

Competency Modeling

Abstract

The purpose of this paper is to look at the value of utilizing job analyses/competencies in the workplace. "Competencies are the knowledge (bodies of information, such as engineering), skills (such as problem solving), abilities (capacities to perform), personal characteristics (such as decisiveness) and other person-based factors that help distinguish superior performance from average performance under specified circumstances." Competencies serve as the descriptive statistics when analyzing our data. An example is also shown along with some actual charts outlining the results of a job analysis/competency (SHRM, 2004).

"Descriptive statistics refers to a group of techniques that allows us to characterize information about a collection of things in (comparatively) simpler statements." For the purpose of this paper, competencies are our descriptive statistics. Competencies are also known as the duties, tasks and knowledge required to perform a particular position. Competencies are also useful when writing job descriptions, developing a selection process, and when determining necessary training for associates. In addition, competencies can be used in the appraisal process to provide a qualitative assessment. Competencies look to the future, rather than scoring an employee on past results (Pritchard, 2004).

To begin the process of evaluating a position, competency models should be developed. This involves the collection of data, which comes from your interview pool, also known as your sample size. If possible, you should try to include everyone in the particular position you are evaluating. A statistically valid sample size must be determined. The second consideration will be the quality of your interview pool. The goal is to ensure that the sample truly characterizes the entire populace.

There are two methods of gathering data: one-on-one interviews and panel/focus groups. One-on-one interviews can be conducted via telephone or in a face to face situation. The value of data analysis and the success of the competency model are dependent upon the precise recollection of the data and interpretation of the incumbent's point of view.

The surveying of data can be done in a variety of ways. The simplest way is to use average scores and a frequency distribution. However, a more complex analysis that uses more advanced statistical techniques, such as the t-test, standard deviation and one-way ANOVA could be used to help the competency draw its conclusions. "Although utilizing average scores, frequency of responses, and median scores assist the team in eyeballing levels of agreement between groups the more sophisticated analysis increases your confidence in the final conclusions" (Lepsinger & Lucia, 1999).

To determine the validity of a model, a mean efficiency rating could be conducted that would divide the population into two groups: performers above the median and performers below the median. "Competency scores could then be compared between greater groups by using t-test and ANOVA comparisons with a significance cutoff of $p < .05$." A value of .05 would indicate that there is a five percent (or a one in twenty) likelihood that the variation found amid the groups being compared is by chance. Significance values less than or equal to .05 would indicate that there is a significant difference between the groups (Schwabb, 1999).

Upon evaluating the data, the competency model requires finalization. This means that any categories or items that do not correlate with effectiveness in the job can be eliminated. "The result is a set of competencies and their associated behaviors which can be used as the basis for developing or enhancing tools used for human resource decision making" (Guion, 1998).

An example of the use of competency models can be seen in a 1999 study at St. Frances Hospital in Tulsa, Oklahoma. Researchers surveyed three critical care units at the hospital. Upon completion, they had a total of 27 competencies to work with. They were able to perform statistical analyses to identify the most critical job tasks, the necessary knowledge, skills and abilities, known as KSA's, and other pertinent characteristics.

There were a total of six (6) phases in performing the analysis. Researchers interviewed 75 critical care nurses (CCN's). Panel discussions were conducted in which between one and six participants were involved. This is where the job requirements of the critical care nursing positions were determined.

As a result of these interviews, all tasks performed by CCN's were compiled. These tasks were then organized into ten different groups which were then evaluated by a nurse manager. After the nurse manager made revisions, the tasks were presented to a management team. The team was then able to determine what the necessary KSA's were for successful job performance. The last step involved the researchers using the revised list to create the job analysis questionnaire.

The job analysis questionnaire was comprised of four sections. Section I contained demographic information, while the second section was a 106-point scale to measure the importance of each task, and a six-point scale which was used to rate the significance of error in performing these tasks. Frequency ratings ranged from "0" if the task was never performed to "5" if it was performed daily or more often. Importance

ratings ranged from “0” if the task was viewed as irrelevant to “5” if it was viewed as unquestionably critical to job performance. Finally, consequence of error ratings ranged from “0” if no problems occurred as a result of error in performing the task to “5” if an error resulted in severe problems or legal action.

Section III consisted of 60 KSA's. "The KSA's were rated on three different scales. They are as follows: a yes/no scale to determine if the KSA was required, a five-point scale that indicated the importance of each KSA for effective job performance, and a three-point scale to determine when the KSA is needed." The importance scale could range from “1” if the KSA was immaterial to “5” if it was absolutely necessary to achieve effective performance on the job. Section IV asked respondents to show the percentage of the job that they felt was described by the Job Analysis Questionnaire.

Descriptive statistics representing the demographics of the CCN's is seen in Appendix A below. Statistical results are displayed in Appendix B as shown below. "In order for a task to be considered critical for effective job performance, the mean ratings must be equal to or exceed 4.0 (4=weekly performance of task) for task importance, greater than or equal to 3.0 (3=average performance of task for task importance, and greater than or equal to 2.0 (2=several minor problems occur) for consequence of error" (Radford, 1999).

Results indicated that approximately 87% of the job of critical care nurse was covered by the questionnaire. Overall, the data indicates that the majority of the critical care nurse position was captured by this job analysis. Additionally, over 75% of the job tasks presented in the questionnaire were rated as critical to effective job performance (Radford, 1999).

As we can see by the study at St. Francis Hospital, the use of competencies in the workplace can be beneficial to all involved. While the study takes time, work and can be costly, the benefits are clearly visible.

Appendix A: Background Information

Where do you work?

PICU	67%
CICU	11%
ICU	19%

What degree do you hold?

BSN	67%
RN	26%
LPN	0%
Other	4%

How long have you worked in your current position? (In years)

<u>Mean</u>	<u>SD</u>
4.54	4.80

What shift do you work?

Day Shift	52%
Evening/Night	44%

Were you a critical care nurse at another hospital?

<u>Yes</u>	<u>No</u>
37%	59%

If so, how long were you a critical care nurse at another hospital? (In years)

<u>Mean</u>	<u>SD</u>
6.20	6.39

(Radford, 1999)

Appendix B: Task Statement Statistics

DAILY ROUTINE	Frequency	SD	Importance	SD	Consequence	SD
Obtains patient assignment from charge nurse or nurse supervisor.....	4.12	0.33	4.27	0.93	3.73	1.40
Obtains report at beginning of shift about assigned patient(s) from previous shift nurse(s) in order to get the most current information about patient condition.....	4.00	0.00	4.70	0.47	4.35	0.89
Uses hard copy of lab results or computer terminal, review and note results of all pertinent lab studies for each assigned patient.....	4.22	0.42	4.33	0.62	3.93	1.04
Interprets lab and test findings for each assigned patient to determine if current treatment plan is consistent with clinical findings.....	4.26	0.45	4.37	0.63	4.07	0.87
Notifies physician of abnormal and/or significant lab and test finding either in person or by phone.....	4.22	0.51	4.78	0.42	4.70	0.54
Updates doctor about patient status either in person or by phone using hard copy of lab results and vital signs, and Medication Administration Record.....	4.26	0.45	4.48	0.64	4.37	1.01
Updates patients' families on patient condition either in person or by phone depending on family situation and patient condition.....	4.19	0.48	4.07	0.47	2.81	1.39

(Radford, 1999)

Appendix C: KSA/O Statistics

KSAO's	Required	SD	Importance	SD	When Needed	SD
Knowledge of medical terminology.....	1.00	0.00	4.67	0.48	1.26	0.45
Knowledge of procedure for patient assignment.....	1.08	0.27	3.81	1.23	2.23	0.43
Knowledge of standards of care.....	1.00	0.00	4.15	0.72	1.85	0.46
Knowledge of hospital policies.....	1.00	0.00	4.07	0.73	2.07	0.38
Knowledge of medical procedures.....	1.07	0.27	4.04	0.65	2.30	0.72
Knowledge of (ab)normal lab values and ranges.....	1.00	0.00	4.56	0.64	1.70	0.67
Knowledge of (ab)normal vital signs.....	1.00	0.00	4.74	0.59	1.30	0.47
Knowledge of head to toe assessment technique.....	1.00	0.00	4.67	0.62	1.41	0.50
Knowledge of how equipment works when functioning (in)properly.....	1.00	0.00	4.27	0.72	2.12	0.33
Knowledge of patient monitoring procedures.....	1.00	0.00	4.37	0.74	1.96	0.34
Knowledge of (patho)physiology.....	1.00	0.00	4.26	0.66	1.37	0.69

(Radford, 1999)

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