A Job Analysis for K-8 Principals in a Nationwide Charter School System

Laura Cumings
Chris L. S. Coryn
Western Michigan University

Background: Although no single technique on its own can predict job performance, a job analysis is a customary approach for identifying the relevant knowledge, skills, abilities, and other characteristics (KSAO) necessary to successfully complete the job tasks of a position. Once the position requirements are identified, the hiring process is faster and more effective because job candidates are evaluated on a common set of objective criteria.

Purpose: The purpose of this study was to conduct a job analysis of the principal position for elementary and middle school public charter schools. Moreover, the final outcome of the job analysis was a linkage of KSAOs to their respective job tasks that could be used during the candidate selection process.

Setting: The job analysis was conducted in a national K-8 charter school system.

Subjects: The information collected during the job analysis came from six subject matter experts (SME) who were employed as a principal or as a supervisor of principals by the charter school system at the time of the study. The SMEs represented a balanced blend of perspectives of the principal position and they possessed a wealth of knowledge, job experience, and skill level that qualified them as experts of the principal position.

Intervention: During the job analysis, SMEs provided information about the principal position.

Research Design: The job analysis used a qualitative case study design with a convenience sample of SMEs.

Data Collection and Analysis: Subject matter experts participated in three phases of data collection. The first two phases collected information on the essential job tasks and the third phase collected information on the KSAOs required to successfully complete the job tasks.

Findings: In total, 314 essential job tasks were identified across 8 functional job categories. The job analysis condensed redundant job tasks and eliminated job tasks that were not endorsed by half of the SMEs, which totaled a final set of 84 essential job tasks. Then, SMEs rated the essential job tasks on several dimensions that were used to measure job task importance. Of the 84, 46 essential job tasks met the criterion of being the most important in terms of achieving organizational goals. A collaborative group that included the job analyst, principal recruiters and one SME identified the KSAOs necessary for completing the 46 essential job tasks. During the final phase of data collection, SMEs rated the KSAOs on the following dimensions: necessary for principal applicant to possess, practicality of finding a principal applicant with the KSAO, and consequence if KSAO is ignored in the selection process. Forty-nine of the 53 KSAOs met the inclusion criteria based on the ratings of the dimensions above.

Conclusions: The results from the job analysis revealed the diverse set of KSAOs required to successfully complete the essential job tasks of the principal position. Thus, using objective criteria established from the job analysis is a critical step in selecting the candidate who is best suited to succeed in the principal position.

Keywords: job analysis; personnel evaluation; personnel selection; performance appraisal; principals, charter schools

Personnel evaluation typically involves assessment for purposes of selection, performance appraisal, promotion, demotion, and merit increases, among many others. As a practice, personnel evaluation has a long past dating at least to the civil servant examinations conducted by the Chinese and Egyptian dynasties more than 4,000 years ago (Coryn, 2007; Scriven, 1991). In the last 100 years, the techniques, principles, and methods associated with personnel evaluation have predominately come from the applied domains of work and industrial and organizational psychology. As outlined by Salgado (2001), some of these techniques, principles, and methods, dating from the early 1900s, include numerous studies of individual differences, Stern's development of the intelligence quotient (IQ) around 1903, Spearman's introduction of factor analysis and the *g* factor around 1904, the application of large-scale group intelligence testing (e.g., the Army Alpha and Beta), the publication of the first edition of the *Dictionary of Occupational Titles* (DOT) in 1939, and the publication of Thorndike's *Personnel Selection* in 1949.

In the latter half of the twentieth century, major developments included the introduction of the critical incidents technique (Flanagan, 1954); Dunnette's (1963) model of personnel selection; McCormick, Jeannerett, and Mechan's *Position Analysis Questionnaire* (PAC) in 1972, the situational interview (Latham, Saari, Purcell, & Campion, 1980); Janz's behavior description interview in 1982 (which together with the situational interview is still considered one of the most valid predictors of job performance); Hunter and Hunter's (1984) meta-analysis of alternative predictors of job performance; the publication of the Joint Committee's *Personnel Evaluation Standards* in 1988; and more recently, Barrick and Mount's (1991) study on the Big Five personality dimensions as predictors of job performance. One of the leading contemporary approaches to personnel research and organizational psychology, whether for selection, performance appraisal, or other purposes, is job analysis.

In this paper, we enumerate both the benefits of job analysis and its major steps and present a case study that implemented these steps to conduct a job analysis for K-8 principals for use in a nationwide charter school system.

What is a Job Analysis?

Job analysis is one of the most fundamental, important, and difficult aspects of personnel management (Brannick & Levine, 2002; Chen, Carsten, & Krauss, 2003). It is a method by which a job is broken into behavioral components such as duties, tasks, and activities (Coryn, in press). It also identifies observable knowledge and skills as well as verifiable abilities and other characteristics needed to perform a job. The knowledge, skills, abilities, and other characteristics (KSAOs) identified through a job analysis are independent from personal characteristics of an incumbent. That is, job analysis focuses on the job rather than those who will perform the job. Furthermore, job analysis provides information about how a job is done, how it should be done, and how a job will be done; thus, it is simultaneously descriptive, prescriptive, and predictive. The results of a job analysis have been used over the past thirty years to improve organizations' personnel recruiting and selection procedures, job effectiveness, and performance appraisal and promotion systems. Briefly, a job in the context of job analysis refers to a regular activity performed in exchange for payment, especially as one's trade, occupation, or profession and more specifically, a position in which one is employed.

Why Conduct Job Analysis?

There are important legal reasons to conduct a job analysis. Organizations are legally required to base their recruiting, hiring, and promotion

procedures on the demonstrable tasks and requirements required to perform the job (e.g., the *Uniform Guidelines on Employee Selection Procedures*). Thus, a job analysis can help define these tasks and requirements to ensure that staffing procedures are legally defensible. A job analysis alone does not provide protection against legal challenges, but it is a crucial component in designing personnel management systems that can withstand legal disputes.

Another important reason for conducting a job analysis is the useful information it provides that directly impacts the success of the job position, including, but not limited to (1) comprehensive list of job tasks, (2) identification of skills and competencies that are critical for the successful completion of the job, (3) development of performance standards and rating scales, (4) establishment of career paths for high-performing employees, and (5) identification of training needs.

Finally, a job analysis can inform recruitment and selection procedures that inform successful hiring. Performed correctly, a job analysis provides a list of the attributes required to work effectively in the position. The information provided by the job analysis will make the hiring process faster and more efficient because the organization will know what to look for in a candidate. Furthermore, retention and productivity can be improved when the employee fits the requirements of the job. Thus, a job analysis informs selection procedures that are designed to assess and make decisions about the fit between candidates and the job requirements.

To illustrate the importance of using the results from a job analysis as a precursor to making a well-informed hiring decision, let's consider what some might say is the most important hiring decision in the nation—voting for the U.S. president. What if the essential job tasks of the U.S. presidency and the requirements needed to successfully perform those tasks were never communicated? What if the wrong candidate was voted into office because constituents used a set of criteria that had nothing to do with on-the-job performance? This could mean the unnecessary loss of hundreds of lives as well as billions of dollars, for instance. Fortunately, ordinary citizens are privy to an inordinate amount of information about the requirements and skills of qualified candidates for the position. Thus, constituents are ultimately required to select the candidate who has the best fit with the requirements of the job. Unfortunately, when most organizations are faced with having to make a hiring decision they do not have a prioritized list of knowledge, skills, abilities, and other characteristics that are necessary for a candidate to possess.

Major Steps in a Job Analysis

Although job analysis can be conducted using a variety of methodologies, the approach outlined here uses the principles and procedures prescribed by Chen, Carsten, and Krauss (2003). Job incumbents and supervisors of the position are recruited to participate as the subject matter experts (SMEs) in the job analysis. Using SMEs a job analysis uses a general three-phase operation: (1) breakdown the job into its most essential tasks; (2) identify the knowledge, skills, and abilities that are required to successfully complete these tasks; and (3) apply the results to enrich the personnel selection process, training and professional development, and performance appraisal system (Jenkins & Curtin, 2006).

Ideally, job incumbents and supervisors who have worked in the position or in a related position for ten or more years are recruited to be SMEs. In order to get the most reliable results, between seven and ten SMEs are recommended for conducting a job analysis and they should be representative in terms gender, ethnicity, and age.

The first step of the job analysis involves collecting job task information from the SMEs. Job task information can be collected with questionnaires or semistructured interviews.

Depending on the complexity of the position, the job analysis may start with identifying the essential job tasks rather than all required job tasks of the position knowing, that each one will have a set of linked KSAOs. Essential job tasks are defined as job tasks that cannot be performed by any other employee and serious consequences exist if the task is performed incorrectly. Also, job analysts can provide functional job categories in which the SMEs can classify the job tasks in order to achieve adequate coverage of the job activities. Once the job tasks have been identified by SMEs, the job analyst must review them for redundancy and create a list of job tasks that have been endorsed by a minimum number of SMEs. The job analyst establishes this criterion prior to collecting the information. A condensed list of job tasks is the end product of the first step in a job analysis.

During the second step of the job analysis, SMEs rate each job task on the following dimensions: (1) task difficulty, (2) time spent on task, (3) task criticality, and (4) task essentiality. Below are the definitions and rating scale anchors for each of the job task dimensions:

- Task difficulty: Difficulty of learning a task correctly; this dimension can be rated on a 5-point Likert-type scale where 1 = very easy to learn and 5 = very hard to learn.
- Time spent: Time spent per week doing a task; this dimension can be rated on a 5-point Likert-type scale where 1 = less than 20 percent and 5 = 80 percent or more.
- Task criticality: Consequence of performing a task incorrectly; this dimension can be rated on a 5-point Likert-type scale where 1 = consequences are small and 5 = consequences are very important.
- Task essentiality: Necessity of the task to accomplish organizational goals; this dimension can be rated on a 5-point Likert-type scale where 1 = considerably marginal and 5 = considerably necessary.

The sum of the ratings for the first three dimensions can be used to determine job task importance and the essential function value is calculated by adding the ratings for the last two dimensions and can be used to determine the criticality of the job task. These two scores can be used to identify the most crucial essential job tasks. Prior to collecting the job task ratings, minimum criterion scores should be established for task importance and essential function value for selecting the final list of essential job tasks. This list is the end product of the second step in the job analysis.

The third step in the job analysis is identifying KSAOs for the final set of essential job tasks. When combined, KSAOs represent a set of observable and measurable facets required to perform work activities successfully. During this step, the SMEs identify the KSAOs that are required to successfully complete each job task. Below is a list of definitions that can be used to identify the KSAOs:

- Knowledge: Technical body of material directly involved in the performance of a job.
- Skill: Capacity to perform tasks requiring use of tools, equipment, and machinery.
- Ability: Capacity to carry out physical and mental acts required by tasks where tools, equipment, and machinery are not needed; often reflects application of some knowledge base.
- Other characteristics: Includes interests, temperaments, and personality traits.

To illustrate this process, an example of an elementary principal position's essential job task and respective KSAOs are provided below:

- Essential job task: fostering teamwork and collaboration by encouraging, facilitating, and sustaining cooperative working relationships and teaming efforts within the organization
- KSAOs for fostering teamwork and collaboration: (1) the ability to collaborate with others to create optimal solutions, (2) work as a partner with school staff members to facilitate achievement of organizational goals, (3) foster a team approach to work, (4) promote partnerships between staff members, (5) share information with others, (6) recognize and reward staff accomplishments and (7) share decision making authority with staff members

The fourth and final step of the job analysis requires SMEs to rate each KSAOs on the following dimensions: (1) necessary to possess, (2) practical to expect, (3) consequence, and (4) competence. Below are the definitions and rating scale anchors for each of the four dimensions that can be used to rate KSAOs:

- Necessary to possess: Should a newly hired employee possess this KSAO? No = A newly hired employee does not need to possess this KSAO, and Yes = A newly hired employee should possess this KSAO.
- Practical to expect: Is it practical to expect this KSAO in the labor market? No = It is not practical to expect that most applicants possess this KSAO, and Yes = It is practical to expect that most applicants possess this KSAO.
- Consequence: What is the degree of detrimental consequence if this KSAO is ignored in selection? 1 = to a very small extent, 2 = to some extent, 3 = to a moderate extent, 4 = to a great extent, and 5 = to a very great extent.
- Competence: To what extent does this KSAO distinguish the superior from the average employee, compared to other KSAOs? 1 = to a very little extent, 2 = to some extent, 3 = to a moderate extent, 4 = to a great extent, and 5 = to a very great extent.

The job analyst collects the KSAO ratings and eliminates them if one or more of the following criteria are not met: (1) at least half of SMEs considers the KSAO necessary for a job candidate to possess, (2) at least half of SMEs judges the job applicants with such a KSAO are available in the labor market, or (3) the median rating for a KSAO on the consequence scale is greater than the minimum value established by the job analyst prior to collecting the ratings—for example, a median consequence score of 3.0 or greater.

The final product of a job analysis is the linkage of KSAOs to their respective job tasks, which can be used for selecting candidates who have the greatest likelihood of succeeding in the position as well as identifying training needs for existing employees.

Case Study Background and Context

In the remainder of the paper, a case study of an elementary and middle school principal job analysis is presented that illustrates the major steps that were discussed in the previous section. Here, we refer to the charter school system in which this study took place as Nationwide Charter School System, a pseudonym to maintain confidentiality, and we use the acronym NCSS throughout the remainder of this paper. NCSS is a company that manages charter schools and partners with school boards across the nation.

High-quality principals are the key to high-performing schools. One of the questions that prompted the job analysis was, "Do the current staffing procedures assure that highly qualified and well-suited principal candidates are hired and developed?" Compatibility with the

requirements of the principal position is relevant for many reasons, one of which is the strong linkage between school leadership and student learning. Among school-related factors that impact student learning, leadership is second only to teaching, and the impact of leadership on student learning is the greatest where learning needs are the most acute (Hattie, 2005). School principals impact student learning by establishing a safe work environment, setting high academic and moral standards, providing professional development training, and equipping teachers with the resources that are needed to produce optimal student learning.

A recent study examined the effects of principal stability on teacher turnover (Barnes, Crowe, & Schaefer, 2007). The study found that teachers who worked in school districts with high principal turnover had a greater propensity to separate from the school. Furthermore, high principal and teacher turnover sends a warning message to parents that the school district is unstable, which may result in a spike in student attrition. If used properly, a comprehensive job analysis of the principal position has the ability to mitigate the chain of outcomes that are described above by helping to ensure that the best candidate is hired and developed.

Purpose of the Principal Job Analysis

Currently, NCSS does not have a systematic process in place for conducting a fundamental needs analysis that identifies the KSAOs necessary for successful job performance of the principal position. The purpose of the job analysis was to identify a set of "essential" KSAOs that would inform principal recruitment, selection, and training. To do this, we identified a core group of SMEs whose performance exemplifies the work of a successful principal.

Method

Identification and Recruitment of SMEs

The core group of SMEs were employed by NCSS and were selected because they possessed a wealth of knowledge, job experience, and skill level that qualified them as experts of the principal position in terms of "best practice," content knowledge, and organizational goals. The SMEs either worked as a principal or as a supervisor of principals. The core group of job incumbents and supervisors were hand-selected to achieve a balanced blend of perspectives of the principal position.

SME Characteristics

Of the eight SMEs who volunteered, six completed all three phases of the job analysis and are described below in terms of demographic and work-related characteristics. The SME sample was equally balanced between job incumbents and supervisors and between males and females. Their ages fell within three ranges: 41-50 (17%), 51-60 (33%), and 61 and older (50%). All of the SMEs were white. The highest level of education obtained by the SMEs was a master's degree with the exception of one who had a doctoral degree. The number of years that SMEs have worked as a principal ranged from 8 to 30 years, with a mean of 18.5 years. Among SME principals, the length of employment at NCSS ranged from 2 to 8 years, with a mean of 4 years. Among supervisors, the length of employment ranged from 5-10 years, with a mean of 7 years. At some point in their career prior to working for NCSS, at least half of SMEs were employed as teachers (83%), assistant principals (50%), principals (100%), and other positions such as a special education director, Title 1 director, guidance counselor, etc. (83%). More than half of the SMEs worked at an urban school (67%), half worked at a suburban school (50%), and only one SME worked at a rural school prior to working for

NCSS. Only one SME worked at a private school and everyone had worked at a public school.

Job Task Generation

To conduct the first phase of the job analysis, a semistructured job task inventory was completed by SMEs who listed the essential tasks of the NCSS principal position. The following rule-of-thumb was used by SMEs to decide whether or not a job task was essential—tasks that could not be performed by any other employee and serious consequences exist if the task was performed incorrectly.

Eight functional job categories were included on the job task inventory to organize the task statements and to solicit a comprehensive set of task statements (see Table 1). Each SME was provided the opportunity to list up to seven essential task statements under each of the functional job categories.

Table 1
Functional Job Categories and Descriptors

Functional Job Category	Description
Curriculum & Instruction	Job tasks related to analyzing, examining, monitoring, deciding, planning, and seeking information about curriculum coverage and articulation, instructional materials, academic and cocurricular programs and requirements, educational assessment, and educational objectives and recognition
Personnel Management	Job tasks related to information-seeking, analysis, arranging, arbitrating, delegating, assigning, directing, and training in areas related to personnel activities and interpersonal relations as well as the observation of subordinate's performance, casual or structured feedback of performance assessments, and personnel decision making
Student Personnel	Job tasks related to ordering and observing student behavior, developing, and monitoring procedures related to student behavior and records, direct interaction with students or their parents to resolve problems and provide rewards
Building Administration	Job tasks related to analyzing, assessing, arranging, or developing plans and budgets; assessing or monitoring current arrangements, school needs or goals, and operating procedures. A variety of activities related to school improvement or renewal are included
Home-School-Community Relations	Job tasks related to analyzing community concerns and public opinion, communicate with parents and community persons or groups, and seek parent and community support for the school
School-system Relations	Job tasks related to communicating with, seeking assistance from, or coping with the demands of the state, authorizers, NHA service center, or other external groups
Personal and Professional Development	Job tasks related to assisting other principals, writing reports, and seeking information needed to manage or improve the school
Unscheduled Activities	Unpredictable job tasks that might be expected to interrupt routine activities
Other Activities	Other job tasks that do not fall into the any of the other functional job categories

Modified from Gottfredson & Hybl (1987)

In total, 314 essential task statements were listed across the six SMEs. The job analyst reviewed the task statements three times to eliminate redundant task statements. In addition, any task statement that was not endorsed by half of SMEs was eliminated. The condensed list of essential task statements totaled 84.

Job Task Ratings

To conduct the second phase of the job analysis, SMEs were sent a job task rating form that included the 84 essential task statements and were instructed to rate each task statement on the following dimensions that have already been defined in a previous section: (1) task

difficulty, (2) time spent on task, (3) task criticality, and (4) task essentiality. The sum of the first three dimensions was used to determine task importance and the essential function value was determined by adding the last two dimensions.

The task essentiality dimension was used to identify the most crucial essential job task statements among the functional job categories. Of the 84 essential job task statements, more than half (n = 46) met the criterion of receiving the highest possible rating of 5 on the task essentiality dimension by at least half of the SMEs. This criterion was used because it identified the job tasks that are the most important in terms of achieving NCSS's organizational goals.

KSAO Identification and Ratings

In the third phase of the job analysis, the knowledge, skills, abilities, and other characteristics (KSAOs) were identified for the final set of essential job task statements. The job analyst collaborated with HR recruiters and one SME to complete this phase. As discussed earlier, the optimal method would have been to have SMEs develop the KSAOs, however, due to large amount of time required to complete this phase, the job analyst had to utilize other knowledgeable sources as an alternative method.

Once the KSAOs were developed, SMEs were sent a form that instructed them to rate each KSAO based on the following dimensions that have already been defined in a previous section: (1) necessary to possess, (2) practical to expect, (3) consequence, and (4) competence. Below are the definitions and rating scale anchors for each of the four dimensions that were used to rate KSAOs.

The KSAO ratings were analyzed and eliminated if one or more of the following criteria were not met: (1) at least half of SMEs considered the KSAO necessary for a principal candidate to possess, (2) at least half of SMEs judged that principal applicants with such a KSAO are available in the labor market, and (3) the median rating for a KSAO on the consequence scale was 3.0 or greater. The final output of the job analysis was a prioritized list of essential job task statements and their corresponding KSAOs.

Results

In the following, the results of the job analysis are enumerated and presented. These include task ratings, KSAO ratings, reliability estimates for SME ratings, and the linkages between functional categories, tasks, and KSAOs.

Task Ratings

More than half (n = 46) of the original 84 essential job task statements met the criterion of receiving the top rating for task essentiality from at least half of the SME raters. These represent the final essential job task statements. These ratings and median task importance and essential value function scores are shown in Table 2. Here, task importance is the sum of SMEs' ratings for task difficulty, task criticality, and time spent. Essential value functions, on the other hand, represent the fundamental or primary job duties that fulfill organization-relevant objectives and are the sum of SMEs' ratings for task criticality and task essentiality. These values can be rank-ordered to identify the tasks that are most important and essential.

Table 2
SME Ratings of Essential Job Task Statements, Percent of "5's," and Mean Essential Value Function Score

Functional Job Category	Essential Job Task Statements	Task Difficulty	Time Spent	Task Criticality	Task Essentiality	Task Importance	Essential Value Function
Curriculum & instruction	1. Develop and supervise curriculum within the school including special education programs	17%	0%	83%	100%	11	10
	2. Facilitate teacher's review and alignment between state standards and curriculum	17%	0%	50%	100%	9.5	9
	3. Monitor implementation of curriculum to assure that the curriculum is meeting the student's needs	17%	0%	83%	83%	11.5	10
	4. Provide adequate training for teachers on how to implement curriculum	17%	0%	83%	83%	10.5	10
	5. Implement and monitor the character education program	0%	0%	33%	83%	7.5	8
	6. Monitor instructional strategies and techniques as well as lesson plans	17%	0%	50%	83%	10.5	9.5
	7. Analyze curriculum materials, tools, and student assessment data for the purposes of determining its effectiveness	17%	0%	67%	67%	11	10
	8. Meet with teacher teams to review the curriculum for the purpose of identifying what is effective and ineffective	0%	0%	83%	67%	10	10
	9. Teach and promote the use of student assessment data to guide instruction and identify achievement gaps	17%	0%	67%	67%	11	10
	10. Provide adequate resources for	0%	0%	83%	50%	9	10

Functional Job Category	Essential Job Task Statements	Task Difficulty	Time Spent	Task Criticality	Task Essentiality	Task Importance	Essential Value Function
	teachers to deliver effective instruction 11. Develop student learning goals and integrate them into the school improvement plan	0%	0%	83%	50%	10.5	10
Personnel management	1. Supervise school staff	17%	33%	100%	100%	11.5	10
	2. Conduct ongoing formative classroom observations and meetings to review results and provide feedback	0%	33%	83%	83%	11	10
	3. Conduct semi-annual summative teacher evaluations	0%	0%	67%	83%	9.5	10
	4. Conduct interviews, reference checks, and hiring procedures to fill school staff positions	17%	0%	100%	83%	9.5	10
	5. Develop and monitor performance improvement and teacher coaching plans	17%	0%	83%	83%	10	10
	6. Provide training and mentoring to new teachers about duties and culture	0%	0%	17%	83%	7	7
	7. Work individually with staff members for professional development	17%	0%	83%	83%	9	10
	8. Document unsatisfactory performance and provide feedback to staff member	0%	0%	33%	67%	7	6
	9. Coordinate staff development training	0%	0%	67%	67%	10.5	10
	10. Develop school calendar and communicate clear timelines for events and staff deliverables	0%	0%	83%	50%	9.5	10
Student personnel	1. Conduct parent meetings to review student progress and	0%	0%	50%	67%	10.5	9

Functional Job Category	Essential Job Task Statements	Task Difficulty	Time Spent	Task Criticality	Task Essentiality	Task Importance	Essential Value Function
	counsel parents						
	2. Develop school programs that reward excellence in academic performance and character education	0%	0%	67%	50%	8.5	9.5
	3. Monitor student attendance and personal files	0%	0%	33%	50%	9.5	8
	4. Establish and enforce discipline policies and communicate with the assistant principal about discipline issues	17%	17%	67%	50%	9	10
Building administration	1. Provide effective leadership for teachers, students, and parents	33%	17%	50%	100%	10.5	10
	2. Determine school closings due to severe weather conditions or building hazards	0%	0%	33%	83%	6.5	8
	3. Develop and maintain a safe school environment	0%	17%	33%	67%	8.5	8.5
	4. Establish and oversee procedures for all aspects of daily operations	0%	17%	67%	67%	10	10
	5. Respond to facility breakdowns	0%	0%	33%	67%	9.5	8.5
	6. Develop school improvement plan with teaching staff and review progress towards goals during regular staff meetings	0%	0%	50%	50%	9	9
	7. Write annual school report	0%	0%	50%	50%	8	9
	8. Organize character education assemblies	0%	0%	50%	50%	6.5	9
	9. Monitor school budgets, student enrollment goals, and revenue targets	17%	17%	67%	50%	11.5	10
Home-school-community	1. Coordinate parent teacher conferences	0%	0%	50%	67%	7	9.5

Functional Job Category	Essential Job Task Statements	Task Difficulty	Time Spent	Task Criticality	Task Essentiality	Task Importance	Essential Value Function
relations	2. Publish newsletters to parents every month and to staff every week	0%	0%	17%	67%	5.5	7.5
School-system relations	1. Fulfill the requirements of the state Department of Education	17%	17%	100%	83%	10.5	10
	2. Provide periodic updates to charter school authorizers	0%	0%	33%	83%	7	8
	3. Complete charter school renewal process	33%	0%	0%	67%	4	3
	4. Collaborate with the charter school board members, directors of school quality, and other NHA principals	17%	0%	50%	67%	8	9
	5. Design and implement school improvement interventions based on the results from external evaluation results	17%	0%	83%	67%	10	10
	6. Prepare reports for the charter school board	0%	0%	83%	67%	8.5	10
Professional development for principals	1. Maintain professional certificates	0%	0%	83%	83%	8.5	10
	2. Participate in professional development activities	0%	0%	33%	50%	7	8
Unscheduled and other activities	1. Emergency dismissal of unprofessional behavior	33%	17%	83%	83%	7	10
	2. Organize and implement a summer learning program	17%	0%	50%	50%	9	9

The number of job task statements were disproportionately nested within curriculum and instruction (24%), personnel management (22%), and building administration (20%), which suggests that these functional job categories should be given more weight in the selection process.

It is interesting to note the absence of any correlation between the essentiality of the task and the amount of time spent on the task. One would expect that the most essential job tasks would foster a greater time commitment. Even though not reported, the most frequent rating for the amount of time spent carrying out the

essential job tasks was less than 20 percent (rating of 1). Thus, the NCSS principal position does not spend the majority of work time on the job tasks that have been identified as necessary for accomplishing organizational goals. This finding highlights the need to realign the amount of time spent on tasks with the essentiality of the task.

Based on the job task ratings, the most difficult job tasks for principals were providing effective leadership, completing the charter school renewal process, and emergency dismissal of unprofessional behavior. The difficulty level of these tasks is intuitive because they require a complex interaction between multifaceted processes and management of people to complete. Focusing professional development around the most difficult job tasks may be an effective strategy for eliminating enduring performance gaps.

KSAO Ratings

Forty-nine out of 53 KSAOs met the three-part inclusion criteria: necessary for principal applicant to possess, practicality of finding a principal applicant with the KSAO, and consequence if KSAO is ignored in the selection process. The proportion of SMEs that perceived the KSAO as necessary and practical and the median ratings for the consequence and competence dimensions are presented in Table 3. As shown in the table, there were slightly more knowledge (n = 14) and abilities (n = 14) requirements than skills (n = 10) and other characteristics (n = 11). One method of integrating the KSAOs into the selection process is to group the KSAOs that are interrelated or dependent on one another into core competencies.

Table 3
SME Ratings of KSAOs

Category	KSAO	Necessary	Practical	Consequence	Competence
Knowledge	1. Masters in Educational Leadership (M.Ed.) with a minimum of nine credit hours allocated to the study of curriculum, supervision and research or equivalent job experience	67%	83%	3.5	3.5
	2. K-8 state standards/GLCEs, highly qualified teacher standards and state corrective action plan	83%	83%	4	4
	3. No Child Left Behind Annual Yearly Progress requirements	83%	83%	4	4
	4. Attributes of successful teams	100%	100%	4.5	4.5
	5. Knowledge of reward systems for excellence	67%	100%	3	3.5
	6. Learning theory and student motivation	100%	100%	4	4
	7. Basic level of statistical knowledge	83%	100%	3	3
	8. School mission, vision, policies, and procedures	83%	100%	4	4
	9. Performance evaluation system—performance appraisals, merit pay, and succession planning	83%	83%	4	4
	10. Staff induction, support, mentoring, and development processes	83%	83%	4	4
	11. Staff selection, supervision, and dismissal procedures	83%	83%	4.5	4.5

Category	KSAO	Necessary	Practical	Consequence	Competence
	12. Curriculum and content knowledge in core subject areas and special education, effective teaching skills and classroom management, and differentiated instruction and inclusionary practices	100%	100%	5	5
	13. Resources for staff, students, and parents	67%	83%	3	3
	14. Understanding of the role of parents, community, school boards, and authorizers in the school	100%	100%	3.5	3.5
Skills	1. Cultivate a school culture that promotes student learning	100%	100%	5	5
	2. Create a work environment for staff that encourages and enables self-management	100%	100%	4	4
	3. Build the school's reputation for social responsibility that fosters a sense of being a part of something bigger than themselves	100%	100%	5	5
	4. Empower workforce by giving appropriate control to the staff who actually do the work	83%	100%	3.5	4
	5. Assess individual competencies, assign talent rankings and develop succession plans	83%	83%	4	4
	6. Promote parental participation and articulate and market the school	100%	100%	4.5	4
	7. Guide the effective implementation of the core curriculum in all classrooms by employing content knowledge, classroom visitations, monitoring tools, expectations, and feedback	100%	100%	5	5
	8. Make data-driven decisions based on appropriate analysis of relevant information to provide more individualized instruction to students, track professional development needs, identify successful instructional strategies, and communicate better with parents and the community	100%	100%	4	4
	9. Budget planning and resource allocation	67%	67%	3	3
	10. Use of current research and best practices	83%	83%	3	4
Abilities	1. Set achievable and challenging goals for the school	100%	100%	5	4.5
	2. Provide information to staff about school goals, resources, technology, and policy that will support high performance	83%	100%	4.5	4.5
	3. Enforce individual accountability	100%	67%	4	4
	4. Assess, build and manage successful teams	100%	100%	5	5

Category	KSAO	Necessary	Practical	Consequence	Competence
	5. Mediate concerns of students, staff, parents, and the community	67%	67%	3.5	3.5
	6. Enforce student discipline, suspension, and expulsion	100%	100%	4	3.8
	7. Recruit, hire, and retain qualified staff	100%	100%	5	4.5
	8. Achieve and sustain excellent results by respectable means	100%	100%	5	5
	9. Build relational capacity with staff, students, and parents	100%	100%	5	5
	10. Provide continual coaching and feedback for staff	100%	100%	5	5
	11. Develop curriculum support documents for staff (i.e., teaching objectives for core subjects, prerequisite skills for each grade level, vertical alignment from K-8, grade level maps) and provide curriculum training and/or individual coaching	100%	67%	3.5	3.5
	12. Effectively present information to top management, public groups, and/or boards of directors	83%	100%	4	3.5
	13. Facilities management	67%	50%	3	3
	14. Analyze and interpret data on attendance, enrollment, teacher/parent satisfaction surveys, and test results to assess progress towards goals and professional development needs, and to guide strategic planning for school improvement	83%	83%	3	3
Other characteristics	1. Leadership style that is "other-centered" who is more focused on the school's success than personal success	83%	100%	5	5
	2. Possess a strong sense of duty and persists through hardship, works conscientiously, and is counted on by others to get things done	100%	100%	5	5
	3. High achiever who is hard working, goal orientated and self-motivated	100%	100%	5	5
	4. Organized and strong planner	100%	100%	4.5	4.5
	5. Seeks and maintains a role as a leader in groups and is influential in individual relationships	67%	100%	4	4.5
	6. Values and respects other opinions and when appropriate defers to others	83%	100%	4.5	4.5
	7. Communicates high expectations in a positive, constructive manner	100%	100%	4.5	4.5
	8. Genuinely cares for staff and participates in nurturing behavior	83%	100%	5	5
	9. Progressive leader who is a forward thinker, change agent and employs competitive practices	83%	100%	5	5

Category	KSAO	Necessary	Practical	Consequence	Competence
	10.Self-reflective and strives to grow professionally and personally	100%	100%	5	5
	11.Detail-orientated	83%	100%	4	4

Linkages between Functional Categories, Tasks, and KSAOs

Table 4 presents the linkages between essential job tasks and KSAOs. These results can be used to develop performance evaluation criteria. These criteria would be legally defensible and aligned with the requirements for accomplishing the NCSS organizational goals.

Another way the linkage table could be used is to identify training needs that would eliminate performance gaps between observed and desired performance on essential job tasks. For example, if a principal is underperforming on a specific essential job task, then their supervisor can offer training opportunities that focus on one or more of the KSAOs that are required to successfully complete the essential job task.

Table 4
Linkages Between Functional Categories, Tasks, and KSAOs

Functional Job Category	Essential Job Task Statements	Knowledge	Skills	Abilities	Other Characteristics
Curriculum & instruction	1	1, 2, 6, 12	4, 8, 13	3, 10, 11	5, 6, 7, 8, 9, 11
	2	1-3, 12, 14	2, 4	2, 3, 9, 10, 11, 14	2, 4, 5, 6, 7, 8, 11
	3	2, 3, 6, 12	1, 4, 8, 10	2, 3, 8, 9, 10, 11, 14	5, 7, 8, 11
	4	1, 2, 6, 10, 12, 14	1, 8, 10, 11, 12, 13	1, 3, 9, 10, 11, 14	1, 3, 4, 5, 7, 8, 9, 11
	5	8, 12	3, 4, 8	2, 3, 8, 9, 10, 11	1, 5, 7, 8, 11
	6	1, 10, 11, 12	2, 6, 10, 13	2, 3, 8, 9, 10, 14	1, 3, 4, 5, 7, 8, 9, 11
	7	2, 3, 7, 12	5, 10, 13	11, 13	3, 7, 9, 11
	8	1-4, 7, 12	1, 2, 4, 5, 8, 10, 13	1, 2, 4, 9, 10, 11	1, 3, 4, 6, 7, 8, 9, 11
	9	1, 2, 3, 7, 10, 12, 13	1, 2, 4, 10, 13	1, 2, 3, 9, 10, 14	2, 3, 7, 9, 11
	10		9	2, 11	1, 2, 11
	11	2, 3, 6, 7, 8	1, 4, 8, 10	1-3, 8, 10, 14	2, 3, 4, 6, 7
Personnel management	1	1, 4, 5, 11	2, 4	2-5, 10	1, 2, 5, 7, 8, 11
	2	2, 4, 5, 7, 9, 11-13	4, 7, 8, 10	3, 7, 9, 10, 14	1, 7, 8
	3	2, 5, 7, 9	5	7, 9, 10, 14	7, 8, 11
	4	2, 11	3, 5, 9	7	3, 4
	5	8, 11-13	5, 7, 8	3, 7, 9, 10, 14	1, 3, 7, 8
	6	2, 4, 8, 10, 12, 13	1-3, 7, 8	2, 3, 7, 9, 10	1, 3, 5, 7, 8
	7	2, 5, 8, 10, 12, 13	2, 3, 5, 7-9	2, 3, 8-10, 14	1, 3, 5, 7, 8
	8	11, 12	5	3, 7, 9, 10	5, 7, 8
	9	13	1, 3, 8-10	8, 14	4, 7, 9, 11
	10		2	2, 3	2, 4, 11
Student personnel	1	6-8, 13, 14	6, 8	5, 9	5-7
	2	5, 6, 8	1, 10	8, 9	1, 3, 4, 7
	3	8	2	6, 14	2, 11
	4	8	1, 4	3, 5, 6, 9	4, 6, 7
Building administration	5	1, 4, 5, 8	1-4, 9	1, 2, 4, 5, 7-10	1, 2, 5-10
	2	8		13	

Functional Job Category	Essential Job Task Statements	Knowledge	Skills	Abilities	Other Characteristics
	3	8	1	6-10, 13	1, 5, 7, 8
	4	8, 13	4	8, 13	2, 4, 11
	5	8		13	2, 4, 11
	6	2, 3, 6-8	8-10	1, 2, 14	3, 4, 6, 7
	7	2, 3, 7, 8		12, 14	2-4, 11
	8	5, 8, 13	3		2-4, 11
	9	1, 8	8, 9	14	2-4, 11
Home-school-community relations	1	8	6	5, 9, 13	2-4, 11
	2	8, 13, 14	1, 3, 6	2, 5	2, 3, 7, 9, 11
	1	1-3, 8	8	14	4, 11
	2	2, 3, 8, 14	8	12, 14	2, 4, 11
School-system relations	3				
	4	8, 14		12	1, 3, 9, 10
	5	7	1, 8, 10	2, 8, 14	2, 3, 7-10
	6	2, 3, 7, 8		12, 14	2-4, 11
Professional development	1	8			2,3,4,11
For principals	2	8			2,3,4,9,10,11
Unscheduled and	1	8,9,11,13	5	3,7,10	2,5,7
other activities	2	2,6,8,12,13,14	1,6,7,8,9,10	1,2,3,9,11,14	2,3,4,7,9,11

Reliability Estimates for SME Ratings

A single-facet generalizability study was conducted to estimate the level of agreement between raters. The single facet was raters and all *n* tasks statements/KSAOs were assessed by all *k* raters, and these raters were considered representative of a larger population of raters (Model 2 in the Shrout & Fleiss typology, 1979). A two-way repeated measures analysis of variance (ANOVA) was used with raters as the within-group factor and job tasks/KSAOs as the between-group factor. The ANOVA partitioned the total variance into variance components (VC) due to differences between job tasks/KSAOS (*T*), differences between SME raters (*R*), and difference due to the interaction between SME raters and job tasks/KSAOs, which is the error variance (*E*). Using the variance component terms, the formula given in Equation 1 was used to calculate the intraclass correlation coefficients (ICC) for the ratings of the job task and KSAO dimensions that reflect both the degree of correspondence and agreement among ratings:

$$\text{ICC} = \frac{\sigma_T^2}{\sigma_T^2 + \sigma_E^2} \qquad (1)$$

The results from the generalizability study of the essential job task statements revealed that the reliability was relatively low for each of the four rating dimensions (ICC = .06-.38). The amount of total variance in the job task statement ratings that was attributed to error for task difficulty was 56.7 percent, time spent was 76.1 percent, task criticality was 86.8 percent, and task essentiality was 75.5 percent. Thus, the majority of total variance was not accounted for by differences between job task statements and between SME raters. The generalizability coefficients of the essential value function (ICC = .44) and task importance (ICC = .56) scores approached moderate levels of reliability.

Table 4
Variance Components, Percentage of Variation, and
Generalizability Coefficients for SME Ratings of Essential Job Task Statements

Source of Variation	Task Difficulty		Time Spent		Task Criticality		Task Essentiality		Essential Value Function		Task Importance	
	VC	Percent	VC	Percent	VC	Percent	VC	Percent	VC	Percent	VC	Percent
Task Statements (*T*)	0.561	35.6	0.347	8.7	0.560	5.6	0.411	13.3	1.560	31.6	2.952	48.0
Raters (*R*)	0.122	7.7	0.606	15.2	0.757	7.6	0.346	11.2	1.399	28.3	0.875	14.2
Residual (*E*)	0.895	56.7	3.038	76.1	8.635	86.8	2.331	75.5	1.984	40.1	2.322	37.8
ICC	0.385		0.102		0.061		0.150		0.440		0.560	

The generalizability coefficients of the KSAO dimensions shown in Table 5 were moderate for the consequence of ignoring the KSAO for principal selection (ICC= .353), and competence of the KSAO for distinguishing superior from average principals (ICC = .323). The amount of total variance in the KSAOs ratings that was attributed to error was 51 percent for consequence and competence ratings.

Table 5
Variance Components, Percentage of Variation, and
Generalizability Coefficients for SME Ratings of KSAOs

Source of Variation	Consequence		Competence	
	VC	Percent	VC	Percent
KSAO (*T*)	0.344	27.9	0.301	24.5
Raters (*R*)	0.259	21.0	0.299	24.3
Residual (*E*)	0.630	51.1	0.631	51.2
ICC	0.353		0.323	

As shown in Equation 2, interrater reliability, based on SMEs' ratings was simply estimated as a *coefficient of agreement* represented by the total proportion of observations (P_o) of which there was agreement, or

$$P_o = \frac{\text{number of exact agreements}}{\text{number of possible agreements}} = \frac{\sum f_o}{N} \qquad (2)$$

where $\sum f_o$ is the sum of the frequencies of observed agreements, and N is the number of pairs of scores obtained. The amount of agreement was adequate between the SME ratings for the necessary to possess KSAO dimension, P_o = .77 (i.e., 77%). Agreement was even higher between the SME ratings for practical to expect KSAO dimension, P_o = .85 (i.e., 85%).

Conclusion

The significance of job analysis is the ability to integrate essential job tasks and KSAOs into employment procedures such as selection, training, compensation, and performance appraisal. Optimal selection procedures utilize job analysis to identify KSAOs that should be included in job descriptions and/or job postings; to develop appropriate salary levels for the job position and what salary should be offered to a job candidate; to establish minimum requirements (education and/or

experience) for screening applicants; and to develop interview questions, selection instruments, applicant evaluation forms, and orientation materials for new hires.

Job analysis is also a tool for determining training needs such as training content and methods of training (i.e., small group, computer-based, video, classroom, etc.). It also serves as a compensation tool that can be used to determine skill levels, compensable job factors, responsibilities (e.g., fiscal, supervisory), and required level of education that is indirectly related to salary level. Relatedly, job analysis can also serve as a tool for performance reviews to develop goals and objectives, performance standards, evaluation criteria, and job duties to be evaluated. Nonetheless, few examples of job analyses are to be found in the personnel evaluation literature, with the exception of general job-related information located in the O*NET (Occupational Information Network) (Peterson et al., 2001).

A bottom-up approach that started with the most essential job tasks of principals (versus a top-down approach that starts with organizational goals and relies very little on job analytic information) was selected so that the output provided all requisite data to support the existing HR programs. To illustrate, the job tasks that were identified as essential for accomplishing the organizational goals and the most difficult to carry out—for example, "Emergency dismissal of unprofessional behavior"—informs the HR professional development program that principals would benefit from training on how to enforce individual accountability; provide continual coaching and feedback to staff; and recruit, hire, and retain qualified staff. The KSAOs can be used by HR recruiting and selection programs by combining the most prevalent KSAOs into job-related competencies. These job-related competency definitions can be translated into a job description and integrated into screening instruments that would identify candidates who are the most likely to succeed as an NCSS principal. Finally, the job analysis results can be applied organization wide by aligning principals' daily job tasks with the essential job tasks that are required to achieve organizational goals. Nonessential job tasks could be delegated to school staff to free up the principals' time to devote to completing the essential job tasks.

The benefits outweigh the amount of resources required to complete a high-quality job analysis. A clearly delineated linkage between essential job tasks and KSAOs was the final product of the job analysis, which represents the most refined level of analysis. The robustness of the linkages is evident when one considers the ability to aggregate across individual essential job tasks to identify the most frequently used KSAOS.

References

Barnes, G., Crowe, E., & Schaefer, B. (2007). *The cost of teacher turnover in five districts: A pilot study*. Retrieved December 28, 2007 from http://www.nctaf.org/resources/demonstration_projects/turnover/documents/CTTFullReportfinal.pdf.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*, 1-26.

Brannick, M. T., & Levine, E. L. (2002). *Job analysis*. Thousand Oaks, CA: Sage.

Chen, P. Y., Carsten, J. M., & Krauss, A. D. (2003). Job analysis—The basis for developing criteria for all human resources programs. In J. E. Edwards, J. C. Scott, & N. S. Raju (eds.), *The human resources program-evaluation handbook* (pp. 27-48). Thousand Oaks, CA: Sage.

Coryn, C. L. S. (2007). *Evaluation of researchers and their research: Toward making the implicit explicit*. Unpublished doctoral dissertation, Western Michigan University, Kalamazoo.

Coryn, C. L. S. (in press). Job analysis. In R. B. Johnson (Eds.), *The Sage glossary of the social*

and behavioral sciences. Thousand Oaks, CA: Sage.

Dunnette, M. D. (1963). A modified model for test validation and selection research. *Journal of Applied Psychology*, *47*, 317-323.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*, 327-358.

Gottfredson, G., & Hybl, L. (1987). *Research for elementary and middle schools: An analytical description of the school principal's job* (Report no. 13). Washington, DC: U.S. Department of Education, Office of Educational Research & Improvement.

Hattie, J. A. (2005). *What is the nature of evidence that makes a difference to student learning?* Retrieved January 16, 2008 from http://www.acer.edu.au/workshops/documents/Hattie.pdf

Hunter, J. E., & Hunter, R. F. (1984). The validity and utility of alternative predictors of job performance. *Psychological Bulletin*, *96*, 72-98.

Janz, T. (1982). Initial comparisons of patterned behavior descriptions interviews versus unstructured interviews. *Journal of Applied Psychology*, *67*, 577-580.

Jenkins, S. M., & Curtin, P. (2006). Adapting job analysis methodology to improve evaluation practice. *American Journal of Evaluation*, *27*(4), 485-494.

Joint Committee on Standards for Educational Evaluation. (1988). *The personnel evaluation standards: How to assess systems for evaluating educators*. Newbury Park, CA: Corwin Press.

Latham, G., Saari, L., Purcell, G. D., & Campion, M. A. (1980). The situational interview. *Journal of Applied Psychology*, *65*, 422-431.

McCormick, E. J., Jeannerett, P. R., & Mechan, R. C. (1972). A study of job characteristics and job dimensions as based on the position analysis questionnaire (PAC). *Journal of Applied Psychology*, *56*, 347-368.

Peterson, N. G., Mumford, M. D., Borman, W. C., Jeanneret, P. C., Fleishman, E. A., Levin, K. Y., Campion, M. A., Mayfield, M. S., Morgeson, F. P., Pearlman, K., Gowing, M. K., Lancaster, A. R., Silver, M. B., & Dye, D. M. (2001). Understanding work using the Occupational Information Network (O*Net): Implications for practice and research. *Personnel Psychology*, *54*(2), 451-492.

Salgado, J. F. (2001). Some landmarks of 100 years of scientific personnel selection at the beginning of the new century. *International Journal of Selection and Assessment*, *9*(1/2), 3-8.

Scriven, M. (1991). *Evaluation thesaurus* (4th ed.). Thousand Oaks, CA: Sage.

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlation: Uses in assessing rater reliability. *Psychological Bulletin*, *86*, 420-427.

Thorndike, R. L. (1949). *Personnel selection*. New York, NY: Wiley.