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ETIPS Leadership Cases: An Innovative Tool for Developing Administrative Decision Making

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One of the most persistent critiques of educational leadership preparation programs has been the need to more explicitly address the application of theory to practice. Case studies have been used to serve this purpose, but there is little empirical research on their contributions to learning in preparation programs. This paper introduces features of the Educational Theory Into Practice Software (ETIPS) online leadership cases, summarizes reactions of students and instructors to them, and presents results from a two-year study that found that ETIPS cases develop students' decision making skills, and more generalized self-efficacy, confidence and certainty about the decision making process.

For most professional preparation programs in education, as well as those in business, law, and medicine, the persistent challenge has been to support students' ability to apply theory to practice (Labaree, 2004). This has certainly been the case for K-12 leadership preparation programs with numerous studies identifying weaknesses in how, or even whether, students receive opportunities to apply theory and research learned in leadership courses to the practice of leading in specific contexts (Darling-Hammond, LaPointe, Meyerson, & Orr, 2007; Levine, 2005; Murphy, 2006; Young & Crow, 2007). At its core, professional practice involves defining and solving problems, which in turn requires specialized knowledge to inform the decision making process (Schön, 1983). Case methods and field-based internships have been advocated as effective means of supporting the development of students' understanding of authentic organizational problems and making the transition to the world of practice (Sykes & Bird, 1992; Shulman, 1996; Taylor, Cordeiro, & Chrispeels, 2009). What both these instructional strategies offer students is an opportunity to consolidate their declarative (content) knowledge from coursework and begin to develop procedural (cognitive processes and skills) and contextual (understanding of conditions in a particular situation which influence action) knowledge.

If the field of leadership preparation is to meet the challenge of making programs more relevant to the future work of graduates, greater attention must be given to strengthening innovative pedagogies that develop the full range of declarative, procedural, and contextual knowledge (Taylor et al., 2009). One newly developed

instructional tool, Educational Theory Into Practice Software (ETIPS), offers a set of free-for-use, online leadership cases that are designed to support administrative decision making—one type of procedural knowledge—in a variety of virtual yet realistic school settings for leadership preparation students. The ETIPS cases facilitate a structured approach to the decision making process, which makes students' thinking explicit and allows them to receive feedback from instructors. This case-based learning environment was developed through two major development grants from the U.S. Department of Education (in 2001 from the Preparing Tomorrow's Teachers to Use Technology program, and in 2006 from the Fund For The Improvement of Post-Secondary Education) to provide K-12 educators with case studies in which they could practice applying key ideas from their university education courses to a richly described classroom and school context. The cases are designed as exercises for use in college courses to allow pre- and in-service teachers and administrators to practice applying key course ideas in hypothetical yet realistic K-12 school settings. ETIPS (at http://etips.info) is a web-based application that runs on any web browser and was designed to provide professors with evidentiary-based reasoning about their students' key knowledge under consideration in the case and to leverage technology in support of the collection and analysis of that evidence. This learning environment offers multiple opportunities to practice decision making and develop the habits of mind that are integral to skillful practice as educators.

ETIPS cases respond to leadership preparation program needs in a number of important ways:

- Address the theory to practice gap in preparation programs;
- Offer the opportunity for application of a wide range of declarative knowledge;
- Develop the habits of mind that are essential for school leadership;
- Extend students' familiarity with different types of school settings (rural, urban, suburban), levels (elementary, middle, and high), and effectiveness (high, medium, low); and
- Provide a safe environment for exploring and formulating solutions to problems of practice.

The Essential Knowledge and Skills Emphasized in the ETIPS Cases

The explicit development of decision-making skills is at the heart of the ETIPS cases but the exercises also offer students an opportunity to consolidate and integrate a broader range of knowledge and skills. The cases provide a highly structured learning environment that elicits students' procedural, declarative, and contextual knowledge as well as foster students' awareness of the schema they bring to decision making and their reflection upon it. Hoy and Tarter (1995) assert that "decision making is the sine qua non of administration – the process, by which organizational problems are addressed, solved and implemented" (p. 7). If so, it is a fundamental skill to develop in leadership preparation programs. The ETIPS case-based learning environment was

designed to provide opportunities to cultivate this fundamental task of administrators, and professionals in general (Schön, 1983).

Decision-making and problem solving models are closely related in the literature, intertwined in practice, and involve a very similar set of steps as delineated by a number of researchers (Beyer, 1987; Hoy & Tarter, 1995, 2008; Marzano & Pickering, 1997; Leithwood & Steinbach, 1995). Both types of models were reviewed and adapted to identify the key procedural knowledge to emphasize in the cases. We chose to use the terminology of decision making, as opposed to problem solving, in order to cast the work of school leadership in a more positive, proactive light. We have adopted the definition of decision making as the "specific process that an individual or group engages in to solve a problem" (Davis & Davis, 2003, p. 37). Hoy and Tarter (1995), in their seminal work on decision making, identify six basic models of decision making. The model reflected in the ETIPS application is referred to as "satisficing," which is a good fit when incomplete information about a problem is available but discernible, satisfactory outcomes are possible given the opportunities and constraints of a situation.

The ETIPS leadership case topics, shown in Figure 1, draws upon a five-step decision making model that emphasizes the procedural knowledge of: (1) identifying a leadership issue, (2) identifying principles to guide the decision making, (3) considering alternatives with associated opportunities and constraints, and (4) selecting the best alternative for the context and creating a plan of action. The last step, (5) evaluating effectiveness of the action plan and determining principles or criteria to add, drop, or reprioritize, would be done after the action plan was executed, and therefore is not feasible to address within the case.

With the decision-making framework embedded in the user interface, students are supported in systematically working through steps one to four and the associated cognitive tasks as they respond to questions in the ETIPS cases (http://etips.info). The response format further structures the plan of action (step four) to include the three specific leadership domains of setting direction, developing people, and making the organization work (Leithwood, 1996). Table 1 provides a more detailed description of each step and its sub-steps.

Table 1. Decision Making Model for ETIPS Leadership Cases

Step 1: Identify the issue that needs to be addressed
• Consider many possible explanations of what is happening (including inherent assumptions within each) • Deduce fundamental underlying nature of problem • Seek an appropriate amount and nature of data in order to make the decision • Identify the desired goals that define the scope and scale of necessary decision • Deduce additional data needed • Identify team of people who should become involved
Step 2: Identify the guiding principles (Declarative + Dispositions) you will apply to the decision making
• Identify appropriate guiding professional (declarative) knowledge • Identify appropriate guidance to be derived from school goals and mission • Identify dispositions that influence thinking
Step3: Identify alternative decisions with associated opportunities and constraints (i.e. context) and analyze their merits using the guiding principles
• Consider alternatives that address problem/issue • Allow for new and creative ideas • Identify opportunities and constraints for each alternative • Analyze alternatives using guiding principles and stakeholders' perspectives
Step 4: Select best alternative (for context) decision and state next steps of action.
• Select alternative most consistent with guiding principles • Create a plan of action
Step 5: Evaluate effectiveness of action plan and determine principles or criteria to add, drop, or reprioritize

The ETIPS cases allow for a wide range of declarative knowledge to be applied during the problem identification and solution of a case. For example, students can apply new declarative knowledge about school budgeting learned in a School Finance course, for example, within the ETIPS case on resources and mission alignment. They can apply new information about school and community relations within the case which focuses on how to improve family engagement with the school. The course instructor is expected to provide the necessary theoretical and research background in the relevant area of study and develop initial understandings of the content. Then the ETIPS case provides an opportunity for students to apply that knowledge to a selected school where they identify the primary leadership issues that need to be addressed, make their decision on an approach to address the issue based on the contextual features of the school, and develop an action plan to carry it out. Instructors can then judge whether or not students applied the depth and specificity of declarative

information they expected to see in their responses.

The ETIPS cases were also designed to develop the contextual understanding of knowing when and how to apply declarative and procedural knowledge. The ETIPS platform adds value to case methods of instruction through its multiple school contexts in which cases can be set, thereby providing pre-service administration students an opportunity to develop an understanding of how different circumstances in a school might influence the application of theory to practice. (Users can browse through the nine different school contexts found in the software at http://etips.info by clicking the Cases tab, and then selecting a topic and sub-topic to get to school settings). By taking school context into account when making decisions, the learners can gain a sense of the variability of school environments and the unexpected characteristics that they may encounter in a clinical setting. A deep understanding of school cultures and the ramifications for leaders are essential skills needed by pre-service administrators to make the successful transition from classroom teachers to their future roles as school leaders.

Finally, the ETIPS cases were designed to stimulate personal reflection through the reliance on real data or realistic events in all their complexity. There are no easy or right solutions to the tasks presented in the cases. This ambiguity is consistent with a primary goal of case methods, which is to understand that problems can be framed and solved in multiple ways. While the questions embedded in the ETIPS cases ask students to select just one alternative and develop an action plan for it as their decision, students interacting with the same case will often define the problem differently and produce very different decisions and justifications. Instructors are encouraged to structure class discussions to elicit and explore these multiple perspectives to encourage cognitive flexibility (Spiro, Vispoel, Schmitz, Samarapungavan, & Boerger, 1987). These interactions with peers can further facilitate student reflection and understanding of their own assumptions and interpretations related to the topic under study. In effect, the cases serve as a window into the experiences and ideas of the educators because their responses mirror their varied beliefs, attitudes, knowledge, and experiences. ETIPS cases have been proven to be effective in helping learners to recognize greater complexity in the organization and culture of schools as they prepare to take on new roles within them (Dexter, Riedel, & Scharber, 2008).

The ETIPS cases do differ from traditional cases in some basic ways, which makes them a strategic complement to traditional, paper-based cases. (See Table 2.) The online environment of the ETIPS cases allows for a learner-determined search for relevant data to construct an understanding of a particular context versus a pre-determined description of a case setting. This experience in seeking sufficient and relevant information for decision making reflects an important element in effective decision making noted by Leithwood & Steinbach (1995). Additional advantages of the online environment include the explicit scaffolding of each step in the decision making process by the question format, and the opportunity for instructor feedback on individual performance for each step in the process through the grading interface. The real-time display of student progress supports student collaboration about and instructor

observation of this detailed thinking process. Collectively these features simulate a more authentic decision making process and allow for more fine-grained analysis by students and instructors of the steps inherent in decision making.

Table 2. Comparison of Traditional Cases and ETIPS Cases

Traditional Cases	ETIPS Cases
Linear presentation of content	Learner-determined exploration of content
Retrospective analysis of events	Prospective planning associated with a decision
Single context with limited information	Multiple contexts (nine distinct schools) with numerous data points
Development of decision making is scaffolded by instructor	Development of decision making is scaffolded by the ETIPS environment
Instructor feedback given on the case as a whole	Instructor feedback given on each step of the decision making process

The Topics and Make-up of an ETIPS Case

The ETIPS case platform (http://etips.info) now includes a library of 10 case topics that are clustered within the categories of organizational, instructional, and relational leadership and 13 case topics that address various aspects of technology leadership and implementation in schools. Within organizational leadership, for example, case topics focus on school excellence and future direction, resources and mission alignment, self-study for school improvement, and human resource staffing and development. The cases are aligned with the Interstate School Leaders Licensure Consortium (ISLLC) standards (CCSSO, 2008), so that students are provided with multiple opportunities to display their competency in standards one through four. See Table 3 for a listing of case topics related to school leadership and their alignment with the ISLLC standards.

Table 3. Alignment of ISLLC Standards With ETIPS Leadership Case Topics

ISLLC Standards	Ten Leadership Case Topics
Standard 1: Vision of Learning Standard 3: Management of Learning	Organizational Leadership Category • School excellence & future direction • Resources & mission alignment • Self-study for school improvement • HR staffing & development
Standard 2: Culture of Teaching & Learning	Instructional Leadership Category • Student subgroup achievement • Instructional innovation • Positive school culture • Professional development planning
Standard 4: Relationships with Broader Community	Relational Leadership Category • Cultural sensitivity & responsiveness • School & family engagement

To create an ETIPS case an instructor selects one of the case topics and then one of the nine schools in which the problem definition and solution will take place. Each school conveys its distinct personality (see Figure 1) through a set of website and intranet information menu items (see Table 4), which serves as the text of the case. The schools vary by performance level, location, and student age group. With 10 case topics for school leadership and 9 possible schools that can be combined, there are 90 possible cases. An instructor might choose to have an assignment include two cases of the same topic set in different schools, and thereby emphasize how the school context provides a different starting point, with diverse enablers and constraints within that environment for creating and supporting an action plan. Or, an assignment could include several different case topics set in the same school and emphasize how the contextual features of the school might enhance or constrain certain courses of action, depending upon the issue under consideration.

A final option is to use the new feature which offers instructors an opportunity to write their own case introduction emphasizing the concepts that they choose to highlight in a given course and situate it in any one of the nine schools. A self-authored case also involves writing your own questions to which students respond and reflect upon as part of the case assignment as well as specifying your grading criteria in a rubric. Custom-made cases are just available for use by their author only.

At the time of this writing, and anticipated for several years into the future, there is no cost associated with the use of ETIPS pre-determined or custom-made cases. Whatever the preferred variation, ETIPS makes it possible to accommodate it through a simple on-demand process of making assignments immediately available to students.

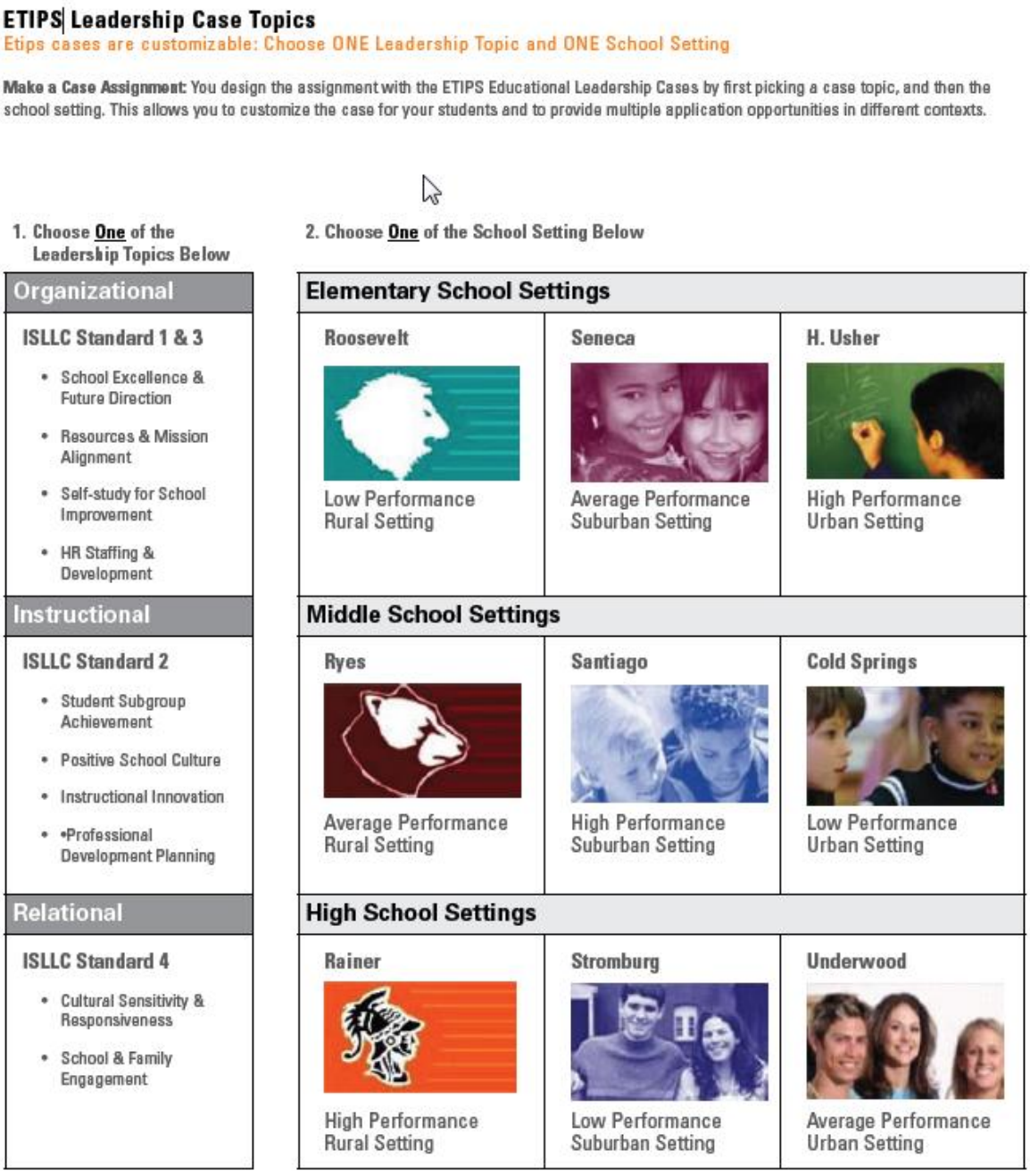

Figure 1. Building an ETIPS Leadership Case With A Case Topic and School Setting.

Table 4. School Website (Public) and Intranet (Administrative) Menu Items of Information Available Within Each School

SCHOOL WEBSITE

About the School	Students	Staff	Curriculum & Assessment	Technology Infrastructure	School & Community Connections	Professional Development
Mission statement	Demographics	Demographics	Standards	School-wide facilities	Family involvement	PD plan
School improvement plan	Performance	Mentoring	Instructional sequence	Classroom-based facilities	Business involvement	Resources
Facilities	Schedule	Leadership	Computer curriculum	Community facilities	Higher education involvement	Leadership
	Student leadership	Faculty schedule	Classroom pedagogy & assessment	Technology support staff	Community resources	Learning community
		Faculty meetings		Policies & rules		PD process goals
		Faculty contract		Technology committee		
				Technology survey results		
				Technology plan & budget		

SCHOOL INTRANET

Student Data	Staff Data	Policies	Financial Records
Discipline	Supervision & evaluation	Instruction	Budget
Attendance	Teacher improvement goals	Personnel	
Grades & achievement	Staff assignments		
	Leadership team profile		

Crafting the ETIPS Case Experience

According to the literature (Lacey & Merseth, 1993; McAninch, 1993; Spiro, 1987; Tally, Shulman, Redmond, & Perry, 2002), there are three core steps involved in the ideal implementation of case methods: First, analysis of ill-defined dilemmas; second, action planning or decision making that applies knowledge to a unique situation or context, and third, evaluation of the decision making actions and reflection on how theoretical frameworks apply within the specific context. Effective case methods of instruction draw upon multiple perspectives through interaction and group discussion around all three steps (Merseth, 1991, 1994, 1996; Spiro, 1987; Tally et al., 2002). Evaluation of the intellectual rigor of each step in the decision making process, reflection upon the multiple perspectives of a particular problem, and the possible ramifications of any given decision, and feedback are important aspects of case methods

of instruction (McAninch, 1993; Merseth & Lacey 1993).

This literature serves as a foundation for the case methods of instruction we recommend in Table 5 to be used with ETIPS cases (Dexter, 2010). In general, we suggest instructors directly teach the decision making process and then support it through oral or written feedback to student work. Part of the process is to increase the breadth and depth of ideas about the fundamental issue at the heart of the case, possible alternative solutions, and action plans. Fostering the development of logical coherence in action plans as well as multiple perspectives on the nature of a problem or possible solutions is an intellectually rigorous and challenging activity for students and faculty members. Building a professional community of users of cases across a program of preparation would allow professors to support one another in case methods of instruction, and it would contribute to students experiencing this approach as a signature pedagogy of the program (Dexter, 2010).

Table 5. Recommended Case Methods of Instruction

Before Students Work on the Case Instructors Should
• Discuss or model a quality answer (detail, length, content) and relate it to the scoring criteria • Explain and elaborate upon the ETIPS decision-making model and the case's topic and key question • Relate the case's core topic /question to your course's topic(s) and to national standards • Discuss the learning benefits of using cases • Demonstrate to students how to use and navigate inside ETIPS
During Students' Work on the Case Instructors Should
• Discuss aspects of case information and decision-making steps before students submit answers
After Students Complete The Case Students Should
• Discuss case decisions and decision making steps • Discuss players in case and who should be involved in the decision making process • Discuss required declarative knowledge needed to make decision • Discuss influence of different school sites' context • Use ETIPS Data Maps or Snapshot to support class discussion • Use scoring criteria on rubric to generate scores for students and open-ended remarks in order to provide guidance and feedback • Make necessary educational interventions (lecture, discussion, etc.) based on what the data revealed about student understandings of course content, decision making, and school contexts

Specifically, before the case use begins, we recommend that faculty discuss with students the purpose of the case and its relation to the course, national standards, and their preparation as school leaders. During the time period that students are completing

the cases we recommend that faculty allow time to discuss both the various aspects of each step in the decision making process and the students' actual responses for each step given the specific school context the instructor selected for the students' assignment. The Snapshot feature of the software (http://etips.info) aggregates student responses for a quick whole class display of student responses to case questions and their thinking about each of the steps. Instructors also have the option of allowing students access to Snapshot either while their case is in progress, after they submit their work, or receive instructor feedback so as to foster student to student discussion and collaboration. We have found that class discussions that focus specifically on the analysis of the issues (Copland, 2003), which are causing the surface indicators of problems within the school (step one), and the alternative solutions (step three) are pivotal points in the case for instructor guidance and support. After students submit their decisions and action plans regarding the challenge presented in the case introduction, we recommend to faculty that they review (a) basic aspects of decision making, (b) students' case decisions and ideas about who they thought should have been involved in the decision making process (c) the required declarative knowledge needed for the decision, and (d) what information was most relevant in a decision such as that called for in the case (Dexter, 2010).

While a few steps of the recommended case methods of instruction are specific to ETIPS' online environment and functions, most are in keeping with the recommended three core steps of case-based instruction in the literature: (a) to focus on analysis of the problem, (b) to follow a decision making process while attending to the context, and (c) to consider the decision in terms of theoretical frameworks and probable outcomes within the specific context. The case design within the ETIPS application also encourages these same steps, reinforcing the instructor's in-class case methods of instruction. Sample student responses to an ETIPS case can be found at (http://etips.info/docs/jrle/studentsample.pdf). Note the highly structured question format that elicits detailed, thoughtful responses about each step of the decision-making process. The goal is to develop a rigorous analytical thought process as students approach the problem of practice.

Practitioner Reactions to ETIPS cases

To gather evidence for construct validation of the cases as recommended in the literature (Jonnassen, Tessmer, & Hannum, 1999; Smith & Ragan, 1993), the authors met with a group of principals, identified as experienced and successful, during a six-hour work session. Our intent was to understand their schema for decision making and determine if the ETIPS cases reflected how they made decisions as practitioners in their schools (Dexter & Tucker, 2009). Participants were asked first to describe, in writing, the decision making process they used when making larger, school-wide decisions. During a one-hour focus group, the group shared their decision-making steps. After this first focus group, participants were asked to complete one online ETIPS case, which as described above consists 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. The participants' case asked for a decision addressing undertaking a

comprehensive self-study as a means to improve the educational services of the school for students. 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.

Overall, the principals' self-report of their decision making processes validated the 5-step model inherent in the ETIPS 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. 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 and revealed that principals felt the case simulated their process of decision making.

In the first step of the case, the principals were asked to determine the underlying issue by sifting through voluminous data about the school and then identifying and interpreting the patterns in the data. 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, the principals identified criteria they would use to guide their weighing of alternatives and the selection of a course of action. Reflecting on their biases, behaviors, and preferences and how these influenced their 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 as practitioners. Here they were asked to identify two alternatives for addressing the key issue they determined in step one and think about organizational enablers and constraints. More than one person felt that they would 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 naturally edited out non-viable alternatives and so the options that they did enumerate represented more of a multi-step approach they would implement. 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 one of their alternative solutions (from step three) and make an initial plan with it, including the direction they would set for a course of action, as well as how to develop people and redesign the organization to support that direction. Two principals described these three aspects of formulating a plan of action as "dead-on. It was the most realistic [aspect of the process]." Two principals reported that the three aspects of the plan of action (setting direction, developing people, and redesigning the organization) reflected leadership 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 came from the largest and smallest schools represented 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 on 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.

Not only did these principals validate the basic case design, but an unexpected finding was that these veteran school leaders reported how the case experience made them recognize areas of strength and weakness in their decision making, and that they valued discussing with their peers the patterns they saw in the data and the related decision options. One principal said the day was the most effective professional development experience he had ever had as a principal.

Student Reactions to ETIPS Cases

As part of the piloting process for the ETIPS cases, extensive survey data were collected from pre-service administrative students on their reactions to the case experience (Tucker & Dexter, 2009a). Test-bed faculty in leadership preparation programs across Virginia piloted the ETIPS cases for one or two years during the 2007-2008 or 2008-09 academic years. Survey methodology was utilized to collect specific feedback from participating students about their level of learning from the cases. Themes were identified in the responses to three open-ended questions regarding: (a) what was learned as a result of the ETIPS case experience, (b) what was the most engaging aspect of the cases, and (c) what was the least engaging aspect of the cases. The total number of respondents ranged from 194 to 206 and response rates ranged from 75% to 80%, ensuring credibility in the feedback we received.

Top things learned. The first question asked students to note the "top one or two things you learned from the experience of using the ETIPS cases." Answers clustered around the following five themes: (a) how to interpret the central issue, (b) how the context for the case influenced the decision, (c) how to develop multiple alternative courses of action, (d) how to make a plan of action, and (e) reflections on the decision-making process overall. More than a quarter of the respondents (28%) made comments regarding the process of analyzing data to identify the central issue as a primary learning outcome of using the cases (Tucker & Dexter, 2009b). The frequency of comments on data interpretation may suggest that this first step in the decision-making process was the single most challenging one, and possibly, the least familiar to students. Far fewer comments were made about the other steps in the decision-making process. The largest group of respondents (59%) commented on the experience as a whole and wrote more global observations such as the following:

- You cannot make a decision instantly; you must take time to consider many options.
- I need additional experience in a real-world educational environment.
- I learned that everything isn't always what it seems at first and that you have to look deeply before making a decision.

- I learned how to analyze a significant amount of information in order to identify the root problem.

See Table 6 for a sampling of the response topics.

Table 6. Student Learning

Coded elements for this prompt	Frequency	Topics in student responses (n = 206)
Interpretation of the central issue	28%	Difficulty of identifying of the most important issue, understanding a school in its entirety, identifying most relevant information
Awareness of the context	3%	Evaluating mission statements, considering guiding principles
Development of multiple alternative solutions	8%	Difficulty of coming up with a strategy to address the main issue, hypothesizing several solutions
Final decision and plan of action	2%	Complexity of process, importance of decisions, anticipating consequences of decision, difficulty of considering all factors
Metacognitive reflections on the overall decision making process	59%	Understanding that decisions affect many constituents, importance of data to decision making, overwhelming nature of the principal's role, challenge of understanding schools as organizations

Most engaging aspects of the cases. A second open-ended question asked participants to note the most engaging aspects of the cases. Participant responses were grouped into the following themes: (a) abundance and richness of data on the schools in the cases, (b) the realism of the cases and information, (c) the decision making process, and (d) aspects of the cases' implementation by instructors (Tucker & Dexter, 2009b). Almost half of the respondents (45%) commented on the abundance of the data in the cases, rich in both variety and quantity, which created distinctive personalities for each school. As one student summarized:

> The most engaging aspect was the review of the school data. The cases really required me to take a close look at the school and become familiar with myriad aspects related to the school environment.

An additional quarter of the students found the realism of the cases as the most engaging aspect of the cases, indicating that they had "the feel of real-life situations and conditions." One student stated, "You almost felt as if you were there listening to these teachers have conversations." The overall decision-making process itself was noted by a small percentage (15%) of the students. This statement captured the tone of many: "Having to come up with multiple strategies was a great touch. It made me think

outside of my initial gut reaction to a problem." (See Table 7 for a listing of codes and response topics.)

Table 7. Most Engaging Aspects of Case Implementation

Coded elements for this prompt	Frequency	Topics in student responses (n = 203)
Abundance of data	45%	School descriptions, artifacts, teacher conversations
Decision making process	15%	Analyzing data to develop possible solutions, formulating multiple alternatives, developing a plan of action
Realism of the cases and information	23%	Real-life situations, authentic content
Implementation conditions	5%	Class discussion, instructor feedback
Other	12%	None or miscellaneous responses

Least engaging aspects of the cases. The third open-ended question used for this analysis of the ETIPS cases asked, "What were the least engaging aspects of the cases' content?" Responses addressed the: (a) task of completing the actual case, (b) software design, and (c) implementation conditions (Tucker & Dexter, 2009b). The majority of comments regarding the least engaging aspects of the cases covered a wide range of issues from the time required to complete the cases (6%) to what some found an overwhelming amount of data to be analyzed (24%). As one student observed, "There almost seemed to be too much information. A lot of the information was meaningful so it was very hard to narrow down." (See Table 8 for a listing of codes and student response topics.)

Table 8. Least Engaging Aspects of Case Implementation

Coded elements for this prompt	Frequency	Topics of student responses (n = 194)
Software design/content	16%	Navigation, lack of film/video/audio, technical issues
Task of completing case	52%	Too much information, time needed to complete cases, question format, cognitive requirements, lack of clarity about vocabulary or meaning of questions
Implementation conditions	8%	Lack of feedback during the process from instructors, lack of discussion of the cases
Other	24%	None, N/A, or miscellaneous responses

Summary of Learning Outcomes

In addition to the open-ended survey data collected as part of the pilot study, we collected data on the changes in students' decision-making self-efficacy and their perceptions of the learning experience using survey items with Likert scales. A decision-making self-efficacy scale was administered to students before and after the completion of the cases. In addition, after completion of the cases, a survey was used to collect specific feedback from participating students on the realism, time worthiness, and contribution to learning of the cases. A single item on the survey asked students to rate their decision-making confidence as a result of working through two or more cases in their courses.

These findings are reported in detail elsewhere (Tucker & Dexter, 2009b) but descriptive statistics for each of these measures are displayed in Table 9. We found that the students who responded to the survey (n = 245-254) gave the cases moderately high ratings for realism and worthiness but only medium ratings for their contribution to their learning. Students did report an increase in their confidence to make decisions (2.97 on a 5-point scale) and we found a mean increase of 3.67 in decision-making self-efficacy. While limited in scope, these findings are striking based on the small dosage of the intervention. Most students only completed two cases, a few completed three. Further study is needed to determine the effects of greater practice on decision making.

Implications and Future Research

Our work provides evidence not only that decision-making skill can be taught, but also that resulting student learning can be measured, even after practicing with only two to three cases. These findings suggest some implications to explore. The first is promoting case methods of instruction as a signature pedagogy (Shulman, 1992, 2005) aimed at developing students' overall decision making self-efficacy and skills, and assessing these outcomes within leadership courses. Also, the field should consider how levers like national standards and assessment of preparatory programs can promote each individual professor's commitment to the time-consuming implementation steps that result in optimal student learning from cases, such as discussion and feedback, as well as to the range of instructional approaches in addition to cases shown to bridge the gap between theory and practice (Taylor et al., 2009). Implications for the design of case-based learning environments are to build further discussion and feedback opportunities both into the online student experience and to promote these strategies through faculty professional development on case methods of instruction.

Table 9. Measures of Student Case Experiences

Scale Name	Nature of Items in Scale	*n*	*α*	Total Points	*M*	*SD*
Realism	• Authentic school contexts • Realism of the leadership decisions required by the cases	253	.96	10	6.1	2.57
Worthiness	• Understood what to learn • Viewed learning as worth the time • Recommend cases for other courses	252	.91	15	9.15	3.20
Contribution to learning	• Completion of case itself • School case information • Visual display of case information	250	.71	12	6.88	2.99
Confidence	• Student-reported increase in confidence for making leadership decisions	254	-	5	2.97	1.18
Change in self-efficacy	• Reported confidence in current ability to successfully complete 12 tasks associated with decision making	245	.97	72	3.67	10.46

Further research is needed to determine: (a) comparable skill development across all steps in the decision making process for individual students, (b) the cumulative effects of case use across multiple courses within a preparation program, (c) the viability of using case-based measures of decision-making skill as a component of program evaluation, (d) the predictive validity of these cases for leaders' performance in a variety of school settings, and (e) the utility of ETIPS cases for the professional development of in-service school leaders.

Getting Started with ETIPS

The whole suite of ETIPS cases can be accessed and viewed free of charge at the http://etips.info website. A short guide entitled "Getting Started with ETIPS" (http://etips.info/docs/jrle/start.pdf) provides step-by-step directions for both students and instructors to sign into the site and begin use of the cases. Once logged into the site, substantial instructional support materials are available to assist instructors based on their needs (see the Using ETIPS tab). For example, handouts on

the decision making model and scoring rubric are available for easy printing and distribution by instructors. In addition, short videos provide instructional guidance on how to optimize the learning experience with ETIPS cases before, during and after use.

Summary

The ETIPS cases address two persistent challenges for the leadership preparation community: spanning the theory-to-practice gap in most heavily course-based programs and the weighty emphasis within those courses on content knowledge. ETIPS cases provide an opportunity for students to apply their content knowledge to real problems of practice in a highly structured approach to the decision making process designed to develop the habits of mind that are integral to robust decision-making processes, such as seeking out relevant data, interpreting the impact of context, and considering the possible ways to leverage organizational capacity. These skills are equally important as content knowledge for effective leadership. Unlike most other case delivery systems, however, ETIPS cases offer a flexible approach to stretch students' understanding of the contextual influences on school leadership with the nine different settings for any case scenario. Our pilot study research suggests that the practice effects of working through even two ETIPS cases are both increases decision-making confidence and decision-making self-efficacy of students. The evidence suggests that these free and readily available ETIPS cases could be a valuable supplement that adds value beyond the paper-based cases that are now used in many educational leadership programs.

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