

Senate Committee on Health, Education, Labor and Pensions

Hearing

“Modernizing Apprenticeships to Expand Opportunities”

Testimony of Glenn Johnson

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I. Introduction

Good morning Chairman Alexander, Ranking Member Murray, and members of the Committee. Thank you for the opportunity to appear before the Committee to talk about BASF's approach to workforce development, specifically apprenticeships and how they fit in with our present-day and long-term workforce development plans.

Before talking about my company and thoughts on apprenticeships, I would like to thank you, Mr. Chairman and Senator Murray for your leadership in passing the *Strengthening Career and Technical Education for the 21st Century Act* to reauthorize the Carl D. Perkins Career and Technical Education Act. I testified last year before the House Committee on Education and Workforce in support of reauthorizing the Perkins Act and am encouraged to see it is progressing through the legislative process.

II. BASF Corporation

BASF Corporation, the North American subsidiary of BASF SE, is the second largest producer of chemicals and related products in North America. In the US, BASF Corporation has more than 15,000 employees across 148 locations, of which 74 are production sites and 18 are research and development facilities. The company has more than 1,700 employees dedicated to research and development in the U.S. and more than 8,500 manufacturing employees. BASF collaborates with approximately 170 top North American universities, research institutions and companies.

At BASF, we create chemistry for a sustainable future. Our customers increasingly expect consistent and innovative solutions that also contribute to a more sustainable future. They believe, as we do, that being environmentally and socially responsible goes hand in hand with running a profitable business. BASF has the broadest portfolio in the chemical industry serving customers in nearly every industry including: chemicals, automotive, agriculture, construction, personal care, health & nutrition, packaging and consumer products.

Sustainability includes the environment and economy, but also PEOPLE; and that is what I am here to talk about today. We strive to attract and develop talent from both internal and external sources. More than one-third of our jobs are filled with internal candidates – which means two-thirds of our jobs are filled with external candidates, which leads to our discussion on apprenticeships. We seek the best talent from all sources – leading universities, business connections, trade associations, national diversity conferences, partnerships to hire veterans, historically black colleges and universities and referrals from our own employees.

III. Filling the Skills Gap

An estimated 3.5 million manufacturing jobs must be filled by 2025 to meet industry needs. Due to gaps in the critical skills needed for these jobs, nearly two million of

these jobs will go unfilled. Companies like BASF rely on manufacturing talent to remain competitive, which underscores the need for closer alignment between the education system and the business community. Therefore, we focus our efforts on:

- A. Career and Technical Education awareness,
- B. Innovative Education partnerships to increase pipeline quality,
- C. Aligning academic learning with on-the-job relevance, and
- D. Government and industrial partnerships.

BASF's award-winning science education programs and funding for schools across the region stimulate learning in science, technology, engineering and math (STEM) and support workforce development. Since 2010, more than 410,000 schoolchildren in pre-K through Grade 12 have participated in a variety of our science education programs including: Kids' Lab, Teens' Lab, Science Academy and national sponsorship of the Chemical Education Foundation's *You Be the Chemist®* programs.

IV. Manufacturing Jobs Can Take You Anywhere

Some say jobs in manufacturing are dead-end jobs, but I am here today to testify that manufacturing jobs do not have a ceiling - they provide options. Some of us prefer the exciting hands-on aspects of technology roles, and some seek administrative work. Manufacturing provides opportunities for both, today.

- Ms. Jana Truett
 - Was a cashier in a pharmacy when she decided to get her associate degree in process technology. She began work with BASF as an operator and now trains others in technology.
- Ms. Jalisa King
 - Was a cook when she decided to get her associate degree. She is now an operator in BASF and part of our Ambassador team telling her story to other young women.
- Ms. Tara McMahon
 - Worked in a recreation center. After completing her associate degree, now works at BASF as a Laboratory Technician.
- Glenn Johnson
 - 22 years ago, I was a proud young man living in a trailer park in western Kentucky with only a high school diploma. At that time, I began my first job in manufacturing. I ran assembly lines and stacked cases of product. As I worked through the ranks, I began to take advantage of the tuition reimbursement program. I progressed into leadership roles while continuing to train and educate with the support of my manufacturing employer. That proud man from the trailer park sits before Congress today to tell you that the manufacturing industry changed my life and continues to change people's lives in the same way, every day.

V. A Strategy for Workforce Development

Alignment between the education system and the business community is critical to deliver the knowledge and skills necessary for an individual's success. This includes direct involvement in all stages of workforce preparation and building continuous and meaningful relationships with workforce potentials and organizations. Wherever possible, BASF seeks out and promotes these collaborations, from K-12 through graduate school.

In my experience, well-designed apprenticeship programs typically have requirements that align with three directives. BASF's Workforce Development programs are driven by these three directives:

- Quantity – Drive Career & Technical Education Awareness
- Quality – Cultivate Nested Educational Partnerships
- Synergy – Leverage Government and Industrial Partnerships

A. Quantity of the Workforce

An important function of any apprenticeship program is that it increases worker supply within occupations that have a projected shortage. One of the ways to do this is through outreach to underrepresented populations, veterans, and "retooling adults." An apprenticeship program is one of the best mechanisms to achieve this.

The progressive pay aspect of apprenticeship provides the immediate income necessary for veterans exiting the military and other established workers looking to change careers. These "retooling adults" cannot simply stop receiving a paycheck while they learn new skills. They often have established families they must support while making career changes toward jobs America desperately needs filled.

Organizations can create apprenticeships administered by employee resource groups for underrepresented populations like females in manufacturing. For example, a BASF initiative titled *Female Leaders Advancing Manufacturing Excellence (FLAME)*, awards females with education scholarships for use within local community and technical colleges and provides job experience through multiple internships for the awardees. Additionally, the program enables women's advancement by connecting them to a growing vital network of mentors and colleagues.

B. Quality of the Workforce

An important outcome of any apprenticeship is alignment between the curriculum delivered and the knowledge, skills, and abilities organizations require.

- As a member of the North American Process Technology Alliance, BASF joins 49 colleges, 22 industrial organizations, and 19 vendors across America where we

focus on curriculum and instructor skills for the Process Technology Associate degree. This organization demonstrates the return on investment achievable within collaborative efforts.

- Dr. Robert Bartsch and I published a research paper in *The Journal of Technology, Management, and Applied Engineering* titled “Comparing Process Technology Education and Work Experience” that demonstrates strong statistical evidence pointing toward collaborative value.
- Within this degree we found that one year of training is approximately equal to 5.3 years of work experience. This is not to suggest that one year of education in general is equal to five years of experience. However, when industry and education partner to align curriculum with **collective** needs and assure that learning environments are close simulations of the job with applied performance criteria, Education/Training **IS** Experience.

C. Collaborative Synergy

An important aspect of any apprenticeship model is collaborative synergy between education, industry and government organizations that improves the quantity and quality of the workforce pipeline. To achieve this, foundational efforts within apprenticeship programs must include the creation of collaborative partnerships. In BASF, we seek these partnerships in every opportunity. It is in BASF’s best interest to help assure that our industry partners have a sufficient supply of qualified workers. At BASF, we want to do more than develop only the part of the workforce that we hire. We want to help and support our industry partners acquire talent and help all future workers increase their employability for all our industry partners, not just BASF.

VI. Apprenticeship Exploration

BASF feels that apprenticeships, when designed appropriately, can be a valuable tool in workforce development. We took time to study existing efforts before deciding how to move forward. We conducted a comprehensive examination of the different models of apprenticeships and gathered feedback from other organizations and colleagues about the models. We classified our findings into three different apprenticeship categories and later created a fourth.

- German Apprenticeships
 - Educational path for children is identified by academic achievement in the 4th grade. These paths are flexible but highly suggestive.
 - Those on the apprenticeship path (beginning in the 5th grade) complete dual enrollment with high school and vocational training programs, but end secondary education by the 10th grade.
 - This model does not fit culturally within the U.S.
 - Parents in the U.S. may consider students in these types of apprenticeships to be high school dropouts.

- Parents in the U.S. will likely have strong opposition to the seeming removal of choice by a 4th grade test.
- Traditional American Apprenticeships
 - Progressive (Skills Based) Pay with increases as skills are acquired.
 - Provides mentor based on-the-job training and experience.
 - Traditionally did not have partnerships with college programs.
- Modern American Apprenticeships
 - Career & Tech Ed Awareness programs inform students of career choices.
 - Progressive (Skills Based) Pay with increases as skills are acquired.
 - Provides mentor based on-the-job training and experience.
 - Establish partnerships with Community & Technical college programs.

VII. Registered Apprenticeships

The current “registered apprenticeship” model has a perception within industry as being complicated and heavily burdensome with paperwork and reporting. This has affected the quantity of actively registered apprenticeships in the U.S. Some organizations that need apprenticeships may not seek registration and thus are not eligible for funding assistance because they perceive an insufficient return on investment for what they must do to receive it.

For example, in 2015, BASF planned to train 105 individuals from Texas and Michigan to be Process Operators and Maintenance Technicians through the American Apprenticeship Grant Program. We created a complete two- to three-year registered apprenticeship program as part of a joint effort between BASF and several industry partners -- all of which planned to train and hire their own counts of registered apprentices. However, because one document was not completed properly, the program, which had involved much work to develop, was declined and the training was cancelled. Since this time, some of the partners have endeavored to conduct the training on their own but with significantly decreased numbers of participants.

Headcount restriction causes hedging of apprenticeship participation by site leaders. Registered apprenticeships are aligned with job availability because they are designed to result in a hire. On the surface this sounds great, but it also decreases interest of some organizations. Site leaders are never 100% certain of specific employment needs due to turnover, production capacity expansion, or project completions. This uncertainty, coupled with a very set and inflexible headcount restriction, (a characteristic of many companies), leads to a hesitation to commit to projected hire counts that may be two to three years in the future. If a site leader is required to commit to hire as a part of program participation, as in registered apprenticeships, then they will only do so for a fraction of the count they may need to hire, in order to hedge against unexpected circumstances.

If the purpose of apprenticeships is to develop participants within jobs for which there exists or will exist a critical projected shortage, then apprenticeship programs should encourage development of our full projected hiring counts, not just a part. Therefore, BASF is moving toward what we call Sequence Apprenticeships.

VIII. Sequence Apprenticeships

According to the Department of Labor, registered “Performance Based Apprenticeship programs are premised on attainment of demonstrated, observable and measurable competencies,” and identify the “allocation of the approximate time to be spent in each major process.” BASF’s “Sequence Apprenticeships” should fit within this model.

Our plan is to facilitate the creation of these programs by joining/creating advisory committees within the education program where the committee will agree on:

- Defined competencies that are directly related to the job/role through a job/task analysis and allocate which competencies will be achieved in the education setting and which will be achieved in the work-place learning setting
- Structured on-the-job learning agendas/activities for competencies attained within workplace learning that are observable applied performance based measures of competency attainment and that include the approximate time/hours value for attainment of each competency

Our plan is to provide this training and education through a sequence of scholarships and internships (scholarships within the college program and workplace internships) that provide the structured on-the-job training within industry site locations.

The program also allows:

- Credit to be given for previous experience and competencies demonstrated
- Apprentices to accelerate the rate of competency achievement or take additional time beyond the approximate time of completion

A. BASF’s Progress toward Sequence Apprenticeships

BASF has started to assemble parts of the Sequence Apprenticeships through our workforce development strategy with execution activities in Louisiana, Georgia, South Carolina, Pennsylvania and Alabama.

- We identified ten nested educational partnerships in 2017 where we provide development assistance and direct curriculum input.
- BASF provided direct onsite experience and job skill training to 49 future workers in 2017 and 30 in 2018 thus far.
- BASF hired 45 workers in 2017 and 21 in 2018 thus far, from development programs with which we partner and advise on curriculum.
- Within our FLAME program we are providing scholarships and internships for females.

More work must be done to complete the program assembly. We are in the process of building enterprise-wide programs that are systematic and that are portable to other sites locations high in our priority such as Tennessee, North Carolina, Kentucky, Colorado, Wisconsin, Virginia and Minnesota.

Our Sequence Apprenticeships model allows:

- Support of future workers within the entire degree program, not only the ones we hire.
- Increased quality of the education program as a whole -- not just the apprenticeship program, resulting in higher relevance for the school.
- Hiring managers to maximize the number of apprenticeship hires because the decision to hire is made at the time of credentialing when the actual situation is clear, not forecasted.
- Organizations to help fill the pipeline for other industry partners, not only for themselves

Based on our experience, the Sequence Apprenticeship model holds much promise. It is a model that can “catch-on” and encourage more participation by industry partners. Sequence Apprenticeships allow the flexibility that hiring managers need to support the maximum number of future workers and hire the maximum number of employees from the program.

B. A Proposal for Distributable Support for Collaborative Workforce Development

Under this model organizations would work together as true partners where multiple partners can share the load to develop future workers. Support to each of the industry partners would be based on their share of workforce development efforts within a collective group of future workers. This would require a support program that is distributable in parts as follows:

- Part 1: Setup of new or restructuring of councils within education programs that involve the school and multiple industry partners from the region
- Part 2: Work to define competencies, learning agendas and schedules, and workplace setting requirements for instruction
- Part 3: Scholarships for program participants
- Part 4: Executed workplace on-the-job learning

IX. Looking Ahead

If we sit on the sidelines and take no action toward development of the workforce need to fill the jobs gap, the “Skills Gap” will become critical within manufacturing in approximately four years. Unless something is done to change the status quo, the lack of workers will ignite a wage war between industry partners that will result in inflated wages above market and business models. This wage increase will result in a short-

term exchange of the same short supply of workers, and will affect the margins of all producers. Smaller, distressed sites will suffer first as they will not be able to match inflating wages and likely lose productivity, then accounts. Entities with demand for this productivity will be forced to look elsewhere and likely turn to markets outside of the United States. The manufacturing sector in the U.S. will decline and these U.S. jobs will be permanently lost.

Evidence of this has already become visible in manufacturing sites. Manufacturers have experienced employee counts that have reached a level of site open positions where plant operations are being negatively impacted including reduced operating shifts, higher overtime cost, and lost production.

X. Moving Forward

BASF plans to advance and scale the activities mentioned today across North America. We are prepared to openly share the strategy and execution plan for workforce development with industry and government partners. America needs the manufacturing industry to achieve the growth we clearly see coming. Congress can catalyze this growth providing *Distributable Support for Collaborative Workforce Development*.