JRSA
Justice Research and Statistics Association

Results from a State Statistical Analysis Center Training and Technical Assistance Needs Assessment Survey

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Introduction

In 2014, as part of the Justice Research and Statistics Association (JRSA) strategic planning process, seven committees[1] were established to assist JRSA in developing new ways more effectively to achieve the agency's mission *to improve the administration of criminal and juvenile justice through the objective analysis of data and the dissemination of research that informs policy and practice.* One of these committees, the Training and Capacity Building (TACB) committee, was charged with building the capacity of JRSA and the SACs to foster relationships, access new data sources, manage data, conduct analyses, inform criminal and juvenile justice policy, and expand the use of evidence-based practices.

In order to fulfill these charges, the TACB committee first needed to get a sense of the various needs of the SACs. As a result, the TACB committee undertook the design and implementation of a needs assessment survey (see Appendix A). The foundation for this survey was a document produced by Stan Orchowsky and Jeff Sedgwick outlining the components of SAC Capacity across four areas - relationships, core statistical and data analytic capacities, communication and dissemination, and ethical conduct (see Appendix B).

Once the survey was reviewed and approved by all TACB committee members, an email containing a link to the online survey was sent to SAC directors in early May 2016. SAC directors were instructed to disseminate the email to the appropriate staff members (e.g., those who work on statistical and/or analytic projects). The survey was open for three weeks with a total of 48 individuals completing the survey.

The survey presented participants with 52 specific types of skills, knowledge, and abilities that fell into eight general areas. The response options were consistent across all areas and included a five-point Likert scale where participants could select no need (1), low need (2), moderate need (3), high need (4) or non-applicable (NA-5).

In light of the limited number of JRSA staff who can participate in and support the production of webinars, a second survey was produced. This survey, titled "Inventory of Expertise" (see Appendix C), was almost identical to areas listed in the needs assessment survey; it requested respondents to select "yes" if they identified areas in which they had expertise *and* were interested in providing assistance to JRSA in the construction and/or production of webinars or other useful resources for that area. Thirty-three people completed the Inventory of Expertise survey.

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[1] Committees are staffed with one liaison from the Executive Committee and one or two JRSA staff members. Committee members vary in number and are drawn from among Directors and staff from the state Statistical Analysis Centers (SAC) as well as other JRSA members.

Results

Needs Assessment Survey

Table 1 presents a summary of participant responses to the needs assessment survey. For ease of interpretation, the response options were recoded into a dichotomous variable where moderate and high need were recoded as "1" and no, low, or NA were recoded as "0."[2]

Among the 52 types of knowledge, skills, and abilities listed (across seven of the eight general areas), 26 were identified as having 50% or more of respondents reporting a moderate or high need. Only one section, **Skill in grant writing and management**, had no specific knowledge, skill or ability component needed by 50% or more of respondents. However, 47% of respondents did report a moderate or high need for *Working with Research Partners* (e.g., data sharing agreements and contract language).

The three top areas of need all fell under the section **Skill in applying various analytic techniques and interpretation** and include *propensity score matching* (67%), *temporal analysis* (67%), *and data reliability and reduction* (64%). Other knowledge, skills, and abilities under this area identified by 50% of respondents as a moderate or high need included *hierarchical linear modeling* (62%), *spatial analysis* (59%), *structural equation modeling* (58%), *regression discontinuity design* (58%), *nonparametric statistics* (57%), *regression analysis* (57%), *Bayesian theory and missing data* (57%), and *sampling* (50%).

Three areas under **Knowledge of criminal justice theory, data, and procedures, as well as current evidence-based practices** had 50% or more respondents reporting a moderate or high need including *criminal justice data* (59%), *evidence-based programs and practices* (59%), and *criminal justice processes* (52%).

Under the section **Ability to access, collect, and manage data,** one area was identified – *data quality management and validation techniques* with 59% reporting a moderate-to-high need.

Under the section **Knowledge of various research techniques,** four specific areas were found to have 50% or more of respondents reporting a moderate or high need. These areas included *multi-level research* (66%), *process evaluation and logic models* (64%), *outcome/impact evaluation* (64%), and *quantitative approaches* (52%).

Two of the four areas under **Ability to effectively present and disseminate data, analysis, and research findings** had 50% or more of respondents indicating a moderate or high need; these included *data visualization* (55%) and *making data/information available online* (55%).

As mentioned earlier, none of the four types of knowledge, skills or abilities under **Skill in grant writing and management** surpassed 50% of respondents identifying a moderate or high need.

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[2] Non-applicable responses were combined with no or low need responses because a response of non-applicable can be considered an absence of need.

Both components under **Skill in project management,** *overall project management approaches* (51%) and *creating timelines and project plans* (52%) had slightly more than half of respondents reporting a moderate or high need for training in these areas.

Under the final section, **Ability to utilize various software tools to support research and analysis tasks,** three of the eight areas had more than half of respondents reporting a moderate or high need; these included *visualization tools* (59%), *statistical/analytical tools* (55%), and *GIS/mapping* (55%).

Table 1. Summary of Responses to Survey Questions: NA/ o/Low Need and Moderate/High Need* (N = 58)

	NA or No/Low Need	Moderate/High Need	Total**	# ID'd High Need
1. Knowledge of criminal justice theory, data, and procedures, as well as current evidence-based practices				
Criminal justice theories (e.g., legitimacy, strain theory, broken windows)	64%	36%	100%	3
Criminal justice data (e.g., NIBRS, criminal history records, federal reporting programs)	**41%**	**59%**	**100%**	**15**
Criminal justice processes (e.g., courts, corrections, probation, parole, youth services)	**48%**	**52%**	**100%**	**8**
Institutional review board (e.g., rules, regulations, writing application)	72%	28%	100%	6
Evidence-based programs and practices (resources, risk assessment, and fidelity)	**41%**	**59%**	**100%**	**12**
2. Ability to access, college, and manage data				
Collecting primary data	60%	40%	100%	6
Creating and managing a spreadsheet	85%	16%	101%	4
Creating and managing a database	72%	28%	100%	5
Data merging methods	55%	45%	100%	7
Data quality management and validation techniques	**41%**	**59%**	**100%**	**11**
Issues with data security, storage, and confidentiality	57%	43%	100%	5
3. Knowledge of various research techniques				
Quantitative approaches	**48%**	**52%**	**100%**	**9**
Qualitative approaches	59%	41%	100%	7
Experimental and quasi-experimental designs	52%	48%	100%	8
Multi-level research (e.g., HLM)	**35%**	**66%**	**101%**	**8**
Process evaluation and logic models	**36%**	**64%**	**100%**	**10**
Outcome/Impact evaluation	**36%**	**64%**	**100%**	**16**
Demographic analysis	52%	48%	100%	8
Survey design	57%	43%	100%	9
4. Skill in applying various analytic techniques and interpretation				
Introduction to statistics (e.g. frequencies, mean, standard deviation)	83%	17%	100%	3
Tests of association (e.g., correlation, crosstabulation)	72%	28%	100%	4
Examining the difference between groups (e.g., t-tests, ANOVA)	57%	43%	100%	6
Sampling (e.g., random sampling, weighting)	**50%**	**50%**	**100%**	**7**
Data reliability and reduction (e.g., factor analysis, multidimensional scaling)	**36%**	**64%**	**100%**	**8**
Nonparametric statistics (e.g., Kolmogorov-Smirnov test, Spearman's R)	**43%**	**57%**	**100%**	**9**
Regression analysis (e.g., logistic, linear)	**43%**	**57%**	**100%**	**10**
Structural equation modeling	**42%**	**58%**	**100%**	**9**
Hierarchical linear modeling	**38%**	**62%**	**100%**	**12**
Bayesian theory and missing data	**43%**	**57%**	**100%**	**12**
Propensity score matching	**33%**	**67%**	**100%**	**15**
Regression discontinuity design	**42%**	**58%**	**100%**	**12**
Temporal analysis (e.g., time series design)	**33%**	**67%**	**100%**	**15**
Spatial analysis	**41%**	**59%**	**100%**	**14**
Qualitative analysis (e.g., case study, grounded theory)	53%	47%	100%	8
5. Ability to effectively present and disseminate data, analysis, and research findings				
Data visualization (e.g., charts, tables, maps, infographics)	**45%**	**55%**	**100%**	**15**
Making data/information available online	**45%**	**55%**	**100%**	**16**
Writing	79%	21%	100%	8
Delivering effective presentations	52%	48%	100%	11
6. Skill in grant writing and management				
Basic grant writing skills	69%	31%	100%	8
Developing budgets	69%	31%	100%	6
Managing grants and grant reporting	62%	38%	100%	5
Working with research partners (e.g., data sharing agreements, contract language)	53%	47%	100%	12
7. Skill in project management				
Overall project management approaches	**49%**	**51%**	**100%**	**6**
Creating timelines and project plans	**48%**	**52%**	**100%**	**7**
8. Ability to utilize various software tools to support research and analysis tasks				
Spreadsheets (e.g., Excel)	78%	22%	100%	2
Databases (e.g., Access)	67%	33%	100%	4
Statistical/Analytical tools (e.g., SPSS, SAS, R)	**45%**	**55%**	**100%**	**14**
Reporting Tools (e.g., Crystal Reports)	55%	45%	100%	6
Visualization Tools (e.g., Excel, Tableau)	**41%**	**59%**	**100%**	**10**
GIS/Mapping (e.g., ArcGIS)	**45%**	**55%**	**100%**	**13**
Presentation Tools (e.g., PowerPoint)	75%	25%	100%	5
Project Management (e.g., Microsoft Project)	68%	32%	100%	5

*Note: Bolded rows indicate 50% or more of the sample responded with a moderate or high need.

**Note: Total may be slightly greater or less than 100% due to rounding.

Table 2 presents the complete response distribution for those knowledge, skills, and abilities in which 50% or more of respondents selected a moderate or high need. In general, the distribution shows of responses shows a large portion of respondents reporting a moderate need for many of these areas. The two areas with the most respondents reporting a high need include *making data available online* (28%) and *outcome/impact evaluation* (28%).

This table, as well as the table with the full distribution of responses for every question (see Appendix D), shows a very small percentage of respondents reporting these areas are non-applicable (NA). This suggests that the skills, knowledges, and abilities selected by the TACB committee is appropriately relevant to the SACs even if they currently have no need for training or technical assistance in certain areas. Respondents were also offered the opportunity to write in additional areas of need. Seven individuals wrote in comments, five of which provided specific suggestions and included critical thinking, issues surrounding criminal history records (access, privacy etc.), risk assessment techniques, literature reviews, shortcuts and technology to improve efficiency and organization, generating research topics, and switching from SPSS to R.

Inventory of Trainer Expertise Survey

In addition to the needs assessment survey, we also asked respondents to complete a trainer expertise survey. This was intended to identify respondents' areas of expertise and whether they were interested in assisting JRSA in producing webinars in their respective areas. A total of 33 individuals responded to the survey questions; and, among this group, 24 reported interest in being a trainer in at least one of the areas provided. The top areas selected by volunteers included *introduction to statistics* (7), *creating and managing a spreadsheet* (6), *tests of association* (5), *outcome/impact evaluation* (6), and *basic grant writing skills* (6).

Table 2. Knowledge, Skills, and Abilities with 50% Moderate/High Need

	No Need	Low Need	Moderate Need	High Need	N/A	Total*
Knowledge of criminal justice theory, data, and procedures, as well as current evidence-based practices						
Criminal justice data (e.g., NIBRS, criminal history records, federal reporting programs	14%	26%	33%	26%	2%	101%
Criminal justice processes (e.g., courts, corrections, probation, parole, youth services)	21%	28%	38%	14%	0%	101%
Evidence-based programs and practices (resources, risk assessment, and fidelity)	11%	32%	39%	19%	0%	101%
Ability to access, collect, and manage data						
Data quality management and validation techniques	12%	28%	40%	19%	2%	101%
Knowledge of various research techniques						
Quantitative approaches	17%	31%	36%	16%	0%	100%
Multi-level research (e.g., HLM)	10%	22%	52%	14%	2%	100%
Process evaluation and logic models	14%	22%	47%	17%	0%	100%
Outcome/Impact evaluation	16%	21%	36%	28%	0%	101%
Skill in applying various analytic techniques and interpretation						
Sampling (e.g., random sampling, weighting)	18%	33%	37%	12%	0%	100%
Data reliability and reduction (e.g., factor analysis, multidimensional scaling)	12%	24%	50%	14%	0%	100%
Nonparametric statistics (e.g., Kolmogorov-Smirnov test, Spearman's R)	16%	26%	41%	16%	2%	101%
Regression analysis (e.g., logistic, linear)	12%	31%	40%	17%	0%	100%
Structural equation modeling	16%	26%	42%	16%	0%	100%
Hierarchical linear modeling	17%	21%	41%	21%	0%	100%
Bayesian theory and missing data	17%	22%	36%	21%	3%	99%
Propensity score matching	12%	19%	41%	26%	2%	100%
Regression discontinuity design	19%	21%	37%	21%	2%	100%
Temporal analysis (e.g., time series design)	16%	17%	41%	26%	0%	100%
Spatial analysis	14%	28%	35%	24%	0%	101%
Ability to effectively present and disseminate data, analysis, and research findings						
Data visualization (e.g., charts, tables, maps, infographics)	19%	26%	29%	26%	0%	100%
Making data/information available online	16%	29%	28%	28%	0%	101%
Skill in project management						
Overall project management approaches	19%	26%	40%	11%	4%	100%
Creating timelines and project plans	22%	22%	40%	12%	3%	99%
Ability to utilize various software tools to support research and analysis tasks						
Statistical/Analytical tools (e.g., SPSS, SAS, R)	14%	29%	31%	24%	2%	100%
Visualization Tools (e.g., Excel, Tableau)	17%	24%	41%	17%	0%	99%
GIS/Mapping (e.g., ArcGIS)	16%	28%	33%	22%	2%	101%

*Note: Total may be slightly greater or less than 100% due to rounding.

Table 3. Number of Affirmative Responses for Interest in Being a Trainer*

	I am interested in being a trainer (N=33)**
Criminal justice theory, data, and processes, as well as current evidence-based practices	
Criminal justice theories (e.g., legitimacy, strain, broken windows)	5
Criminal justice data (e.g., NIBRS, criminal justice history records, federal reporting systems)	3
Criminal justice processes (e.g., courts, corrections, probation, parole, youth services)	5
IRB (e.g., rules, regulations, writing applications)	2
EBPs (resources, risk assessment, and fidelity)	3
2. Assessing, collecting, and managing data	
Collecting primary data	5
Creating and managing a Spreadsheet	6
Creating and managing a database	3
Data merging methods	3
Data quality management and validation techniques	3
Issues w/ Data security, storage, and confidentiality	2
3. Various research techniques	
Experimental and quasi-experimental designs	3
Multilevel research (e.g., HLM)	0
Process evaluation/logic models	5
Outcome/impact evaluation	6
Demographic analysis	2
Survey design	4
4. Applying various analytic techniques and interpretation	
Introduction to statistics (e.g., frequency, mean, standard deviation)	7
Tests of association (e.g., correlation, crosstabulation)	6
Examining the difference between groups (e.g., t-tests, ANOVA)	3
Sampling (e.g., random sampling, weighting)	1
Data reliability and reduction (e.g., factor analysis, multidimensional scaling)	1
Nonparametric statistics (e.g., Kolmogorov-Smirnov Test, Spearman's R)	1
Regression analysis (e.g., logistic, linear)	1
Structural equation modeling	0
Hierarchical linear modeling	0
Bayesian theory/missing data	0
Propensity score matching	1
Regression discontinuity	0
Temporal analysis (e.g., time series designs)	1
Spatial analysis	1
Qualitative analysis (e.g., grounded theory, case study)	0
5. Present and disseminate data, analysis, and research findings	
Data visualization (e.g., charts, tables, maps, info-graphics)	4
Making data available online	1
Writing	4
Delivering effective presentation	3
6. Grant writing and grant management	
Basic grant writing skills	6
Developing budgets	4
Managing grants/grant reporting	5
Working with research partners (e.g., data sharing agreements, contract language)	4
7. Project management	
Overall project management approaches	2
Creating timelines/project plans	3
8. Utilizing various software tools to support research and analysis tasks	
Spreadsheets (e.g., Excel)	6
Databases (e.g., Access)	2
Statistical/analytical tools (e.g., SPSS, SAS, R)	4
Reporting tools (e.g., Crystal Reports)	0
Visualization tools (e.g., Excel, Tableau)	0
GIS/Mapping (e.g., ArcGIS)	2
Presentation tools (e.g., PowerPoint)	1
Project management (e.g., Microsoft Project)	1

*Note: Range of 1-3 missing responses for each option.

**Note: A total of 24 SAC Directors/staff volunteered to assist in training

Summary and Next Steps

As of January 2016, JRSA has produced six skill-building webinars covering areas identified as a moderate-to-high need by respondents; these included: introduction to statistics; sampling methodology; tests of association (e.g., correlation and chi-square); examining the mean difference between groups (t-Tests and ANOVA); report writing; and appropriate ways to display data.

JRSA has two more skill-building webinars scheduled for the remaining months of 2016: simple and multiple linear regression. These remaining webinars were identified by more than 50% of respondents as a moderate or high need.

These surveys have provided useful information that will continue to guide the planning, organization, and content for future skill-building webinars and on-line courses. JRSA's next steps include the construction of a statistics course in iCohere with planning and production beginning in 2017.

List of Committee Members

Lisa Sampson (MA)…………………………………………………………….…Co-chair
Connie Kostelac (WI) ……………………………………………………….....Co-chair
Angie Baker (OK) ………………………………………………………..Member
Kendall Bobula (CT) ……………………………………………….……….……Member
Erica Hughes (IL) ………………………………………………….………………Member
Kelly Officer (OR) …………………………………………..….…………Member
Shana Malone (AZ) ………………………………………………….…………….. Member
Keri-Anne Jetzer (WA) …………………………………………….…………… Member
Samuel Gonzales (GA) ………………………………………….….…………..Member
Angie Baker (OK)………………………………………………. Executive Committee Liaison
Erin J. Farley (DC)……………………………………………… JRSA Liaison
Stan Orchowsky (DC)…………………………………………… JRSA Liaison

Justice Research and Statistics Association
Statistical Analysis Center Needs Assessment Survey

In order to better serve the training and technical assistance (TTA) needs of the State Statistical Analysis Centers (SACs), JRSA and the Training and Capacity Building Committee are inviting you to complete this brief needs assessment survey. Over the years JRSA has formally and informally surveyed the SACs regarding TTA needs. This current survey is intended to advance prior efforts by 1) utilizing and expanding upon the knowledge, skills, and abilities listed in the 2015 Building SAC Capacity document and 2) surveying individual SAC staff that may benefit from JRSA services and products.

Your responses will remain confidential; we will not be asking you to provide any personal information. Any results from this survey will be reported at the aggregate level.

This survey includes eight topical sections in which we would like you to select your level of need for each of the specific knowledge, skills, and abilities listed. If a specific area does not apply please select N/A (not applicable). This survey takes approximately five to ten minutes to complete.

Please complete the survey, print a copy for your records, and submit by May 20, 2016.

Please direct any questions to Erin Farley, Research Associate, JRSA efarley@jrsa.org.

1. Knowledge of criminal justice theory, data, and procedures, as well as current evidence-based practices

	No Need	Low Need	Moderate Need	High Need	N/A
Criminal justice theories (e.g., legitimacy, strain theory, broken windows)	○	○	○	○	○
Criminal justice data (e.g., NIBRS, criminal history records, federal reporting programs)	○	○	○	○	○
Criminal justice processes (e.g., courts, corrections, probation, parole, youth services)	○	○	○	○	○
Institutional review board (e.g., rules, regulations, writing application)	○	○	○	○	○
Evidence-based programs and practices (resources, risk assessment, and fidelity)	○	○	○	○	○

2. Ability to access, collect, and manage data

	No Need	Low Need	Moderate Need	High Need	N/A
Collecting primary data	○	○	○	○	○
Creating and managing a spreadsheet	○	○	○	○	○
Creating and managing a database	○	○	○	○	○
Data merging methods	○	○	○	○	○
Data quality management and validation techniques	○	○	○	○	○
Issues with data security, storage, and confidentiality	○	○	○	○	○

3. Knowledge of various research techniques

	No Need	Low Need	Moderate Need	High Need	N/A
Quantitative approaches	○	○	○	○	○
Qualitative approaches	○	○	○	○	○
Experimental and quasi-experimental designs	○	○	○	○	○
Multi-level research (e.g., HLM)	○	○	○	○	○
Process evaluation and logic models	○	○	○	○	○
Outcome/Impact evaluation	○	○	○	○	○
Demographic analysis	○	○	○	○	○
Survey design	○	○	○	○	○

4. Skill in applying various analytic techniques and interpretation

	No Need	Low Need	Moderate Need	High Need	N/A
Introduction to statistics (e.g. frequencies, mean, standard deviation)	○	○	○	○	○
Tests of association (e.g., correlation, crosstabulation)	○	○	○	○	○
Examining the difference between groups (e.g., t-tests, ANOVA)	○	○	○	○	○
Sampling (e.g., random sampling, weighting)	○	○	○	○	○
Data reliability and reduction (e.g., factor analysis, multidimensional scaling)	○	○	○	○	○
Nonparametric statistics (e.g., Kolmogorov-Smirnov test, Spearman's R)	○	○	○	○	○
Regression analysis (e.g., logistic, linear)	○	○	○	○	○
Structural equation modeling	○	○	○	○	○
Hierarchical linear modeling	○	○	○	○	○
Bayesian theory and missing data	○	○	○	○	○
Propensity score matching	○	○	○	○	○
Regression discontinuity design	○	○	○	○	○
Temporal analysis (e.g., time series design)	○	○	○	○	○
Spatial analysis	○	○	○	○	○
Qualitative analysis (e.g., case study, grounded theory)	○	○	○	○	○

5. Ability to effectively present and disseminate data, analysis, and research findings

	No Need	Low Need	Moderate Need	High Need	N/A
Data visualization (e.g., charts, tables, maps, infographics)	◯	◯	◯	◯	◯
Making data/information available online	◯	◯	◯	◯	◯
Writing	◯	◯	◯	◯	◯
Delivering effective presentations	◯	◯	◯	◯	◯

6. Skill in grant writing and management

	No Need	Low Need	Moderate Need	High Need	N/A
Basic grant writing skills	◯	◯	◯	◯	◯
Developing budgets	◯	◯	◯	◯	◯
Managing grants and grant reporting	◯	◯	◯	◯	◯
Working with research partners (e.g., data sharing agreements, contract language)	◯	◯	◯	◯	◯

7. Skill in project management

	No Need	Low Need	Moderate Need	High Need	N/A
Overall project management approaches	◯	◯	◯	◯	◯
Creating timelines and project plans	◯	◯	◯	◯	◯

8. Ability to utilize various software tools to support research and analysis tasks

	No Need	Low Need	Moderate Need	High Need	N/A
Spreadsheets (e.g., Excel)	○	○	○	○	○
Databases (e.g., Access)	○	○	○	○	○
Statistical/Analytical tools (e.g., SPSS, SAS, R)	○	○	○	○	○
Reporting Tools (e.g., Crystal Reports)	○	○	○	○	○
Visualization Tools (e.g., Excel, Tableau)	○	○	○	○	○
GIS/Mapping (e.g., ArcGIS)	○	○	○	○	○
Presentation Tools (e.g., PowerPoint)	○	○	○	○	○
Project Management (e.g., Microsoft Project)	○	○	○	○	○

9. Other needs not listed in survey, please specify:

1)

2)

3)

Appendix B.
Building SAC Capacity

I. Relationships
   a. Establish and maintain contacts with state criminal justice agencies, the courts, victims' organizations, and local governments and their criminal justice agencies.
   b. Assist criminal justice agencies with defining their needs for specific statistical and other information needed to plan, implement, and evaluate criminal justice programs.

II. Core Statistical and Data Analytic Competencies
   a. Knowledge
      i. *Understand Relevant Criminal Justice Theory*
         1. Describe theories of criminal careers including onset of and desistance from offending.
         2. Define social learning theory as it applies to offending.
         3. Identify theories of legitimacy as they apply to the criminal justice system.
         4. Describe developmental theories applicable to juvenile justice.
      ii. *Understand the Criminal Justice System*
         1. Define the relationships among victimization, law enforcement, courts and corrections at the local, state and federal levels.
         2. Identify how people and cases progress through the system, of the professions and roles within the system, and of the function of crime analysis within this context.
      iii. *Understand Crime Statistics*
         1. Describe the core body of local and national crime statistics (e.g. UCR summary and NIBRS data) and describe how to compare them using common data standards, codebooks, and data dictionaries.
         2. Define the content of Criminal History Records.
         3. Identify the number and content of data collections maintained by the Bureau of Justice Statistics.
         4. Describe the rules and standards, as well as the caveats and shortcomings, of these data sets.
      iv. *Understand Qualitative Criminal Justice Information*
         1. Define the content of qualitative information drawn from such sources as survey results, crime and arrest reports, narratives, and victim/witness/suspect statements.
         2. Identify and summarize qualitative data sources (e.g. focus groups) and describe how qualitative information would be relevant in reports and briefings.
      v. *Understand Research Design*
         1. Describe experimental and quasi-experimental designs and when each is appropriately used.

        2. Define regression-discontinuity design and where it is appropriately used.

        3. Identify multi-level research design and when it is appropriately used.

        4. Describe the different time series designs and where each is appropriately used.

        5. Define propensity score matching and where it is appropriately used.

    vi. *Understand the Role of Program Evaluation*

        1. Describe the difference between output, outcome and impact measures.

        2. Define the difference between performance measures and program evaluation.

        3. Identify the difference between prospective analysis and retrospective evaluation.

b. Skills

    i. *Use Descriptive Statistics*

        1. Analyze and describe qualitative and quantitative data using calculations such as frequencies, percent change, cross-tabulations, measures of central tendency (e.g., mean, median, mode) measures of variation (e.g., standard deviation, variance) and correlations.

        2. Use appropriate descriptive statistics for ordinal, nominal, interval and ratio data.

        3. Use the appropriate levels of measurement to support tactical, strategic, and administrative analysis.

    ii. *Use Inferential Statistics*

        1. Apply the proper techniques for taking random samples, analyze them and apply the results to generate inferences about the populations from which they were drawn.

        2. Apply appropriate techniques of weighting and validation where necessary.

        3. Use multivariate analysis, including multiple and logistic regression where appropriate given the research design and data.

        4. Apply appropriate techniques, including Bayesian inference, to deal with missing data.

    iii. *Conduct Temporal Analysis*

        1. Calculate and analyze the times of day, days of week, intervals, durations, tempos, and temporal cycles of crime in general and of criminal behavior in short-term and long-term series, patterns, and trends.

        2. Make forecasts and predictions of incidents regarding identified crime trends and series using temporal analysis.

    iv. *Conduct Demographic Analysis*

        1. Gather demographic data from various sources, analyze and summarize demographic information such as population, housing data, racial/ethnic makeup and age groups.

2. Demonstrate the relationship and application possibilities of these variables to crime data in the context of community policing and problem solving.
    v. *Use Spatial Analysis*
1. Apply the basic principles and techniques of geographic analysis and apply them to create maps using appropriate data sets.
2. Produce point symbol (pin), buffer, hot spot, choropleth and density maps.
3. Analyze maps to determine the nature of crime problems related to location, use maps in forecasting and predicting incidents regarding crime trends and series, and interpret maps for specific audiences.
4. Properly deal with crime mapping issues (e.g., geocoding, privacy and data quality).
    vi. *Use Spreadsheet Operations*
1. Create an electronic matrix or spreadsheet, manipulate the data and/or records and use statistical formulas to answer fundamental questions including frequency, percent, percent change, sum, average, standard deviation, regression analysis, forecasting, and correlation.
2. Perform cross-tabulations, to create charts and graphs, and to export these objects to other applications.
    vii. *Populate and Use Databases*
1. Create a database using appropriate survey, census, and administrative and/or operational record data.
2. Link data across systems using appropriate techniques of data integration.
3. Assess data quality using standards compatible with those of the Federal Committee on Statistical Methodology and the Office of Management and Budget's *Standards and Guidelines for Statistical Surveys* and *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*.

III. Communication/Dissemination
    a. *Write Expository Narratives*
        i. Use plain language writing skills to explain information, draw conclusions and/or make recommendations in a narrative format that is objective, succinct, pertinent, articulate and relevant.
        ii. Share research, definitions, data collection methods, survey materials and techniques, and data analysis procedures to improve the availability, quality and comparability of data.
    b. *Make Effective Presentations*
        i. Develop an effective, directed and informative verbal presentation that will be useful to the specific audience being addressed.
        ii. Use appropriate visual aide software and operation.

          iii. Handle audience participation and time constraints.
          iv. Answer questions concisely and accurately.
      c. *Provide Online/Digital Distribution of Research Results*
          i. Increase access to statistical data and analytic products through use of the internet and social media.
          ii. Provide for downloadable datasets and spreadsheets, online analytic capabilities, visual display of quantitative information, and animation designed to present and explain the movement of trends.

IV.   Ethical Conduct
      a. Maintain the integrity of the criminal justice research community.
          i. Neutrality
          ii. Professional Integrity
      b. Maintain the professionalism and competence of the criminal justice research community.
          i. Be professional in the conduct of research and analysis.
          ii. Promote professionalism in the conduct of research and analysis.
          iii. Protect colleagues and the public from incompetent research and analysis.
          iv. Protect colleagues and the public from unethical researchers.
      c. Work to improve the conduct and application of criminal justice research and policy analysis.
          i. Participate on professional committees.
          ii. Participate as fully as possible in the affairs of the Justice Research and Statistics Association.

Appendix C. Inventory of Trainer Expertise Survey

Justice Research and Statistics Association
Training and Capacity Building Committee
Inventory of Trainer Expertise

In order to better serve the training and technical assistance (TTA) needs of the State Statistical Analysis Centers (SACs), JRSA is looking for SAC staff with experience in the following areas who might be interested in providing training opportunities. If interested, please select yes or no in the corresponding box.

Please provide your name and email address at the end of the survey so that we may contact you in the future. This document will be kept separate from the needs assessment survey.

Please submit the survey and print a copy for your records no later than May 20, 2016. Please direct any questions to Erin Farley (JRSA Research Associate) by email (efarley@jrsa.org) or phone (202-503-3528).

1. Criminal justice theory, data, and processes, as well as current evidence-based practices

	I am interested in being a trainer
Criminal justice theories (e.g., legitimacy, strain theory, broken windows)	
Criminal justice data (e.g., NIBRS, criminal history records, federal reporting programs)	
Criminal justice processes (e.g., courts, corrections, probation, parole, youth services)	
Institutional review board (e.g., rules regulations, writing application)	
Evidence-based programs and practices (resources, risk assessment, and fidelity)	

2. Accessing, collecting, and managing data

	I am interested in being a trainer
Collecting primary data	
Creating and managing a spreadsheet	
Creating and managing a database	
Data merging methods	
Data quality management and validation techniques	
Issues with data security, storage, and confidentiality	

3. Various research techniques

	I am interested in being a trainer
Experimental and quasi-experimental designs	
Multi-level research (e.g., HLM)	
Process evaluation and logic models	
Outcome/Impact evaluation	
Demographic analysis	
Survey design	

4. Applying various analytic techniques and interpretation

	I am interested in being a trainer
Introduction to statistics (e.g., frequency, mean, standard deviation)	
Tests of association (e.g., correlation, crosstabulation)	
Examining the difference between groups (e.g., t-tests, ANOVA)	
Sampling (e.g., random sampling, weighting)	
Data reliability and reduction (e.g., factor analysis, multidimensional scaling)	
Nonparametric statistics (e.g., Kolmogorov-Smirnov Test, Spearman's R)	
Regression analysis (e.g., logistic, linear)	
Structural equation modeling	
Hierarchical linear modeling	
Bayesian theory and missing data	
Propensity score matching	
Regression discontinuity design	
Temporal analysis (e.g., time series designs)	
Spatial analysis	
Qualitative analysis (e.g., grounded theory, case study)	

5. Present and disseminate data, analysis, and research findings

I am interested in being a trainer

Data visualization (e.g., charts, tables, maps, info-graphics)	☐
Making data/information available online	☐
Writing	☐
Delivering effective presentations	☐

6. Grant writing and grant management

I am interested in being a trainer

Basic grant writing skills	☐
Developing budgets	☐
Managing grants and grant reporting	☐
Working with research partners (e.g., data sharing agreements, contract language)	☐

7. Project management

I am interested in being a trainer

Overall project management approaches	☐
Creating timelines and project plans	☐

8. Utilizing various software tools to support research and analysis tasks

I am interested in being a trainer

Spreadsheets (e.g., Excel)	
Databases (e.g., Access)	
Statistical/Analytical tools (e.g., SPSS, SAS, R)	
Reporting tools (e.g., Crystal Reports)	
Visualization tools (e.g., Excel, Tableau)	
GIS/Mapping (e.g., ArcGIS)	
Presentation tools (e.g., PowerPoint)	
Project management (e.g., Microsoft Project)	

9. Other relevant training expertise not listed above, please specify:

1)

2)

3)

10. Contact Information

Name

State/Province

Email Address

	No Need	Low Need	Moderate Need	High Need	N/A	Total*
1. Knowledge of criminal justice theory, data, and procedures, as well as current evidence-based practices						
Criminal justice theories (e.g., legitimacy, strain theory, broken windows)	14%	48%	31%	5%	2%	100%
Criminal justice data (e.g., NIBRS, criminal history records, federal reporting programs)	14%	26%	33%	26%	2%	101%
Criminal justice processes (e.g., courts, corrections, probation, parole, youth services)	21%	28%	38%	14%	0%	101%
Institutional review board (e.g., rules, regulations, writing application)	21%	50%	17%	10%	2%	100%
Evidence-based programs and practices (resources, risk assessment, and fidelity)	11%	32%	39%	19%	0%	101%
2. Ability to access, collect, and manage data						
Collecting primary data	28%	33%	29%	10%	0%	100%
Creating and managing a spreadsheet	53%	31%	9%	7%	0%	100%
Creating and managing a database	38%	35%	19%	9%	0%	101%
Data merging methods	22%	31%	33%	12%	2%	100%
Data quality management and validation techniques	12%	28%	40%	19%	2%	101%
Issues with data security, storage, and confidentiality	26%	29%	35%	9%	2%	101%
3. Knowledge of various research techniques						
Quantitative approaches	17%	31%	36%	16%	0%	100%
Qualitative approaches	17%	41%	29%	12%	0%	99%
Experimental and quasi-experimental designs	21%	29%	35%	14%	2%	101%
Multi-level research (e.g., HLM)	10%	22%	52%	14%	2%	100%
Process evaluation and logic models	14%	22%	47%	17%	0%	100%
Outcome/Impact evaluation	16%	21%	36%	28%	0%	101%
Demographic analysis	21%	31%	35%	14%	0%	101%
Survey design	21%	36%	28%	16%	0%	101%
4. Skill in applying various analytic techniques and interpretation						
Introduction to statistics (e.g. frequencies, mean, standard deviation)	43%	40%	12%	5%	0%	100%
Tests of association (e.g., correlation, crosstabulation)	31%	41%	21%	7%	0%	100%
Examining the difference between groups (e.g., t-tests, ANOVA)	21%	35%	33%	10%	2%	101%
Sampling (e.g., random sampling, weighting)	18%	33%	37%	12%	0%	100%
Data reliability and reduction (e.g., factor analysis, multidimensional scaling)	12%	24%	50%	14%	0%	100%
Nonparametric statistics (e.g., Kolmogorov-Smirnov test, Spearman's R)	16%	26%	41%	16%	2%	101%
Regression analysis (e.g., logistic, linear)	12%	31%	40%	17%	0%	100%
Structural equation modeling	16%	26%	42%	16%	0%	100%
Hierarchical linear modeling	17%	21%	41%	21%	0%	100%
Bayesian theory and missing data	17%	22%	36%	21%	3%	99%
Propensity score matching	12%	19%	41%	26%	2%	100%
Regression discontinuity design	19%	21%	37%	21%	2%	100%
Temporal analysis (e.g., time series design)	16%	17%	41%	26%	0%	100%
Spatial analysis	14%	28%	35%	24%	0%	101%
Qualitative analysis (e.g., case study, grounded theory)	17%	35%	32%	14%	2%	100%
5. Ability to effectively present and disseminate data, analysis, and research findings						
Data visualization (e.g., charts, tables, maps, infographics)	19%	26%	29%	26%	0%	100%
Making data/information available online	16%	29%	28%	28%	0%	101%
Writing	29%	50%	7%	14%	0%	100%
Delivering effective presentations	19%	33%	29%	19%	0%	100%
6. Skill in grant writing and management						
Basic grant writing skills	26%	41%	17%	14%	2%	100%
Developing budgets	35%	33%	21%	10%	2%	101%
Managing grants and grant reporting	24%	36%	29%	9%	2%	100%
Working with research partners (e.g., data sharing agreements, contract language)	21%	31%	26%	21%	2%	101%
7. Skill in project management						
Overall project management approaches	19%	26%	40%	11%	4%	100%
8. Ability to utilize various software tools to support research and analysis tasks						
Creating timelines and project plans	22%	22%	40%	12%	3%	99%
Spreadsheets (e.g., Excel)	41%	36%	19%	3%	0%	99%
Databases (e.g., Access)	36%	31%	26%	7%	0%	100%
Statistical/Analytical tools (e.g., SPSS, SAS, R)	14%	29%	31%	24%	2%	100%
Reporting Tools (e.g., Crystal Reports)	22%	28%	35%	10%	5%	100%
Visualization Tools (e.g., Excel, Tableau)	17%	24%	41%	17%	0%	99%
GIS/Mapping (e.g., ArcGIS)	16%	28%	33%	22%	2%	101%
Presentation Tools (e.g., PowerPoint)	37%	37%	16%	9%	2%	101%
Project Management (e.g., Microsoft Project)	21%	39%	23%	9%	9%	101%

*Note: Total may be slightly greater or less than 100% due to rounding.

To examine the response patterns across individuals, respondent's responses to the 5-point Likert scale questions were summed. However, only response options no need (1) to High Need (5) were included. Value 5 was excluded as it represented not applicable. Possible values ranged from 52 to 208 with a total of 52 meaning the individual selected no need for all 52 listed topics. In turn a total of 208 would mean an individual selected a high need for all 52 subjects. Individuals totals ranges