

Executive Summary:

Factors Influencing Whether Firms Engage in Apprenticeship
A Dissertation by Chris Harrington, 2019

Background

A gap or mismatch in the skills of workers or prospective workers exists between those held and those desired by employers. The problem will gradually become worse because of the ageing of baby boomers and because of industry 4.0. According to PEW research, 10,000 baby boomers reach age 65 every day and this will continue through 2030. Various forecasts suggest that between 10% and 50% of the existing workforce will have to reskill in the next decade to adapt to new technology. The skills gap problem sits at the cross section of education, economics, policy, and business.

Apprenticeship and other work-based-learning has proven effective in the development of a workforce with the desired skills. Apprenticeship has been found to be beneficial for the apprentice, for society, and for the employer. Apprenticeship is one method to aid in addressing the skills gap. Willing or engaged employers are required to support the approach which has historically been an issue. This lack of employer participation has been under researched.

Purpose of the Study

The purpose of this study was to examine key factors for firms in North Carolina that decide to engage in apprenticeship to fulfill their labor needs and to explore if those factors are different for firms that decide against the approach.

There were five research questions:

1. Does worker availability affect an employer's use of apprenticeship to bridge those workforce needs?
2. Does approach taken to master skills affect an employer's use of the apprenticeship programs?
3. Does perception of the apprenticeship approach affect an employer's use of the approach?
4. Does connection with external workforce ecosystems affect an employer's use of apprenticeship programs?
5. What is the relative effect of these four factors on the choice of an employer to use apprenticeship to fulfill their workforce needs?

Approach to the Study

A pilot study of 12 leaders with and without registered apprenticeship programs was conducted prior to launching the full survey. One major change made because of the feedback was the segmentation of skills into different levels (low skill, medium skill, high skill, and professional). The change was necessary because a respondent could answer the question regarding workforce needs and skills differently based on the participant's own definition.

For this study the skills were defined as:

- **Low Skilled** - High school diploma or no credential and can typically be trained to 90% proficiency within 3 months.

- **Middle Skilled** - May or may not have a credential beyond high school and can typically be trained to 90% proficiency in more than 3 months and less than 24 months.
- **High Skilled** - May or may not have a credential beyond high school (often one is preferred) and can typically be trained in more than 24 months.
- **Professional** - Has a bachelor's degree or higher in a field related to the position.

The research was conducted via an anonymous on-line cross sectional survey of top firm leaders in North Carolina having decision authority or influence over human capital acquisition or skill development. The data reflects the responses of 259 of these leaders of which 141 reported having apprenticeship programs and 118 did not. The leaders were contacted via six gatekeeper organizations primarily through email. The overall response rate was low (2.2%). However, excluding the North Carolina State Chamber of Commerce the rate would be 13.4% (they sent to 9800 target respondents with 11 actual responses).

The study is framed by the theories of change management of Kurt Lewin, Edgar Schein, and Peter Schein.

Research Method & Results

Quantitative statistics were used and cross-checked by one open ended qualitative question.

Chi-square 2x2 test of independence was used to compare responses of leaders (variables) that have apprenticeship programs and those that do not. Those variables were then included in a logistic regression model to determine the relative effect on having or not having a registered apprenticeship program.

RQ1: Does worker availability affect an employer's use of apprenticeship to bridge those workforce needs?

All leaders reported difficulty in recruiting workers with the skills needed in each of the workforce segments and they reported similar consequences to their business or customers because of not having those workers. In this study, significant associations exist in recruiting difficulty of high skill workers, the importance of a high school diploma for high skill and professional workers, the percent of workers age 55 or older for the high skill worker segment, negative effect of lead time to customer, and recruiting from high schools or community colleges. However, based on the logistic regression model in this study, only three of the variables provide significant predictive value. A leader that indicates that they recruit from local high schools is 6.6 times more likely to have an apprenticeship program. Leaders indicating that they value a high school diploma for the professional worker segment are 4.5 times more likely to have an apprenticeship program. Recruiting from local community colleges is an indication that the leader is less likely to have an apprenticeship program.

RQ2: Does approach taken to master skills affect an employer's use of apprenticeship programs?

Businesses with and without apprenticeship programs, use similar approaches in addressing external and internal training needs, but they use them at different levels. The differences in approach could be due to resources, connection with community and suppliers, or they could be related to the values of the leaders and culture of their organizations. It would be interesting to understand how businesses use job shadowing because of the potential similarities with apprenticeship. A headline based on this set of

variables is that training needs to be more effective, knowledge capture more thorough, and transferring the knowledge a priority especially considering the high percentage of older workers.

RQ3: Does perception of the apprenticeship approach affect an employer's use of the approach?

Perception of apprenticeship has a statistically significant effect on whether a leader is willing to engage with the approach for their business. Knowledge is one of the strongest signs that a leader has or does not have an apprenticeship program. Specifically, knowledge of support organizations is the strongest predictor for having a program and lack of knowledge is a predictor of not having a program. Positive perception of the value to businesses is shared by both groups of leaders. Based on this study, one could say that the negative perceptions come down to the leader being able to see their roles and their people using the approach regardless of the industry or skill classification.

RQ4: Does connection with external workforce ecosystems affect an employer's use of apprenticeship programs?

Connection with community and workforce development ecosystems has an association with leaders' responses that they have an apprenticeship program or not in this study. Each of the four categories of connection (knowledge and participation, external workforce training, work-based learning participation, and perception of business role related to community) had statistically significant associations with having or not having an apprenticeship program. Only participation in state sponsored customized training was significant in the logistics regression model.

RQ5: What is the relative effect of these four factors on the choice of an employer to use apprenticeship to fulfill their workforce needs?

Perception of apprenticeship as an approach to fulfill workforce needs had the most relative effect compared to the other three factors based on the logistic regression model used in this study. The logistic regression model included all of the chi-square significant variables except two that were directly associated with having an apprenticeship program. Based on the model, eight variables were statistically significant. Three of the eight relate to research question one (worker availability), none relate to research question two (approach to skill development), four of the eight predictors relate to research question three (perception of apprenticeship) and one predictor variable relates to research question four (connectedness to workforce ecosystem).

Of the eight significant variables, four provided predictive likelihood based on the odds ratio. Those predictive variables include the following:

- leaders indicating they recruit from local high schools are 6.6 times more likely to have a program,
- leaders aware of local organizations supporting apprenticeship are 6.5 times more likely to have a program,
- leaders indicating that a high school diploma is an important credential for professional skill workers are 4.5 times more likely to have a program, and
- the leader's indication that they have participated in state-sponsored customized training is 3.6 times more likely to have an apprenticeship program.

Four variables had an inverse relationship with having an apprenticeship program (the higher the response the less likely the leader has an apprenticeship program). Those include, the leader likes the

idea but does not know where to start, the leader does not see how it could be used for their business, the leader does not really know anything about apprenticeship, and the business recruits from community colleges.

Limitations

Given the design of the study, causality is not determined. Given the sample and approach, the data is not generalizable. The sample is potentially biased because of connection with gatekeeper organizations. An unknowable segment of leaders that are not connected to the gatekeeper organizations was not represented. The results are limited to the views and opinions of those leaders that participated in the survey.

Recommendation for Policy & Practice

Recommendations for policy and practice fall primarily into four categories. First, a more aligned strategy and framework for apprenticeship and work-based learning at all levels in the state should be created. Leverage the new knowledge and strengthen the approaches at the community level for work-based learning and connections with the workforce ecosystem. Leverage the new knowledge and strengthen the approaches learned regarding the perception of apprenticeship. Finally, under the umbrella of the strategy, and in collaboration with community and apprenticeship efforts, address the needed improvements regarding knowledge capture, knowledge transfer, upskilling and reskilling, and help businesses improve the effectiveness of their own skill development programs.

Results of this study help demonstrate, to a degree, the interconnectedness of the various factors influencing whether firms would engage in apprenticeship. The workforce ecosystem is also very much interconnected at all levels within the state. In order to create a step-change, strategy and policy must align at the state and local levels, which is not always the case. As an example, the strategic plans of many city and county governments, school systems, universities, community colleges, and numerous non-profit organizations include some element of workforce development as one of their goals. Indeed, North Carolina has been funding certain programs related to apprenticeship such as the college waiver program (funding community college for apprentices if registered within 120 days of graduating high school) and the Eastern Triad Workforce Initiative (a consortium of four counties working to expand youth and adult apprenticeship). These programs are designed to increase the number of employers and apprentices participating in registered apprenticeship programs. However, an overarching strategy, with long term funding does not exist. The state should create clear policy, framework, and funding opportunities. Based on the framework, or guiding the framework, local leaders need to create their workforce development strategy that bridges all of the stakeholder organizations to help with alignment, creating economies of scale, and ensuring guidance and governance is long term.

Results of this study also provided an indication that connection with community and the workforce development ecosystem has an association with leaders responding they have an apprenticeship program. Armed with a strategy, stakeholders can work on some of the issues this study helped highlight. Those opportunities include improving connections between businesses and the workforce ecosystem, additional focus in K-12 on the middle and high job skills, creating plans to motivate businesses and schools to collaborate more on work-based learning, and educating the business and stakeholder community. Educating the business and stakeholder community includes several elements:

- experience is the most sought after credential and work-based or on-the-job learning are the best ways to obtain that experience,
- work-based or on-the-job learning is the best way to learn soft skills that many business leaders desire,
- supporting work-based learning is supporting the community, and
- based on this study, many leaders agree that their business is now interdependent in developing workforce skills – get them to act on it.

Knowledge of apprenticeship is one of the strongest signs of a leader's indication that they have a program, specifically, knowledge of support organizations is the strongest predictor. Armed with the findings of this study, which were also asserted by OCED/ILO (2017), the community and apprenticeship leaders can build an awareness campaign that helps to strengthen the positive perceptions, addresses the general knowledge gaps, and addresses the lack of knowledge that support organizations exist to help businesses create and manage their programs.

One could say that the negative perceptions come down to the leader being able to see their roles and their people using the approach regardless of the industry or skill classification. At the same time, most businesses use some form of job shadowing as a primary means to train and do not believe their training is as effective as they would like. Apprenticeship does not have to be a four-year program; it can be as short as one year depending on the occupation. Some organizations have created short duration 10-12 week training programs that lead to a low skill job, or create an entry point into a middle or high skill job. The State Apprenticeship office should collaborate with these organizations and help provide an end-to-end continuum for employers and communities to help businesses with low skill or entry level jobs that do not fit into a one-year model. This will help expand apprenticeship beyond typical roles and build even stronger connections with the local workforce development ecosystems.

This research highlighted the lack of confidence many leaders have in the effectiveness of their workforce development approaches. At the same time, we have a workforce that continues shifting with a higher percentage in the 55 or older demographic. Based on this study, most businesses have not captured the knowledge of their older workers and do a poor job transferring the knowledge onto the next generation. Leaders also reported that they have opportunities to improve upskilling and reskilling. These problems appear to relate more to tools, approaches, and resources. Whether linking with the local workforce ecosystem, community college system, or Apprenticeship Office, efforts are necessary to support businesses in addressing these needs.

Conclusion

The practical implication of this research is that it provides perspective that had not previously been examined. Looking at the factors influencing whether firms would engage in apprenticeship is important because it is one solution to the current and future skills gap. Looking at this phenomenon from the perspective of business leaders is also important because various researchers have called for more studies to better understand the lack of employer engagement regarding apprenticeship, perceptions and benefits of apprenticeship, and awareness of apprenticeship.

This research is also important because many past initiatives toward expanding apprenticeship have failed due to lack of employer involvement. This research provides insight from business leaders on those factors that could cause them to engage with apprenticeship. This benefits many organizations

trying to expand apprenticeship, for example the White House initiative to expand apprenticeship, the State of North Carolina initiative to expand apprenticeship, and local county efforts to expand apprenticeship.

Given that this phenomenon has not previously been explored from the perspective of business leaders, there are many unresolved questions and further research required. From an action orientation, the priority items to address are understanding what prompted the leaders to give apprenticeship a try and encouraging leaders to consider the importance workforce development and skill acquisition with apprenticeship as a model that can be applied more broadly than it has (in the United States). Some of those things include projections of the workforce and labor market landscape. Leaders need to have a clearer idea of the potential disruptions already underway. The leaders need to understand how catastrophic the changes could be to their business in the near term (one to five years) and longer term.

The leaders need to be more aware of organizations that can support them in implementing apprenticeship and other workforce development programs and how connecting with other local businesses, educational, and community leaders provide support so they do not feel the risks associated with trying something new on their own.