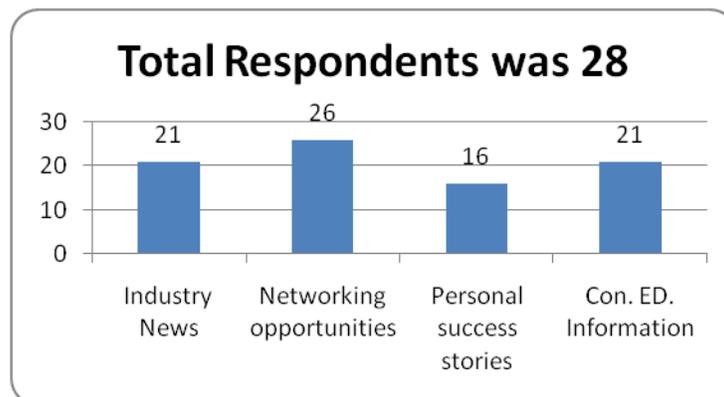


Figure 6: Of the 24 inactive biotech graduates, 15 are unemployed, 13 never found a job, and 2 were laid-off. Nine of the graduates experienced a change in plans.

Respondents from each group: the employed, the unemployed, and those who have had a change in their circumstances were asked which modes of communication were of interest to them. The options included: Industry News, Networking Opportunities, Personal Success Stories, and Continuing Education Information. The respondents were allowed to select multiple options. Each group indicated a strong interest in Networking Opportunities, followed by Continuing Education for the two groups who are still interested in a biotechnology career. Personal Success Stories were of strong interest for those who are inactive. These communication mode preferences were consistent with those reported in the previous tracking studies.

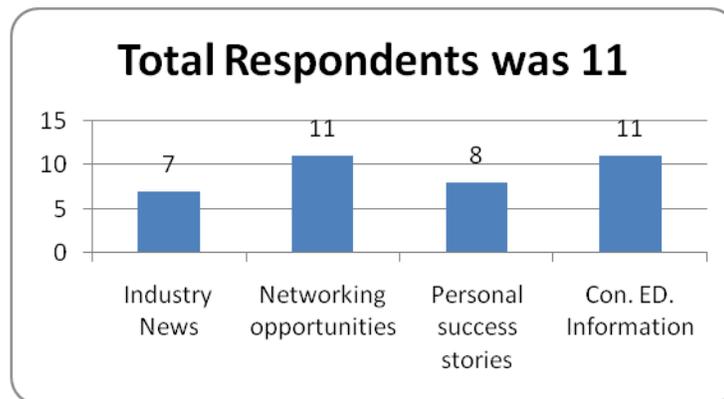
A

“Employed” Communication Modes



B

Unemployed but “interested” Communication Modes



C

Unemployed, “disinterested” in BT Communication Modes

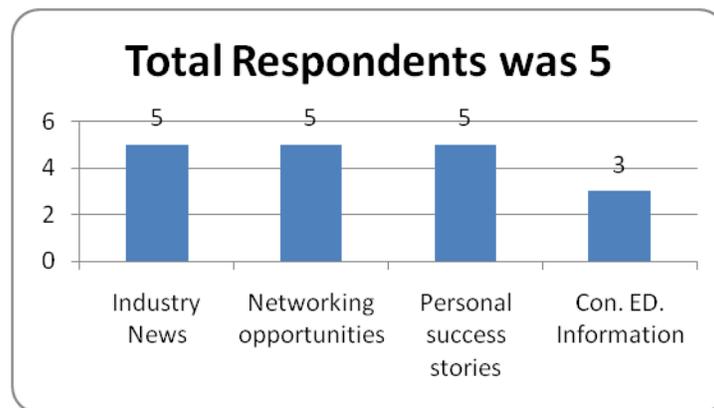


Figure 7: Modes of interaction for the three groups (A) those graduates who are employed in Biotech; (B) those unemployed, but still interested in Biotech; (C) those graduates who are no longer interested in Biotech

Discussion: Through this study, we have attempted to contact the Biotechnology graduates of both Forsyth Tech and Alamance Community College to inquire about their current status within the biotechnology industry. Of the 203 graduates (1999-2008), we no longer had accurate information for 120. This supports the previous findings that graduates are difficult to stay in touch with after they leave school. Of the 57 surveys that were completed, responses indicate that 58% of these graduates are active and 42% are inactive. Eighty-Five percent of those active are employed; 68% of this group is employed in biotechnology; 15% are continuing their education. Of the whole group, 22% are unemployed; and 16% have had a change in their circumstances and are no longer interested in a biotechnology career. Only

two graduates were downsized or lost their jobs. Income information obtained indicates annual ranges are evenly distributed between \$20,000 – 50,000. Graduates polled seem generally satisfied with their careers and have a desire for interaction post graduation.

The groups of graduates show consistency in their preference for modes of interaction. The mode of interaction that gained the largest consensus (95%) was Networking Opportunities. Graduates are also very interested (80%) in Continuing Education. These results reflect those found in the previous tracking study and during the development of the tracking model (2009).

Conclusion: The process of this project has demonstrated that to avoid losing contact with graduates, effort must be invested before graduation to establish contact. Maintaining a current database is vital to communication and success of tracking our graduates. Implementation of a tracking model may be sufficient. This mechanism is conducive to continuing interaction and the ability to maintain an up-to-date database of the biotechnology workforce in the Piedmont Triad of North Carolina.

Graduates are prepared to be workforce ready, but what happens post graduation is largely within their control. However, we the colleges can continue to foster their interest in networking and continuing education by being a link to keep them in the loop of ongoing helpful activities such as events and courses. The next step in this process is to create ongoing interaction by scheduling quarterly events or meetings with current biotech students and alumni. These outcomes meet the goals of the North Carolina Community College System, support the mission of the NC BioNetwork and the National Center for the Biotechnology Workforce.