

Factors That Influence Employment for Justice-Involved Youth: The Juvenile Justice Work Qualifications Scale

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ABSTRACT

Understanding employer perspectives toward necessary work qualifications for justice-involved youth and aligning transition planning and employment preparation activities with these perspectives is integral in increasing employment rates and decreasing recidivism for this population. This study investigated the psychometric properties of the Juvenile Justice Work Qualifications Scale (JJ-WQS), a measure of the importance of work qualifications for entry level employees previously involved in juvenile services from the perspective of employers. Analyses explored and confirmed the scale's factor structure, measured internal consistency, and examined group differences based on geographic location, business structure, and business size. Results indicated evidence of a four-factor structure, strong internal consistency, and mean differences based on company size. Implications for both research and practice are discussed including the need for further replication research on this instrument to confirm these findings and generate additional evidence of its efficacy with entry-level employers to inform supports for justice-involved youth in preparing for employment.

KEYWORDS: Juvenile Justice, Work Qualifications, Employers' Perspectives, Workforce Development

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INTRODUCTION

Formerly incarcerated youth have a high likelihood of continuing criminal behavior in adolescence and into young adulthood (Brame et al., 2018). Youth displaying criminal behavior may exhibit continued criminal behaviors, at least to some degree, and hinder their future work, school, and

family endeavors as adults (Carter, 2019). Relative to continued criminal activity, at least 45% of justice-involved youth are likely to be arrested for another crime after release (Wilson et al., 2003). Specifically, states have reported slightly more than half of youth who are incarcerated recidivate within one year of release. Being a justice-involved youth is a strong predictor for school dropout (Kirk & Sampson, 2013; Na, 2017) or even returning to a school setting post

release (Cavendish, 2014), with only eight percent of justice-involved youth earning any type of high school diploma in the three years post-release (Foley, 2001).

A primary goal of community reentry for youth involved with juvenile services is reduced recidivism (Griller Clark & Mathur, 2014; Griller Clark et al., 2011), both for successful individual outcomes and for the societal impact. The Justice Policy Institute (2020) estimates the cost of secure confinement of a justice-involved youth at \$588 per day, or \$214,620 per year, which represented a 44% increase from 2014. In an econometric model, Cohen and Piquero (2009) estimated the value of reducing a high-risk 14-year old’s propensity for criminal behavior to be between \$2.6 million and \$5.3 million dollars. Improving the employment outcomes of this high-risk population would increase the individual’s chance of achieving positive adult roles. Additionally, higher employment rates increase local, state, and federal tax revenue and reduce the likelihood of recidivism specifically for justice-involved youth, saving victim, court, and future incarceration costs, along with public safety infrastructure costs. To this end, this study investigates the psychometric properties of the Juvenile Justice Work Qualifications Scale (i.e., JJ-WQS), a measure of the importance of work qualifications for justice-involved youth from the perspective of employers. What follows is a review of literature, a description of the study methodology, and a discussion of the findings.

LITERATURE REVIEW

Ashford and Gallagher (2019) found that successful community reentry that includes employment is a protective factor for justice-involved youth and can reduce recidivism. Research indicates that justice-involved youth are less likely to

GLOSSARY

- JJ-WQS: Juvenile Justice Work Qualifications Scale
- EFA: Exploratory Factor Analysis
- CFA: Confirmatory Factor Analysis
- CFI: Comparative Fit Index
- TLI: Tucker Lewis Index
- RMSEA: Root Mean Squared Error of Approximation
- SRMR: Standardized Root Mean Square Residual
- ML: Maximum Likelihood
- FIML: Full Information Maximum Likelihood
- AIC: Akaike’s Information Criteria
- CPR: Cardiopulmonary Resuscitation
- OSHA: Occupational Safety and Health Administration
- SEM: Structural Equation Modeling
- IRT: Item Response Theory
- CTE: Career and Technical Education

find employment than their peers without justice involvement, though once they do find employment their satisfaction and outcomes are akin to their peers without previous justice system involvement (Carter, 2019; Latessa, 2012). The passage of the Workforce Innovation and Opportunity Act (Collins et al., 2021) has also emphasized the importance of job training, work experiences, and employment for high-risk youth, including justice-involved youth, to improve community reentry outcomes.

While research has focused on preparing justice-involved youth with the skills and behaviors needed to find and maintain employment upon exit, it is also important to understand the perspectives (i.e., attitudes, feelings, and past experiences) of employers toward hiring youth formerly involved with juvenile services to increase the likelihood that the skills being taught are in alignment with the needs and perspectives of employers. There have been some initial studies examining perspectives of employers and how they influence employment

outcomes for justice-involved youth, including a study by Pham and colleagues (2015) who found that 58% of employers were either likely or very likely to hire individuals previously involved in the juvenile justice system. In an updated study more recently, Unruh and Colleagues (2023) found that 69% of employers surveyed were likely or very likely to hire these individuals.

Over-Representation and Stigma of Criminal History

Other studies have found that stigmas related to incarceration, race, and personal factors influenced the willingness of employers to interview and hire potentially qualified candidates (Decker et al., 2015). Youth with violent crimes were also less likely to be interviewed compared to youth with non-violent offenses (Griller Clark et al., 2020). In addition, experience with the criminal justice system combined with a history of mental health challenges further negatively influenced perceptions (Batastini et al., 2017). Employers have also been shown to be more willing to hire justice-involved youth if the crime was a mistake and not an indicator of future behavior (Mathur et al., 2023). Employer perspectives on hiring justice-involved youth are important because positive employer attitudes are associated with improved outcomes for both finding and maintaining meaningful employment (Joseph et al., 2017) with reduced recidivism.

Black and Indigenous populations are over-represented in juvenile justice settings as compared to their white counterparts. Specifically, 42% of all youth in juvenile facilities are Black compared to 14% in the general population under age 18 (Sawyer, 2019). Although small in numbers, 3% of Native girls and 1.5% of Native boys are in juvenile facilities even though they comprise only 1% of all youth (Sawyer, 2019). Researchers estimate that 20% of youth in correctional facilities represent lesbian, gay, bisexual, transgender, queer or

questioning and other sexual identities (LGBTQ+) youth compared to four to six percent of the general youth population (Irvine & Canfield, 2015). The intersection of involvement in juvenile services, race/ethnicity, disability, and other marginalized populations creates a critical need to understand the most important work qualifications to prepare justice-involved youth accordingly.

Work Qualifications

In addition to understanding how likely employers are to hire justice-involved youth, understanding factors influencing the likelihood of hiring justice-involved youth is just as important. For example, justice-involved youth who are prepared with specific work qualifications (e.g., previous work experience, educational attainment, job skills, and “soft skills”) may be more likely to be hired than those without these qualifications. Understanding what work qualifications are more desired by employers can impact how justice-involved youth are prepared for employment and community reentry, as research has indicated that higher work qualifications increase employability for individuals convicted of a nonviolent offense (Cerde et al., 2015). These work qualifications may also mitigate social stigmatization in addition to increasing employability (Varghese et al., 2010).

Other studies have supported the idea that a lack of qualifications from justice-involved youth hinders employment prospects and that this lack of qualifications may be higher among this population than in the general population (Varghese et al., 2009, 2010). Even for those who have yet to be convicted, lower levels of qualifications were associated with fewer job prospects (Peoples, 1995). It has long been understood that formerly incarcerated individuals are perceived to experience challenges with language barriers, communication skills, and social skills (Rahill-Beuler & Kretzer, 1997); lower educational attainment than individuals without a criminal

history (Travis & Petersilia, 2001); and uneven and fragmented work histories (Holzer et al., 2003). These factors alone would understandably limit employment opportunities, but coupled with lack of appropriate qualifications can prove ever more burdensome.

There is initial evidence in the literature to suggest that qualifications influence hiring decisions, particularly when the qualifications are especially high. Swanson et al. (2012) found in their research that 42% of employers who had previously hired an individual who had been convicted of a criminal offense indicated that their qualifications for the job were the primary factor influencing their hiring decision. Other research has indicated that hiring an individual with relevant job skills was “very important” or “important” for 98% of the employers surveyed and professional qualifications or certifications were “very important” or “important” to 65% of employers (Haslewood-Pocsik et al., 2008). This study also found that personal attributes, or “soft skills” (e.g., honesty, reliability, and punctuality; Swanson et al., 2012), were rated almost as highly as job skills, suggesting that certifications alone are not the only determining factor.

Holzer et al. (2004) found that employers were more willing to hire formerly incarcerated individuals with work experience compared to those with no previous work experience. Varghese et al. (2009), in their examination of the interactive effects of ethnicity, criminal history, and job qualifications on employability, found that qualifications played a significant role in hiring recommendations and that formerly incarcerated individuals with higher qualifications were significantly more likely to be recommended for employment. Varghese et al. (2010) also found that formerly incarcerated applicants with higher qualifications received more workplace recommendations than those with lower qualifications. These studies also both found that higher levels of qualifications increased employment

recommendations at higher rates for individuals with lower level (i.e., non-criminal) offenses.

In general, higher levels of work qualifications lead to improved employment outcomes for formerly incarcerated individuals (Harrison and Schehr 2004; O’Connell et al. 2007). While these qualifications may not completely outweigh the negative effects of having a criminal or misdemeanor charge, there is evidence to suggest that higher rates of qualifications may at least mitigate some of the negative impact. Varghese et al. (2009) found that qualifications were not only impactful in increasing the employability of formerly incarcerated individuals, but also increasing employment-related recommendations, particularly for those with misdemeanor as opposed to criminal charges. Increasing the work qualifications for justice-involved youth may be one tangible pathway to mitigate bias in the employment process, improve community reentry outcomes, and ultimately reduce recidivism rates.

Current Study

Increasing the levels of work qualifications for justice-involved youth should be a priority in the effort to increase employment and decrease youth recidivism. To do this, it is necessary to understand what qualifications would be most influential on the decision of a potential employer to hire justice-involved youth. The purpose of this study, therefore, was to develop and validate the JJ-WQS and examine its psychometric properties. Developing this new measure could help support transition programs and Vocational Rehabilitation (VR) counselors in determining the most effective strategies for preparing justice-involved youth for employment and community reentry. Specifically, this study sought to answer the following research questions:

1. Does the JJ-WQS demonstrate acceptable construct validity?
2. Does the JJ-WQS demonstrate acceptable internal consistency?

3. What do group differences between geographic region and business size and structure suggest about the differences in work qualifications deemed most important?

METHOD

Sample

This study used the same sample as described in Unruh and Colleagues (2023) from the same survey of entry-level employers. Survey respondents were 1,469 entry-level employers from the United States. Demographic data for these survey respondents are presented in Table 1. Forty-eight percent of respondents identified as male, 51% as female, and 1% indicated another gender identity. Twenty-eight percent of respondents were between the ages of 18-34, 50% were between the ages of 35-54, and 22% were age 55 or older. Seventy-four percent of survey respondents identified as White, 13% identified as Black or African American, 6% identified as Asian or Pacific Islander, 2% identified as American Indian or Alaska Native, 1% identified as Multiracial, and 5% identified as “Other”. Eighty-two percent of respondents identified as non-Hispanic, 17% identified as Hispanic, and 1% indicated that they preferred not to answer.

Thirty-six percent of respondents were a General Manager or Supervisor, 23% were a Hiring Manager, 22% were the Owner/President/CEO, 9% were Human Resources Personnel, and 11% indicated “Other”. Of the 162 respondents who indicated “Other”, 56 provided a text description of their position. Responses were categorized as “Management and Leadership” (21), “Consulting” (4), “Administrative and Coordination” (5), “Finance and Analysis” (4), “Human Resources and Training” (5), and “Specialized Roles” (17; e.g., Chaplain, personal care attendant, attorney, technician). In

terms of business or company demographics, 11% were from Construction & Architecture, 11% from Health Care & Human Services, 11% from Information Technology, 10% from Retail/Sales, and 14% indicated “Other”. See Table 1 for a full list of business sectors represented. Of the 202 respondents who indicated “Other”, 184 provided a text description of their industry. Responses were categorized as “Healthcare and Human Services” (35), “Retail and Fashion” (25), “Government and Consulting” (37), “Trades and General Labor” (50), “Specialized Services” (37). Although some open responses in the categories for both position and industry overlap with choices provided, we did not combine open responses with categories presented in our analysis to honor the respondent’s belief that their position or industry was not adequately captured in the choices provided.

Thirty-eight percent of respondents were from the South, 24% from the West, 21% from the Midwest, and 17% from the Northeast. Sixty-two percent of businesses were independently owned for-profit businesses; 10% were a local ownership of a for-profit franchise; 9% were local, city, or state government; 8% were from a local branch of a national for-profit corporation, 7% were from a non-government not-for-profit, and 4% indicated “Other”. Twenty-four percent of businesses were between 10-50 employees, 21% were 500+ employees, 20% were between 101-499, 18% were less than 10, and 17% were between 51-100 employees.

Table 1

Demographic Characteristics of Business Represented by Survey Respondents (n = 1,469)

Description	n (%)
Position in business of Respondent	
Owner/President/CEO	319 (22%)
General Manager/Supervisor	529 (36%)
Hiring Manager	333 (23%)
HR Personnel	127 (9%)
Other	161 (11%)
Geographic Region	
Northeast	250 (17%)
Midwest	309 (21%)
West	352 (24%)
South	558 (38%)
Business sector represented	
Agriculture/Landscaping/Forestry	30 (2%)
Construction & Architecture	158 (11%)
Education & Training	92 (6%)
Arts, Audio/Video Technology & Comm.	36 (2%)
Financial Services and Banking	94 (6%)
Food Service	99 (7%)
Health Care & Human Services	166 (11%)
Hospitality & Tourism	40 (3%)
Information Technology	166 (11%)
Manufacturing	126 (9%)
Retail/Sales	150 (10%)
Advertising/Marketing	14 (1%)
Law, Public Safety, Corrections & Security	27 (2%)
Transportation, Distribution, & Logistics	69 (5%)
Other	202 (14%)
Structure of business	
Independently owned for-profit business	915 (62%)
Local ownership of for-profit franchise	143 (10%)
Local branch of national for-profit corporation	113 (8%)
Local, city, state government	135 (9%)
Non-government not-for-profit	112 (7%)
Other	51 (4%)
Size of business	
Less than 10	269 (18%)
10-50	354 (24%)
51-100	250 (17%)
101-499	287 (20%)
500+	309 (21%)

Measure

This study used data from a survey used in a larger study of employer perspectives toward hiring individuals previously involved with juvenile justice (Unruh et al., 2023). Design of the full survey instrument was informed by Pham et al. (2015) and Griller Clark et al. (2020), previous studies that have targeted the perspectives of employers toward issues of disclosure and hiring decisions for justice-involved youth. The survey was pilot tested with a sample size of approximately 140 respondents (10% of full sample size) to ensure content validity and that the survey worked as intended. Once pilot data was reviewed for accuracy, the full sample was collected. The final instrument (see Appendix A) comprised 24 questions across three sections: (1) demographic variables and business characteristics, (2) hiring practices regarding youth in the juvenile justice system, and (3) the impact of the COVID-19 pandemic on hiring practices. The survey took about 10 minutes to complete. Informed consent was provided through the first question on the survey instrument, and the study was approved by the institutional review board.

For the purposes of this study, we focused on data from the work qualifications section of the survey, referred to as the Juvenile Justice Work Qualifications Scale (JJ-WQS), comprised of thirteen items representing potential qualifications for entry level positions. Respondents were asked to rate whether possession of the qualification would have an impact on their decision to interview an applicant, indicating 1 (i.e., no impact on decision to interview), 2 (i.e., slight impact on decision to interview), 3 (i.e., moderate impact on decision to interview), or 4 (i.e., high impact on decision to interview). Each of the items can be seen in their entirety in Table 2.

Procedures

We contracted with Qualtrics, a third-party online survey platform and dissemination company which handled survey recruitment, participant incentives, and data collection for a contractual fee. We consulted Dillman (2007) for survey-size recommendations and determined a target sample size of approximately 1,400 respondents in order to be able to conduct both exploratory and confirmatory factor analyses. All potential respondents were screened by Qualtrics to ensure that they met the inclusion criteria of being an individual responsible for hiring decisions at their workplace and participants were asked to give informed consent via an approved human subjects research protocol prior to beginning the survey. No confidential or identifying information was collected during the survey. The final respondent pool included 1,469 respondents who met our inclusion criteria, and data collection took approximately three weeks. Response data was made available through the Qualtrics survey platform after the contracted fee was paid. Data for this study were pulled specifically from the work qualifications section of the full survey.

Data Analyses

This study was designed to quantitatively measure construct validity and internal consistency of the Juvenile Justice Work Qualifications Scale. Data were cleaned and screened upon receipt and all statistical analyses were conducted using R (Version 4.3.3; R Core Team, 2024) and the R-packages devtools (Version 2.2.1; Wickham et al., 2019), itemanalysis (Version 1.0; Zopluoglu, 2018), lavaan (Rosseel, 2012), matrixStats (Version 0.56.0; Bengtsson, 2020), psych (Version 1.8.12; Revelle, 2018), semPlot (Version 1.1.2; Epskamp, 2019), semTools (Version 0.5-2; Jorgensen et al., 2019), and tidyverse (Version 1.2.1; Wickham, 2017).

Table 2

Means and SDs of JJ-WQS Using Full Sample and Split Samples

Item	Full sample		Exploratory Factor Analysis (EFA) sample		Confirmatory Factor Analysis (CFA) sample	
	M	SD	M	SD	M	SD
1: Valid driver's license	2.67	1.27	2.62	1.30	2.72	1.23
2: High school diploma or equivalent	2.92	1.12	2.84	1.15	3.00	1.08
3: Pass a background check	3.07	1.08	3.00	1.11	3.12	1.04
4: Pass a drug test	3.03	1.20	2.94	1.23	3.11	1.16
5: First aid/CPR certification	1.99	1.33	1.97	1.36	2.01	1.29
6: ServSafe® Food Handler license	1.95	1.40	1.93	1.41	1.97	1.40
7: Completion of OSHA training	2.24	1.36	2.22	1.38	2.26	1.35
8: Microsoft Office certification	2.19	1.33	2.21	1.35	2.16	1.31
9: Computer-based certification	2.32	1.33	2.33	1.33	2.30	1.33
10: Industry-specific certification	2.53	1.26	2.54	1.25	2.51	1.26
11: Prior full-time work experience	2.81	1.16	2.79	1.16	2.82	1.16
12: Prior part-time work experience	2.65	1.11	2.63	1.13	2.68	1.09
13: Professional references	2.82	1.13	2.82	1.15	2.81	1.11

Construct Validity

Factor analysis techniques are used to establish structural validity, a component of construct validity, or the degree to which an assessment appropriately measures the constructs of interest (Haynes et al., 1995). These techniques, among others, most commonly include exploratory factor analysis (EFA), designed to determine if the assessment can be represented by groups of items called factors (Preacher & MacCallum, 2003) and confirmatory factor analysis (CFA) which is used to confirm the results of an EFA using a different set of data through structural equation modeling (SEM; Messick, 1995; Suhr, 2006). This study used both EFA and CFA to determine and then confirm the factor structure of the JJ-WQS.

Exploratory Factor Analysis. To identify the dimensions that may be evaluated from and factor structure of this measure, an exploratory factor analysis (EFA) was run using each of the thirteen work qualifications items from the survey with promax rotation. Scree plots and eigenvalues were examined to determine the appropriate number of factors as well as the amount of variance explained by the individual factors. Low factor loadings or cross-loadings were reexamined through CFA to determine which factors were most appropriate for each item.

Confirmatory Factor Analysis. Based on the results of the EFA, two CFA models were run to determine goodness of fit. Both models tested maintained the four-factor model determined by the EFA, with M1 testing a model with item 10 on factor three, and M2 testing a model with item 10 on factor four. Item 10 loaded poorly on factor three in the EFA and has a stronger theoretical fit with factor four. CFA models were run using maximum likelihood (ML) estimation, with full information maximum likelihood (FIML) for missing data (Yuan et al., 2012). Latent factors were standardized,

allowing free estimation of all factor loadings. The best fitting model was determined by examining fit statistics for overall fit overall fit (Kline, 2016). Fit statistics included chi-square goodness-of-fit χ^2 test, the Root Mean Squared Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), and the Standardized Root Mean Square Residual (SRMR). Chi-square values of $p > .05$ (statistically insignificant), RMSEA and SRMR values $< .05$, and CFI and TLI values $> .95$ demonstrate good model fit (Hu & Bentler, 1999). RMSEA and SRMR values $< .08$ and CFI and TLI values closer to .90 may demonstrate acceptable fit. An empirical test was conducted using Akaike's Information Criteria (AIC; Burnham & Anderson, 2004) and the model with the best fitting statistics was used for the remainder of analyses.

Internal Consistency

The full JJ-WQS instrument and each of the resulting constructs from the best-fitting CFA model were assessed for internal consistency using Cronbach's alpha (Bland & Altman, 1997) to determine their utility in representing unique constructs. Separate internal consistencies were calculated on the full sample, EFA sample, and CFA sample for comparison purposes. Cutoff criteria from Thorndike and Thorndike-Christ (2013) for assessments informing short-range decisions were used with $\alpha \geq .80$ considered good, values of $.70 \leq \alpha \leq .79$ considered acceptable, values of $.60 \leq \alpha \leq .69$ considered questionable, values of $.50 \leq \alpha \leq .59$ considered poor, and values of $\alpha \leq .49$ considered unacceptable.

Group Differences

Using the best-fitting model, factor invariance was tested to determine if there were significant variances between items across geographic location, business size, and business structure (Ullman, 2006). Factor invariance testing provides four model comparisons to determine if factor structure, loadings, intercepts, and item means can be assumed equal across

versions (i.e., configural, metric, scalar, and residual models), and separate invariance tests were run on each of the three predictor variables.

RESULTS

RQ 1: Construct Validity

To address research question one regarding the construct validity of the JJ-WQS, we randomly split our sample and ran an EFA on the first half ($n = 734$) and a CFA on the second half ($n = 735$). The purpose of the split sample was to run an EFA to identify the factor structure of the JJ-WQS using a randomly generated subset of the sample, and then subsequently a CFA to confirm that factor structure on the other half of the sample. Table 2 displays means and standard deviations for items on the JJ-WQS for the full sample, EFA sample, and CFA sample.

An Exploratory Factor Analysis (EFA) was conducted using Principal Axis Factoring (PAF) on the first half of the split sample ($n = 734$) with oblique (ProMax) rotation. After examination of Eigenvalues and scree plots a four-factor solution was determined with items loading on a Personal History ($N = 4$), Safety ($N = 3$), Technical Skills ($N = 2$), or Prior Experience ($N = 4$) construct. All items loaded cleanly on one factor without the need to remove any items for cross-loading or poor factor loadings, and all items loaded greater than .30 on one factor. The EFA model accounted for a total of 60% of the overall variance with the Personal History construct accounting for 15% ($k = 1.97$), the Safety construct accounting for 16% ($k = 2.12$), the Technical Skills construct accounting for 12% ($k = 1.56$), and the Prior Experience construct accounting for 17%). See Table 3 for pattern matrix and associated factor loadings.

Next, the solution found from the EFA was tested using CFA, testing two models. M1 tested the exact

solution found from the EFA, while M2 tested a slightly different theory based on examination of factors. While item 10 (i.e., “industry-specific certification”) loaded onto factor four (i.e., Prior Experience), in practice the item is more closely aligned with factor three (i.e., Technical Skills). For that reason, an alternate hypothesis was tested using M2.

The results of the CFA model analysis can be seen in Table 4. While fit statistics indicate that both models fit the data, M2 had a stronger overall model fit with a χ^2 of 288.33 ($p < .001$), a CFI of .951, a TLI of .935, RMSEA of .073 and SRMR of .045, all within the range of good fitting models. In order to empirically determine that M2 is a better fit than M1, Akaike’s Information Criteria (AIC) values were examined. Δ AIC values indicate that M2 is indeed the best fitting model and thus this model was used for the remaining analyses. Table 5 presents factor loadings (B), standard errors (SE), z-values, standardized coefficients (Beta), and p values for M2 and Figure 1 demonstrates a path diagram. Inter-factor correlations between latent factors in M2 were all moderate ($.50 < r < .70$) or low ($.30 < r < .50$).

Figure 1

CFA Path Diagram for JJ-WQS

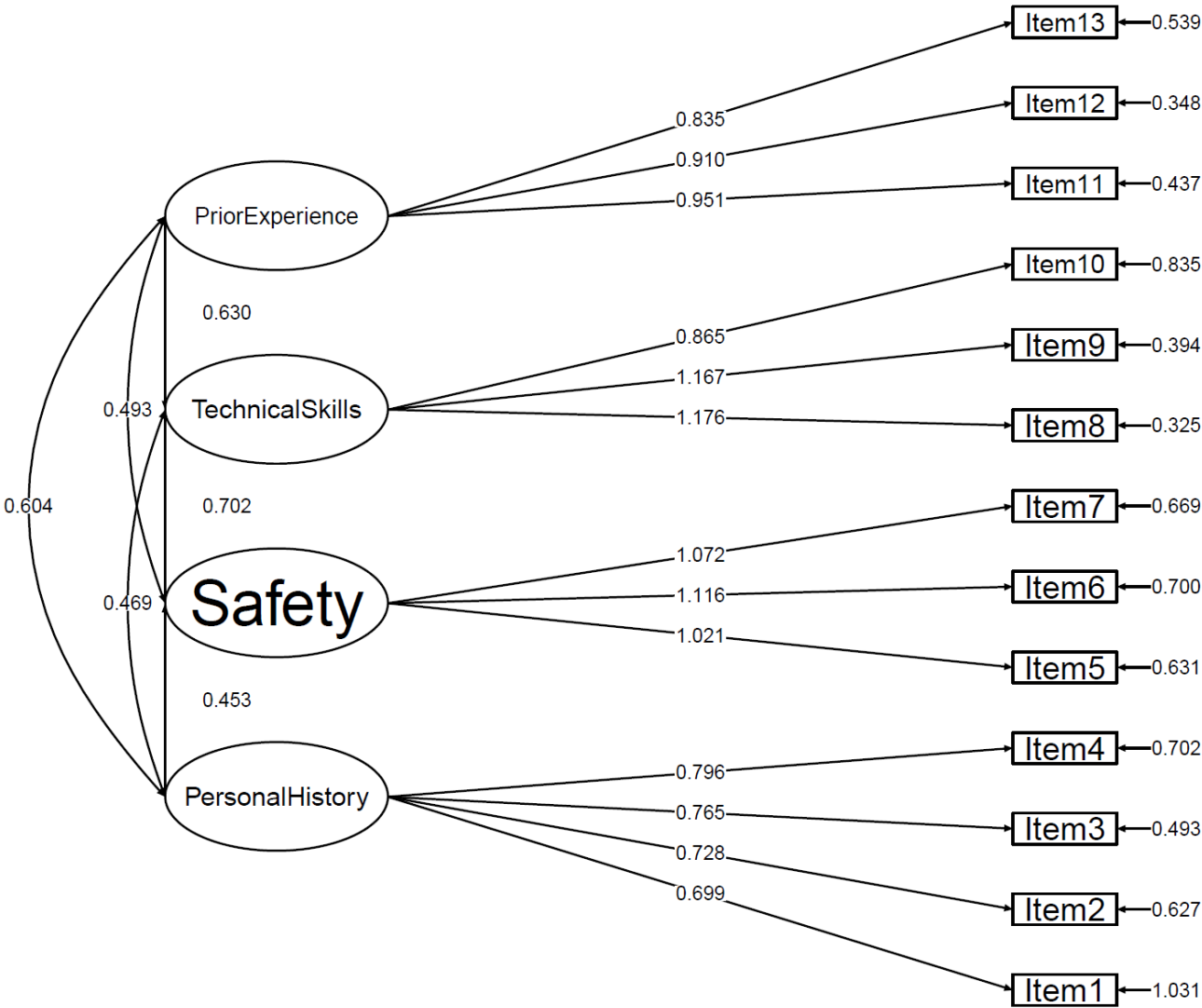


Table 3

Pattern Matrix of EFA Items and Factors

Item	Personal History	Safety	Technical Skills	Prior Experience
1: Valid driver's license	0.61			
2: High school diploma or equivalent	0.77			
3: Pass a background check	0.73			
4: Pass a drug test	0.64			
5: First aid/CPR certification		0.72		
6: ServSafe® Food Handler license		0.94		
7: Completion of OSHA training		0.78		
8: Microsoft Office certification			0.59	
9: Computer-based certification			1.06	
10: Industry-specific certification				0.38
11: Prior full-time work experience				0.95
12: Prior part-time work experience				0.88
13: Professional references				0.56

Table 4

CFA Model Fit and Factor Invariance across Region, Structure, and Size for JJ-WQS

Indicator of Model Fit						Selection	
Model	χ^2 (df), <i>p</i>	CFI	TLI	RMSEA	SRMR	AIC	Δ AIC
M1	388.29 (59), <.001***	.930	.907	.087	.054	26,467.97	99.97
M2	288.33 (59), <.001***	.951	.935	.073	.045	26,368.00	0.00
Measurement Invariance							
Model	χ^2 (df), <i>p</i>	CFI	Δ CFI	RMSEA	Δ RMSEA	$\Delta \chi^2$	Tenable?
Geographic Region							
Config.	495.61 (236), --	.945	--	.077	--	--	--
Metric	545.51 (263), .005**	.941	.005	.076	.001	49.900	No
Scalar	581.06 (290), .125	.939	.002	.074	.003	35.552	Yes
Resid.	601.16 (302), .065	.937	.002	.073	.000	20.092	Yes
Business Structure							
Config.	775.75 (354), --	.914	--	.099	--	--	--
Metric	828.82 (399), .191	.913	.002	.094	.005	49.900	Yes
Scalar	887.47 (444), .083	.910	.003	.090	.003	35.552	Yes
Resid.	933.60 (464), .001**	.905	.005	.091	.001	20.092	No
Business Size							
Config.	602.09 (295), --	.936	--	.084	--	--	--
Metric	645.95 (331), .173	.934	.002	.080	.004	43.864	Yes
Scalar	712.47 (367), .001**	.928	.006	.080	.000	66.520	No
Resid.	756.93 (383), <.001***	.922	.006	.081	.001	44.455	No

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. χ^2 = chi-square goodness of fit, CFI = Comparative Fit Index, RMSEA

= Root Mean Square Error of Approximation.

Table 5

Factor Loadings of Items on Latent Factors for JJ-WQS

Latent Factor	Indicator	B	SE	Z	Beta	sig.
Personal History	Valid driver's license	0.699	0.048	14.642	0.567	<.001***
Personal History	High school diploma	0.728	0.040	18.132	0.677	<.001***
Personal History	Pass background	0.765	0.038	20.226	0.737	<.001***
Personal History	Pass drug test	0.796	0.043	18.615	0.688	<.001***
Safety	First aid/CPR	1.021	0.043	23.886	0.789	<.001***
Safety	ServSafe® license	1.116	0.046	24.353	0.800	<.001***
Safety	OSHA certification	1.072	0.044	24.119	0.795	<.001***
Technical Skills	Microsoft Office cert.	1.176	0.039	30.173	0.900	<.001***
Technical Skills	Advanced tech. cert.	1.167	0.040	29.228	0.881	<.001***
Technical Skills	Industry-specific cert.	0.865	0.042	20.390	0.687	<.001***
Prior Experience	Prior full-time work	0.951	0.037	25.509	0.821	<.001***
Prior Experience	Prior part-time work	0.910	0.035	26.257	0.839	<.001***
Prior Experience	References	0.835	0.037	22.301	0.751	<.001***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. B = unstandardized factor loading, SE = Standard Error, Z = z-value, Beta = standardized factor loading.

Table 6

Reliability of JJ-WQS Scales Using Full Sample and Split Samples

Scale	Item n	Full sample α	EFA sample α	CFA sample α
Work Qualifications Scale (full)	13	0.89	0.90	0.89
Personal History	4	0.76	0.75	0.76
Safety	3	0.84	0.84	0.84
Technical Skills	2/3	0.84	0.83	0.86
Prior Experience	3/4	0.84	0.83	0.84

Note. α = Cronbach's alpha

RQ 2: Internal Consistency

Research Question 2 involved an examination of the reliability, or internal consistency, of the measure and its composite constructs. Using Cronbach's alpha, Table 6 reports these reliabilities and includes a sample breakdown with the full sample α , EFA sample α , and CFA sample α all reported separately. The Technical Skills scale is listed with an item n of "2/3" and the Prior Experience scale is listed with an item n of "3/4" due to the fact that the EFA sample reliability includes two items in the Technical Skills scale and four items in the Prior Experience scale, while the CFA sample reliability includes three items in each, as described in the previous section. All scales and subscales across all three distinct samples demonstrated "good" (i.e., a greater than or equal to .80) or "acceptable" (i.e., a greater than or equal to .70) reliability. The full measure has a reliability of .89 on the full sample, .90 of the EFA sample, and .89 on the CFA sample, each indicating that the full measure is highly reliable.

RQ 3: Group Differences

Research Question 3 involves an analysis of group differences on the JJ-WQS between geographic region, business size, and structure and what these differences might suggest about the differences in work qualifications deemed most important. In order to test these group differences, we ran tests of factor invariance, the results of which can be seen in Table 4. Regarding region, the results indicate that while the factor structure cannot be assumed equal across geographic region, item intercepts, means, and residuals can be assumed equal. Regarding business structure, the null results of the configural, metric, and scalar models indicates that factor structure, loadings, and means can be assumed equal across all business structures. However, the invariance tests by business size resulted in significant results for the scalar and residual models, indicating that while the factor structure and loadings can be considered equal

across business sizes, there are differences by business size on item means and intercepts.

In order to better understand these differences, we examined item means by business size (i.e., less than 10 employees, 10-50 employees, 51-100 employees, 101-499 employees, and 500+ employees). These means and standard deviations can be seen in Table 7. Because the invariance testing was done only on the CFA sample, the total sample size was $n = 735$. Individual n sizes for each business size category are presented in Table 7. According to the results, businesses with 51-100 employees are less likely to require a valid driver's license and First Aid/CPR certification; and OSHA certification, Microsoft Office certification, and a specific industry certification all appear to be more important the larger the company is. Additionally, prior FT work is much less important for small companies (i.e., less than 10 employees), but prior PT work seems to be more equally valued across company size, though still less important for small companies. The results indicate that in the aggregate, larger companies are more likely to extend an interview to an individual previously involved in Juvenile Services if they have necessary work qualifications.

Table 7

Means and Standard Deviations by Company Size on CFA Sample

	< 10		10-50		51-100		101-499		500+	
	(n = 127)		(n = 182)		(n = 116)		(n = 159)		(n = 151)	
Indicator	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Valid license	2.92	1.27	2.70	1.22	1.59	1.26	2.67	1.17	2.72	1.27
HS diploma	3.01	1.13	2.88	1.14	2.99	0.96	2.98	1.06	3.15	1.05
Background	2.98	1.17	2.95	1.15	3.22	0.90	3.21	0.98	3.33	0.88
Pass drug test	3.00	1.24	3.14	1.15	3.00	1.23	3.13	1.16	3.23	1.02
First aid/CPR	1.79	1.28	1.87	1.23	1.97	1.20	2.08	1.38	2.29	1.31
ServSafe®	1.62	1.34	2.14	1.42	1.94	1.34	1.97	1.43	2.07	1.38
OSHA cert.	1.98	1.36	2.32	1.37	2.21	1.27	2.26	1.35	2.45	1.36
Office cert.	1.67	1.27	2.03	1.33	2.25	1.29	2.33	1.36	2.48	1.23
Tech. cert.	1.87	1.30	2.10	1.31	2.40	1.25	2.40	1.35	2.72	1.29
Industry cert.	2.18	1.31	2.45	1.26	2.56	1.10	2.61	1.26	2.72	1.28
Prior FT work	1.72	1.46	2.77	1.25	2.75	1.15	2.91	1.09	2.92	1.13
Prior PT work	2.53	1.09	2.65	1.15	2.66	0.97	2.69	1.08	2.83	1.09
References	2.65	1.20	2.69	1.18	2.85	1.02	2.86	1.04	3.03	1.07

Note. Factor means reported as average of item scale for ease of interpretation. 1 = No impact, 2 = Slight impact, 3 = Moderate impact, 4 = High impact.

DISCUSSION

The purpose of this study was to develop and evaluate the psychometric properties of the Juvenile Justice Work Qualifications Scale (JJ-WQS), a tool for assessing employer perspectives toward entry-level work qualifications for justice-involved youth. A tool that accurately assesses employer perspectives toward these qualifications may allow for better understanding of differences in perspectives across business characteristics (e.g., business size, industry, and structure) and can inform practices within juvenile services and transition and workforce programs that target justice-involved youth to decrease recidivism, increase employment rates, and improve community reentry outcomes. Results suggest the instrument is valid and reliable at assessing employer perspectives toward necessary work qualifications for entry-level positions.

Our answer to research question 1 regarding the construct validity of the JJ-WQS is that the instrument is best represented by a four-factor solution (i.e., personal history, safety, technical skills, and prior experience), both as determined by the EFA and confirmed by the CFA. The CFA resulted in “good” construct validity. This factor structure helps organize the 13 work qualifications into four groups of related items, allowing users to not only evaluate mean scores on individual items, but on groups of items as well. Our answer to research question 2 regarding the internal consistency, or reliability, of the JJ-WQS is that the full measure and each of the four scales (i.e., factors) demonstrate acceptable (i.e., personal history) or good (i.e., full measure, safety, technical skills, and prior experience) internal consistency, implying that the full measure and scales effectively measure what they are intended to measure.

Our answer to research question 3 regarding JJ-WQS group differences according to region,

business size, and business structure is there are no statistically significant differences on mean scores on the JJ-WQS according to geographic region or business structure, but business size might impact which qualifications employers are more likely to expect of entry-level employees. Prior experience is less important for small companies compared to companies of other sizes, and larger companies are more interested in industry-specific certifications, which is logical given that larger companies tend to have more policies and procedures in place to enforce required qualifications for entry-level employees. More investigation should be done on the question of how business characteristics impact qualification requirements.

Limitations

There are several limitations to this study that impact the generalizability of the findings. The first of which concerns employment policies relative to justice-involved youth which are typically enforced at the state level as opposed to federally, which may have influenced survey responses. We tracked geographic location regionally and not by state, so these policy influences are not easy to track given our methodology. Another limitation related to survey design is that responses were not limited by the type of education required to work at the company, so even if an entry-level position required an advanced degree, the participant was still eligible to complete the study. Given that justice-involved youth typically have lower educational attainment (e.g., high school diploma or equivalent, or no completion document), this may limit the relevance of some of the survey responses. Furthermore, business demographic characteristics may have limited explanatory power in this study given the wide range of interpretations. For example, the size of a business may look very different and mean different things across industries.

Additional limitations relative to the sampling scheme include lack of response rate, incentive-

zation, and sampling bias. Because the survey was distributed by Qualtrics we are unable to calculate a response rate, limiting the generalizability of the findings. A response rate may allow us to better understand the level and type of sampling bias introduced to our survey, as well as allow us to develop specific targeted recruitment efforts to ensure full representation across business characteristics in our study. Qualtrics was also responsible for incentivizing respondents for their participation which may have introduced additional sampling bias into our study, as there may be quantifiable differences between those who responded and those who didn't, though we are unable to detect these differences or the impact of sampling bias.

Additional sampling limitations include social desirability bias, or the tendency of respondents to answer in a way as to avoid judgment and seem favorable toward justice-involved youth. While our study was conducted through an anonymous survey, we cannot be certain it is free from this bias and that employers don't act in ways that contradict their reporting on this survey. Finally, we acknowledge that in this study we only asked about perceptions of qualifications of justice-involved youth and not of youth in general, making it impossible to make a comparison between the two groups and ultimately limiting generalizability.

Implications for Research

The findings from this study lead to several implications for future research studies, primarily concerning replication and the exploration of group differences. First, future research should replicate this study to confirm the findings, both regarding the factor analysis and the relative mean scores on the importance of specific work qualifications. Future studies may consider focusing on CFA and SEM techniques to confirm the four-factor solution, though studies with large enough samples may consider attempting to replicate the EFA findings as well. Studies should also test invariance with variables not

tested in this investigation, including industry of respondent. Refinement of individual items on the JJ-WQS using techniques such as Item Response Theory (IRT) may also contribute to an improvement in the utility of the instrument. Models associated with IRT are generally better able to allow for the separation between respondent characteristics and item characteristics.

Future research studies involving the JJ-WQS should also involve a deeper inquiry into group differences. The factor invariance testing in this study revealed some differences in mean scores according to business size, but studies with more targeted and sophisticated methodological approaches may reveal additional differences according to business characteristics (e.g., size, structure, location, industry, previous involvement with the justice system, etc.) not revealed in this study. For instance, roughly 80% of the businesses represented in our sample were a "for-profit" business, and testing differences between this group and non-profit businesses may yield informative results. Future studies may also consider interaction effects within logistic regression models to determine if multiple demographic characteristics taken together impact employment decisions. These analytic approaches may also allow for a better understanding of the differences themselves and what they reveal both about how the instrument performs across various business characteristics, but also about how businesses may vary in what qualifications are most desired by entry-level employees. The findings of these analyses may have additional practice implications for supporting justice-involved youth in achieving successful community reentry and employment outcomes.

Another line of inquiry could be to test the JJ-WQS measure in a predictive model by assessing justice-involved youth on these skill and achievement areas and then measuring employment and recidivism outcomes in six months, one year, or more. The measure could also be tested as a planning

tool for juvenile services and workforce preparation personnel to see its social validity and usefulness in supporting the re-entry process. Further research should also employ qualitative and mixed methods approaches for a deeper understanding of employer perspectives of work qualifications for justice-involved youth and may consider how these perceptions compare with perceptions of qualifications for youth in general.

Implications for Practice

As noted, employment is a protective factor for justice-involved youth and has been demonstrated to reduce recidivism (Ashford & Gallagher, 2019; Mathur & Griller Clark) and therefore it is critical that juvenile services personnel ensure that justice-involved youth are adequately prepared for employment postrelease. The findings of this study have important implications for how to best prepare these youth to find and maintain meaningful employment, notably that the JJ-WQS introduces a new tool for transition planning teams. The tool can be used within a multifaceted and comprehensive transition assessment process to determine which qualifications justice-involved youth should be working toward while still receiving facility-based services to increase the likelihood of meaningful employment post release.

While this study validated the instrument with a large, representative, nation-wide sample, transition planning teams (including transition specialists, vocational rehabilitation counselors, juvenile facility staff, justice-involved youth, and families) may use this tool with employers in their local areas to better understand what employers that may interview their students are looking for in terms of employee qualifications. The tool may also be used with various employer groups to understand differences according to business characteristics. Understanding how business size, structure, location, and other characteristics impact their desired qualifications

may allow justice-involved youth to align their employment preparation with the requirements of their specific industry, size of business, and other characteristics.

Mean scores on the JJ-WQS from this study may also inform transition teams as to specific qualifications that they should support justice-involved youth to obtain. It can also be used as a re-entry planning checklist to support a youth's transition process. While transition planning teams have less control over some of the most highly desired qualifications (i.e., ability to pass a background check), employers in this survey noted the importance of a high school diploma or equivalent, prior employment experience, and ability to provide references from experienced professionals. These personnel can coach their students and clients in achieving and utilizing these milestones for re-entry. Additionally, since employers value the ability to pass a drug screening, re-entry programming should also support youth to be substance free through access to substance abuse support services. To support, justice-involved youth in employment preparedness, re-entry planning and workforce preparation teams and juvenile services staff should emphasize Career and Technical Education (CTE), occupational courses, work-based learning, and vocational rehabilitation to provide justice-involved youth with these highly desired qualifications to increase their employability. Finally, the findings relative to the most important qualifications may inform future intervention and curriculum development to ensure that there are research- and evidence-based practices for justice-involved youth that align with employer perspectives toward necessary work qualifications.

CONCLUSION

Being a justice-involved youth is a strong predictor for school dropout and recidivism, and therefore a primary goal of community reentry for these youth is increasing rates of obtaining and maintaining meaningful employment to reduce recidivism and improve life outcomes. An integral part of this work is better understanding employer perspectives toward necessary work qualifications for justice-involved youth, and aligning employment preparation supports with this information. The purpose of this study, therefore, was to develop and investigate the psychometric properties of the Juvenile Justice Work Qualifications Scale (JJ-WQS), a measure of the importance of work qualifications for justice-involved youth. Results indicated evidence of a four-factor structure, strong reliability, and mean differences according to company size. This new measure may support re-entry programs in determining relevant strategies for preparing justice-involved youth for successful employment outcomes.

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DECLARATION OF INTEREST

On behalf of all authors, the corresponding author states that there are no conflicts of interest to disclose.

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Appendix A

Survey: Employer Perceptions of Applicants with a History in the Juvenile Justice System

Section I. Demographic Variables and Business Characteristics

1. Gender Identity (select one)
 - a. Man
 - b. Non-binary
 - c. Woman
 - d. Prefer to self-describe:
2. Age (select one)
 - a. 18-34
 - b. 35-54
 - c. 55+
3. Geographic Region (select one)
 - a. Northeast
 - b. Midwest
 - c. West
 - d. South
4. Race/Ethnicity (select all that apply)
 - a. American Indian or Alaska Native
 - b. Asian or Pacific Islander
 - c. Black or African American
 - d. White
 - e. Prefer Not to Answer
 - f. Other:
5. What industry do you work in? Select one.
 - a. Agriculture/Landscaping/Forestry
 - b. Construction & Architecture
 - c. Education & Training
 - d. Arts, Audio/Video Technology & Communication
 - e. Financial Services & Banking
 - f. Food Service
 - g. Health Care & Human Services
 - h. Hospitality & Tourism
 - i. Information Technology
 - j. Manufacturing
 - k. Retail/Sales
 - l. Advertising/Marketing
 - m. Law, Public Safety, Correction & Security
 - n. Transportation, Distribution & Logistics
 - o. Other:

6. What is your position? Select one.
 - a. Owner/President/CEO
 - b. General Manager/Supervisor
 - c. Hiring Manager
 - d. HR Personnel
 - e. Other:
7. What is the ownership structure of your business (i.e., independent for profit, franchise, local branch, government, or non-profit)? Select one.
 - a. Independently established, owned and operated for-profit business
 - b. Local ownership of a regional or nation for-profit franchise (e.g., McDonald's, Holiday Inn, Jiffy Lube)
 - c. Local branch of a national for-profit corporation (e.g., Wells Fargo, CVS, Safeway)
 - d. Local, city, state government (e.g., fire department, utilities, general government offices)
 - e. Non-government non-for-profit (e.g., church, charity, charitable thrift shop, animal shelter, educational organization)
 - f. Other:
8. What is the number of employees at your work site? Select one.
 - a. Less than 10
 - b. 10-50
 - c. 51-100
 - d. 101-499
 - e. 500+
9. What is the minimum level of education/experience required for your company? Select one or indicate years of experience.
 - a. Non-graduates
 - b. GED
 - c. High school diploma
 - d. Associate
 - e. Bachelor
 - f. Master
 - g. Doctoral
 - h. Years of experience:
 - i. Other:
10. What is the entry-level wage at your work site? (empty text box)
11. Have you ever been convicted/adjudicated for a criminal offense? Select all that apply.
 - a. No
 - b. Yes, I was convicted of at least one misdemeanor crime as a juvenile
 - c. Yes, I was convicted of at least one felony crime as a juvenile
 - d. Yes, I was convicted of at least one misdemeanor crime as an adult
 - e. Yes, I was convicted of at least one felony crime as an adult
 - f. Other:

12. Have any of your close family members or close friends ever been convicted/adjudicated for a criminal offense? Select all that apply.
- No
 - Yes, someone close to me was convicted of at least one misdemeanor crime as a juvenile
 - Yes, someone close to me was convicted of at least one felony crime as a juvenile
 - Yes, someone close to me was convicted of at least one misdemeanor crime as an adult
 - Yes, someone close to me was convicted of at least one felony crime as an adult
 - Other:

Section II. Hiring Practices Regarding Youth in the Juvenile Justice System

13. In the past or currently, has your business or organization hired anyone who has been convicted of a crime as an **adult**? Select one.
- Yes
 - No
 - Not sure/Don't know
14. In the past or currently, has your business or organization hired anyone who has been convicted of a crime as a **juvenile**? Select one.
- Yes
 - No
 - Not sure/Don't know
15. If given the opportunity in the future, how likely would you be to hire applicants who have been involved in the juvenile justice system? Select one.
- Very likely
 - Likely
 - Not likely
 - Not sure
16. How important are the following factors in your decision to hire young persons who have been involved in the juvenile justice system?

	Not important	Somewhat important	Important	Very important
My company's policy on hiring applicants who have a criminal record				
The type of position for which the youths are applying (e.g., dishwasher vs. cashier)				
The nature of the crime the youths have committed (e.g., theft vs. sex offense)				
My concern about liability issues for my business/company				
My belief in giving second chances to those who have turned their lives around				
The individual has been bonded through the federal program				

17. Even if juveniles are “adjudicated” of crimes as opposed to convicted, should youth disclose their prior juvenile criminal history when applying for a job? Select one.
- No, they should not disclose their prior juvenile justice involvement
 - Yes, they should disclose their prior juvenile justice involvement
 - I am not sure, it depends on the circumstances
18. If a youth chooses to disclose their involvement in the juvenile justice system, when would be the most appropriate time? Select one.
- On the application
 - In a cover letter, accompanying the application
 - During the interview
 - After they’ve been hired
 - They should never disclose
 - Other, please describe:
19. Please rate the following work qualifications on how likely they would be to increase the chances of extending an interview to an applicant who has disclosed being involved in juvenile services:

	No impact	Slight impact	Moderate impact	High impact
Valid driver’s license				
High school diploma or equivalent				
Pass a background check prior to employment				
Pass a drug test prior to employment				
First aid/CPR certification				
ServSafe® Food Handler license				
Completion of OSHA (Occupational Safety and Health Administration) training				
Microsoft Office certification				
Advanced computer-based technology certification				
Industry-specific certification				
Prior full-time work experience in your industry				
Prior part-time work experience in your industry				
References from experienced professionals and/or managers at other business in your industry				

Section III. Impact of the COVID-19 Pandemic on Hiring Practices

20. What is the level of labor shortage and/or lack of qualified workers to fill needed positions in your company? Select one.
- No problem whatsoever
 - Slight problem
 - Moderate problem
 - Severe problem
21. Have you experienced any labor shortage and/or lack of qualified workers to fill needed positions in your company since the start of the COVID-19 Pandemic? Select one.
- Yes
 - No
 - Don’t know

22. If so, what is the level of the labor shortage/lack of qualified workers experienced by your company since the start of the COVID-19 Pandemic? Select one.
- a. Only small impact on our company
 - b. Slight impact on our company
 - c. Moderate impact on our company
 - d. Significant impact on our company
23. Has this labor shortage changed your practices for hiring individuals involved in juvenile or adult corrections? Select one.
- a. Yes
 - b. No
 - c. Don't know
24. What strategies if your company currently implementing to fill the workforce gap in your company? (open-ended text box).