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**Measuring Principals' Decision Making  
Knowledge and Skills through Cases**

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**Abstract:** The construct validity of cases designed to serve as formative and summative assessment tools for administrators' decision making knowledge and skill is described in terms of content validity and the response evidence generated by a cognitive task analysis of six experienced in-service principals reporting the key knowledge and skills they draw upon to make decisions. The cognitive task analysis, completed through focus groups and decision-making case responses, show experienced decision makers are guided by a process during decision making, but think of it more in terms of leadership, rather than decision making. The principals found that the cases designed for administrators-in-training did allow them to exercise the typical steps in their decision making process, but added that communicating the decision to others and reflection upon a decision and its effectiveness are important steps as well, and not currently represented in the ETIPS model.

## **Introduction**

We present our approach and findings to determine the construct validity of newly designed cases as an assessment of administrators' decision-making skill and knowledge. Research and theory was reviewed to create a model and blueprint of the key decision making knowledge and skill around which to design the case experience. We report here on how we built upon that construct validation work by conducting a cognitive task analysis with six expert in-service principals in order to generate response evidence about the validity of the cases as an assessment of decision making skill and knowledge. A cognitive task analysis research approach models "the action and especially the knowledge and thinking that learners engage in when performing some task" (Jonassen, Tessmer & Hannum, 1999, p. 107). This data will be used to support the refinement of the cases so that they can better serve as formative and summative assessments for prospective principals who are novices at decision making about key school wide issues.

## **Perspectives**

An urgent need to improve the application of theory to practice within K-12 administrator preparation programs has been emphatically declared by a number of studies since the University Council for Educational Administration's (UCEA's) seminal critical review nearly twenty years ago (UCEA, 1987). The available research suggests that administrators in training would benefit from additional and better opportunities to learn to diagnose and interpret problems and make decisions about leading a school in concert with others. While field-based experiences are considered critical in developing such a context-sensitive understanding of leadership issues, finding ways to provide and supervise them has proven a challenge for many programs across

the country (SREB, 2006). Thus developing strategies that bridge theory and practice is key to getting the most from pre-service administrators' necessarily limited field-based experiences. Cases have been long used in such fields as business and law as a strategy that bridges theory and practice; this method of instruction has increasingly found its way into the field of education (Merseeth, 1991; Sykes & Bird, 1992).

Cases are heralded as an effective tool for promoting students' reasoning and integrating information, more so than as a system for learning new facts. Cases can provide all students in a course a chance to interact with the same material yet most often they will produce very different decisions for them, allowing education faculty to, through discussion and feedback, draw out individual's assumptions and interpretations for further examination. In short, they can make students' critical thinking visible.

In that they serve as a window into the experiences, ideas, and abilities of the learners cases can serve as an effective assessment tool. Assessment experts suggest that assessments be designed so they are grounded in evidentiary reasoning, meaning that the assessment activity is specifically designed to elicit evidence about the student knowledge that is of interest (Mislevy, Steinberg, Almond, & Lukas, 2006; Pellegrino, Chudowsky, & Glaser, 2001). According to Pellegrino et al, central to assessment is reasoning from evidence generated through a process consisting of three points: "a model of how students represent knowledge and develop competence in the subject domain, tasks or situations that allow one to observe students' performance, and an interpretation method for drawing inferences from the performance evidence thus obtained (p. 2)."

Critical to this three-point model is the construct validity of the task as a performance assessment generating the data from which the inferences will be made. The construct validity of

an assessment derives from the fact that the key knowledge and skill under concern is appropriately represented in its content and is illustrated by learners' responses to the assessment. The ability of an assessment to predict scores on other measures of the same knowledge and skill also strengthens its construct validity.

For a performance assessment such as a case, a cognitive task analysis can be used to elicit response evidence for construct validation in the form of the actions, schema (i.e., knowledge organization and thinking) conceptual prerequisite knowledge, descriptions of system components and their interrelations, and if-then decision rules (Jonassen, Tessmer & Hannum 1999). There are a variety of methods in the research literature that are suggested for conducting a cognitive task analysis (Brown, 1998, Jonassen et. al, 1999; Smith & Ragan, 1993). Brown (1998) suggests that the analysis need requires researchers to first analyze which strategy will best meet their needs, the cost-efficiency constraints, ensure reliable and accurate information, and allow for updating and review of the analysis and concludes that a combination of methods may produce the best outcome.

### **Methods**

Drawing upon Jonnassen, Tessmer, and Hannum (1999) and Smith and Ragan (1993) we employed the following mode of inquiry. First, we considered the mental and physical steps principals must go through to plan to make decisions. From this information we created a set of questions to ask our expert subjects. Experts were then interviewed in a focus group format so as to catalyze their metacognition about decision making through ensuring they heard other principals' ideas and thinking.

One, six-hour work session was held on a university campus with the principals. Participants were asked first to describe, in writing, the decision making process they used when making larger, likely school wide, decisions. During a one-hour focus group the group shared their decision-making steps. A note-taker recorded all discussions. The focus group was also audio taped; the audiotape was listened to in order to add detail to the notes. Data analysis was ongoing and iterative in that the data were reviewed to discern emerging patterns and sorted into themes according to common steps and decision points.

After this first focus group, participants were asked to complete one online case, which consisted of an introductory statement to the case, the information making up a simulated school environment, and the task of answering with step-by-step detail a decision addressing this issue:

Imagine that you are a member of the leadership team at Cold Springs Middle School, in an urban location. Your superintendent has selected your school along with a few others to undertake a comprehensive self-study as a means to improve the educational services of the school. Your leadership team needs to identify a key initiative for the following year that will move your school toward this goal. Your task is to identify the primary issue(s) that need to be addressed and the action steps to take in order to initiate changes of substantial scope that improve the educational experience of students.

The ETIPS cases present a five-step decision making process, the first four steps of which are completed during the case: (a) identify the leadership issue; (b) identify principles to guide the decision making; (c) consider alternatives with associated opportunities and constraints; and (d) select the best alternative for the context and create a plan that includes setting direction, developing people, and making the organization work. The last step (e)

evaluate effectiveness of decision and determine principles or criteria to add, drop, or reprioritize, is a reflective step that follows implementation and therefore not simulated within the ETIPS prospective view of decision-making.

The web-based simulated school environment realistically portrays the web site and intranet of a school in which they imagine themselves a leader. Users can select from over 45 menu items in the following 11 categories: About the School; Students; Staff; Curriculum and Assessment; Technology Infrastructure; School Community Connections; Professional Development; Student Data, Staff Data, Policies, Financial Records. As the participants completed the case the software tracked which menu items they accessed in the web-based simulated school environment and created a "DataMap." When the user determined they had sufficient information to respond to the four-step decision making process, and thereby address the issue posed to them in the introduction, they completed and submitted the case.

Having all subjects complete a simulation provided us an opportunity to have them demonstrate their decision making process in a way that we could make detailed, unobtrusive observations about it as well as control for contextual details by giving all the users the same school context. This approach enriched our data sources as well as allowed for better comparisons of decision making and information search strategies among subjects.

After the case was completed by each individual, they participated in another hour-long focus group in order to reflect on and compare their experience within this online problem space to the decision making process they had articulated in the initial focus group discussion.

### **Data Sources**

The six subjects were identified by the second author as experienced and successful administrators in the area schools. Of the six participants, four were elementary school principals; one was a middle high school teacher; and one was a principal in a high school. These leaders ranged in years of administrative experience from five to thirty-two years.

In the construct validation process we report on here, the response evidence includes the notes from the day's two focus group sessions, the principals' ETIPS case responses, the "DataMap" showing their search of case information, and written notes about their decision making approach and how it compares to what the case asked of them.

### **Results**

Overall, these principals reported that they do not focus on decision making as a topic very often, but nevertheless have a process they use to make decisions, which is stored in their minds as a mental template, or schema. Their set of steps to make decisions is organized in their minds more in terms of leadership they exert, and getting their job done, instead of being labeled as a decision making routine.

Their described decision making processes validates the 4-step model inherent in the cases. However, they use different labels and language to describe the work. They also describe carrying out the steps in more of an iterative rather than a step-wise fashion. One important step they described that could be emphasized to a greater extent in the case process is the focus they put on how to communicate the decision to others, and the need to do so multiple times. The principals also validated the last step of the ETIPS decision-making model, which is reflecting upon the decision and its effectiveness. This step is not in the case since this instructional

exercise doesn't simulate implementing the decision but principals' remarks underscored the importance of including it in the instructional model.

Results from principals' feedback on their experience in reasoning through and writing up a decision compared to the process they articulated in the focus group revealed that principals felt the case supported their process. In the first step of the case they are to determine the issue and are faced with a multitude of data through which they had to sift and make sense of, and then see patterns and generate priorities. One participant said "I thought it re-created what we do better than other materials, like other case studies. You are constantly looking at a million data points. It gets at the huge stream of things coming at you."

In the second step of the case they are to identify criteria they'll use to guide their weighing of alternatives and the selection of a course of action. They were asked to check their top three pieces of knowledge and values, all of which are from the ISLLC standards. The wording of these statements seemed too formal or even unclear for them to resonate with the principals as indicative of what guided them. However, the more general step of being reflective about your own biases, behaviors, and preferences and how these will influence your decision making was a step that seemed natural to these experienced practitioners; one said "You don't do a checklist sort of thing, but you keep key things in mind."

Several members of the group identified step three of the case exercise as most like what they do. Here they were asked to identify two alternatives for addressing the key issue they determined in step one, and then to think about organizational enablers and constraints. More than one person felt that they'd want to implement all of the alternatives they identified, as opposed to weighing each against criteria and determining its viability in the organization. It seemed they'd naturally edited out non-viable alternatives and so the options that they did list

represented more of a multi-step approach they'd like to make. Yet, one principal did allow "I don't always map out alternatives, and maybe I should."

In the final step of the case the principals were asked to select an alternative (from step three) and make an initial plan with it, including the direction they'd set for a course of action, as well as how to develop people and redesign the organization to support that direction. Here the group varied the most, with two principals describing these three aspects of formulating a plan of action as "dead-on. It was the most realistic." Two principals reported that the labels of the steps reflected things that were areas where they were still developing their capabilities. One said, "I am just getting to learn about this now, and am just learning to develop people. It is easier to set direction." A high school and an elementary school principal, who represented the largest and smallest schools in the group, commented on how developing people and making the organization work will look very different in different size schools. The elementary principal described how in her small school she is able to work with all the teachers directly. The high school principal remarked how in his large school he needs to rely on department chairs, or team leaders to help develop others and work on how the organization could be better aligned with the intended direction.

### **Implications**

Because schema guide decision making (Shavelson & Stern, 1981), educators working to develop prospective administrators' abilities to effectively make decisions should attend to these school leaders' schema about the processes of making and implementing decisions and provide feedback to the leaders about their mental models. Information about these schema can be elicited from techniques such as the cognitive task analysis reported upon here. These results can

inform the design of formative and summative assessment experiences for administrators to aid their skill development at making school leadership decisions. Such information is helpful for both providers of professional development and professors in that it identifies key desired outcomes of these learning experiences. It also suggests what sorts of learning activities to design, readings to include, and other assessments or feedback mechanisms could develop these outcomes. These results can also inform the design and analysis of learning materials under development or revision such as the other tools presented in this symposium.

### References

- Angoff, W.H. (1988). Validity: An evolving Concept. In H Wainer & H.I. Braun, Eds.) Test Validity, pp. 19-32. Hillsdale, NJ: Lawrence Erlbaum
- Brown, B. L. (1998). Cognitive Task Analysis. ERIC Practice Application Brief. [on-line] Accessed May 24, 2003 at <http://ericacve.org/docs/taskanal.htm>
- Cronbach, L.J. (1988). Five perspectives on the validity argument. In H Wainer & H.I.Braun, Eds.) Test Validity, pp. 3-18. Hillsdale, NJ: Lawrence Erlbaum
- Jonassen, D.H., Tessmer, M. and Hannum, W.H. (1999). *Task Analysis Methods for Instructional Design*. Mahwah, NJ: Lawrence Erlbaum Associates
- Leithwood, K., & Steinbach, R. (1995). *Expert problem solving: Evidence from school and district leaders*. Albany, NY: State University of New York Press.
- Merseth, K. K. (1991). The early history of case-based instruction: Insights for teacher education today. *Journal of Teacher Education*, 42(4), 243-249.
- Messick, S. (1988). The once and future issues of validity: Assessing the meaning and consequences of measurement. In H Wainer & H.I.Baun, Eds.) Test Validity, pp. 33-44. Hillsdale, NJ: Lawrence Erlbaum
- Mislevy, R. J. Steinberg, L.S., Almond, R. G. & Lukas, J. F. (2006). Concepts, terminology, and basic models of evidence-centered design. In D.M. Williamson, I.I. Bejas, & R.J. Mislevy (Eds.) *Automated Scoring of Complex Tasks in Computer-Based Testing*. Mahwah, N.J.: Lawrence Erlbaum.
- Pellegrino, J., Chudowsky, N. & Glaser, R. (2001). *Knowing what students know*. Washington, D.C.: National Academy Press.

- Shavelson, R.J. & Stern, P. (1981). Research on teachers' pedagogical thoughts, judgments, decisions, and behavior. *Review of Educational Research*, 51, 455-498.
- Smith, P.L. & Ragan, T.J. (1993). *Instructional Design*. New York:Macmillan.
- Southern Regional Education Board (SREB). (2006). *Schools can't wait: Accelerating the redesign of university principal preparation programs*. Atlanta, GA: Author. Retrieved May 15, 2006, from [http://www.sreb.org/programs/hstw/publications/special/06V04\\_Schools\\_Cant\\_Wait.pdf](http://www.sreb.org/programs/hstw/publications/special/06V04_Schools_Cant_Wait.pdf)
- Sykes, G., & Bird, T. (1992). Teacher education and the case idea. *Review of Research in Education*, 18, 457-521.
- University Council for Educational Administration. (1987). *Leaders for America's schools: The report of the National Commission on Excellence in Education*. Tempe, AZ: Author. (ERIC Document Reproduction Service No. ED346082)
- Westerman, D.A. (1992). Expert and novice teacher decision making. *Journal of Teacher Education*, 42(4), 292-305.
- University Council for Educational Administration. (2005). *An educative look at "Educating School Leaders."* Retrieved May 15, 2006, from <http://www.ucea.org/pdf/EducLeadersRespMar18.pdf>