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Are Tip Award Teachers Really Expert Teachers?

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ABSTRACT: The TIP application portfolio narratives of 39 award winning faculty members were analyzed for statements congruent with the prototype model of teaching expertise suggested by Sternberg and Horvath (1995). Faculty participants were selected from a college of education and a college of arts and sciences at a large Florida university. A content analysis of the narratives revealed faculty descriptions of personal teaching philosophies and practices that are congruent with most aspects of the Sternberg and Horvath model. Evidence of knowledge and efficiency was readily obtained from the narratives, but evidence of insight was seen much less frequently. Additionally, the narratives suggested important aspects of teaching expertise that are not represented in the Sternberg and Horvath model.

TIP is back! For four years the State of Florida implemented the Teaching Incentive Program (TIP) to recognize and provide financial rewards to university professors who demonstrate superior teaching performance. Since TIP was initiated, 2,870 faculty awards have been made and a total of $18 million appropriated to this program (J. Quimby, personal communication, July 21, 1998). After a year of no funding by the state legislature, the program has been revived and is back in operation.

The selection of some faculty members over others who applied for these awards raises questions about the criteria used for selection. Do the winners really qualify as expert teachers? On what basis can an answer be justified?

In order to explore this and more basic questions regarding teaching expertise, the authors conducted two studies of TIP award recipients. Faculty who won awards in various departments of a college of education and a college of arts and sciences were the focus of the investigations. From these studies, the authors are able to draw conclusions regarding the nature of expert teaching, determine whether those selected for TIP awards meet the criteria as "expert teachers", and describe the variety of ways in which teaching expertise was manifested by faculty in these studies.

Defining Expert Teaching

The authors sought criteria for judging expertise in teaching that were based on research. We also wanted a conceptualization of expert teaching that permitted flexibility to accommodate different styles and approaches to teaching in different content areas. Consequently, we chose the prototype view of teaching expertise proposed by Sternberg and Horvath (1995) as the theoretical framework for studying TIP award recipients.

According to Sternberg and Horvath, it is more productive to identify experts on the basis of their similarity to one another than by a set of necessary and sufficient features. While Sternberg and Horvath assert that there exists no well defined standard that all experts meet and that no nonexperts meet, they do recognize that experts share "family resemblances" which can serve as the basis for differentiating them from nonexperts. The "family resemblances" they identify have been derived from psychological research. This viewpoint allows variability in the profiles of experts yet provides a standard for differentiating experts from nonexperts.

The prototype of teaching expertise set forth by Sternberg and Horvath consists of three constellations of features: (1) domain knowledge, (2) efficiency, and (3) insight. Within each of these constellations are cognitive abilities thought to differentiate experts from novices. Figure 1 outlines Sternberg and Horvath's model of expert teaching and specifies defining characteristics.

The Expert Teachers

For the purposes of our research, the TIP award recipients were regarded, *a priori*, as "expert" teachers because they had been identified by a committee of their peers as evidencing documented teaching excellence. Each applicant for the award was required to submit for peer review a teaching portfolio with evidence as to teaching effectiveness. From a review of materials in the portfolio, the committee arrived at decisions of who should receive the TIP Award. Using these designated "experts" as our subjects, the authors intended to determine whether the faculty selected for study did in fact possess the characteristic features of teaching expertise proposed in the Sternberg and Horvath model.

The sixteen expert teachers in our first study (Purdom, Laframboise & Kromrey, 1997) were college of education faculty who won the TIP award in the 1994-1995 and 1995-1996 academic years. These faculty represented five of the eight departments in a college of education with a total of 160 faculty members. Since the award program was new, none of the faculty had been recipients of this award before but they all met the requirements that the majority of their assigned time was spent in teaching and that they had a minimum of three years of teaching at the university. These 16 faculty members ranged in university experience from 3 to 27 years.

Upon completion of the study of TIP recipients in a college of education, the authors conducted a second study involving 23 award recipients in 6 of the 30 departments in a college of arts and sciences (Laframboise, Purdom & Kromrey, 1998). The six departments were chosen for their diversity in academic content: English, mathematics, government, biology, mass communication, and psychology. The total number of faculty in the college was 450. The Arts and Sciences faculty in these 6 academic disciplines were randomly selected from those receiving the award in their department in the 1994-1995 academic year. Teachers in this study ranged in years at the institution from 4 to 33 years.

Data Analysis

For both studies, the authors chose to use only the reflective narratives from the teaching portfolios for data analysis. The narratives described the teacher's philosophy, goals, and conduct of

KNOWLEDGE ←→	EFFICIENCY ←→	INSIGHT
1. what is known, how much is known, how it is *understood and organized* 2. analysis **Content Knowledge** 1. teacher-centered 2. subject matter 3. more knowledge & understanding 4. specific statements of key concepts 5. how knowledge is updated and refined **Pedagogical Knowledge** 1. student-centered 2. how to teach, motivate, manage 3. not necessarily deep structure 4. strategies for facilitating mastery **Content-specific** · how to teach specific concepts · how to present domain-specific concepts · questioning and feedback · strategies for facilitating mastery **Content non-specific** · routines and management · increases time for instruction **Practical Knowledge** 1. environment-centered 2. knowledge of social and political context 3. how to get things done 4. how to get needed resources **Explicit** · formally stated rules, regulations, criteria, grant procedures, etc. **Tacit** · not usually taught · how to shape environment · how to be labeled as expert	1. doing more with less effort 2. speed and accuracy 3. application **Automatization** 1. more cognitive processes are resource-independent rather than resource-consuming 2. mental resources can be used for new problems 3. experience is important **Reinvestment of Cognitive Resources** 1. uses time and effort saved through automatization to construct better problem models 2. work on leading edge 3. seeks more complicated problems rather than to simplify things **Executive Control** 1. disposition toward self-reflection 2. "continuous learning through experience" 3. mental processes that support reinvestment of cognitive resources **Planning** · spends more time trying to understand problem **Monitoring** · checks accuracy in solution attempts **Evaluating** · checks alternative hypotheses	1. used for solving problems 2. applies knowledge and analyzes problems to reach solutions 3. leads to new paradigms 4. creative solutions to problems 5. solutions are novel and appropriate 6. able to identify deeper issues 7. understands when deeper problems have been identified and reasonably solved and if it is time to move on to new issues 8. synthesis **Selective Encoding** 1. distinguishes relevant from irrelevant information **Selective Combination** 1. determines how separate information can/should be usefully put together **Selective Comparison** 1. notices similarities (analogies) to solve problems 2. maps analogies – uses analogies to teach 3. applies analogies – uses analogies to reach creative solutions to problems

Figure 1 *Sternberg and Horvath Model of Expert Teaching*

university teaching. Other elements of the portfolios (syllabi, course materials, and evaluations from students, peers, and supervisors)were eliminated as data sources in both studies. The content of the course syllabi are largely determined by university policy rather than professors' judgments and the valid analysis of the content-specific course materials would require substantial content expertise in each professor's area of specialization. Students' ratings of teachers, annual review, and letters of support were consistently positive for the award winners, and these data sources lacked the detail and specificity that were needed to elucidate the manifested elements of the prototype of teaching expertise.

The research process began with a content analysis of the reflective narratives, using the prototype model proposed by Sternberg and Horvath as a framework. An iterative process was followed in which we (a) developed working operationalizations of the Sternberg and Horvath features as manifested in the teaching activities described or the distinctions provided in the narratives, and (b) verified our operationalizations by grounding them in the text of the narratives. In each cycle of this process, the three researchers independently reviewed two or three narratives, making marginal notes, classifying elements of the text into the features suggested by Sternberg and Horvath, and identifying documented elements that did not fit well with the prototype features. The researchers then met as a group to resolve any discrepancies about our analyses of the narratives and to further clarify the model as it applies to expertise in university teaching.

Teaching Experts or Not?

An overview of the extent to which the narratives provided evidence that TIP Award winners in both the College of Education and selected departments in the College of Arts and Sciences possessed features of expertise consistent with the Sternberg and Horvath model is provided in Figure 2. As seen in the figure, the narratives revealed TIP Award winners in both groups do, in fact, possess eight of the features Sternberg and Horvath identified as characteristics of expert teachers. The indicator matrix does not present the depth of evidence in each category, only the presence of at least one verbal description consistent with each component of the model.

A visual scanning of Figure 2 shows that the experts in both studies demonstrated the four types of knowledge Sternberg and Horvath included in their model, all three features of efficiency, and one feature of insight.

From an analysis of the reflective narratives, many different types of activities were identified as evidence that features of expertise were present. A description of the breadth of activities in each category as well as a description of major themes represented in these activities is detailed below.

Knowledge: The first constellation of features of expertise included in the Sternberg and Horvath model addresses the nature of knowledge that the expert possesses and how the knowledge is related to exceptional performance. Sternberg and Horvath recognize that there are at least three types of knowledge necessary for expert teaching: (1) content knowledge, (2) pedagogical knowledge, and (3) practical knowledge. Not only do experts have more of each of these three types of knowledge, but they have a deeper understanding and organization of the knowledge than do novices or experienced nonexperts.

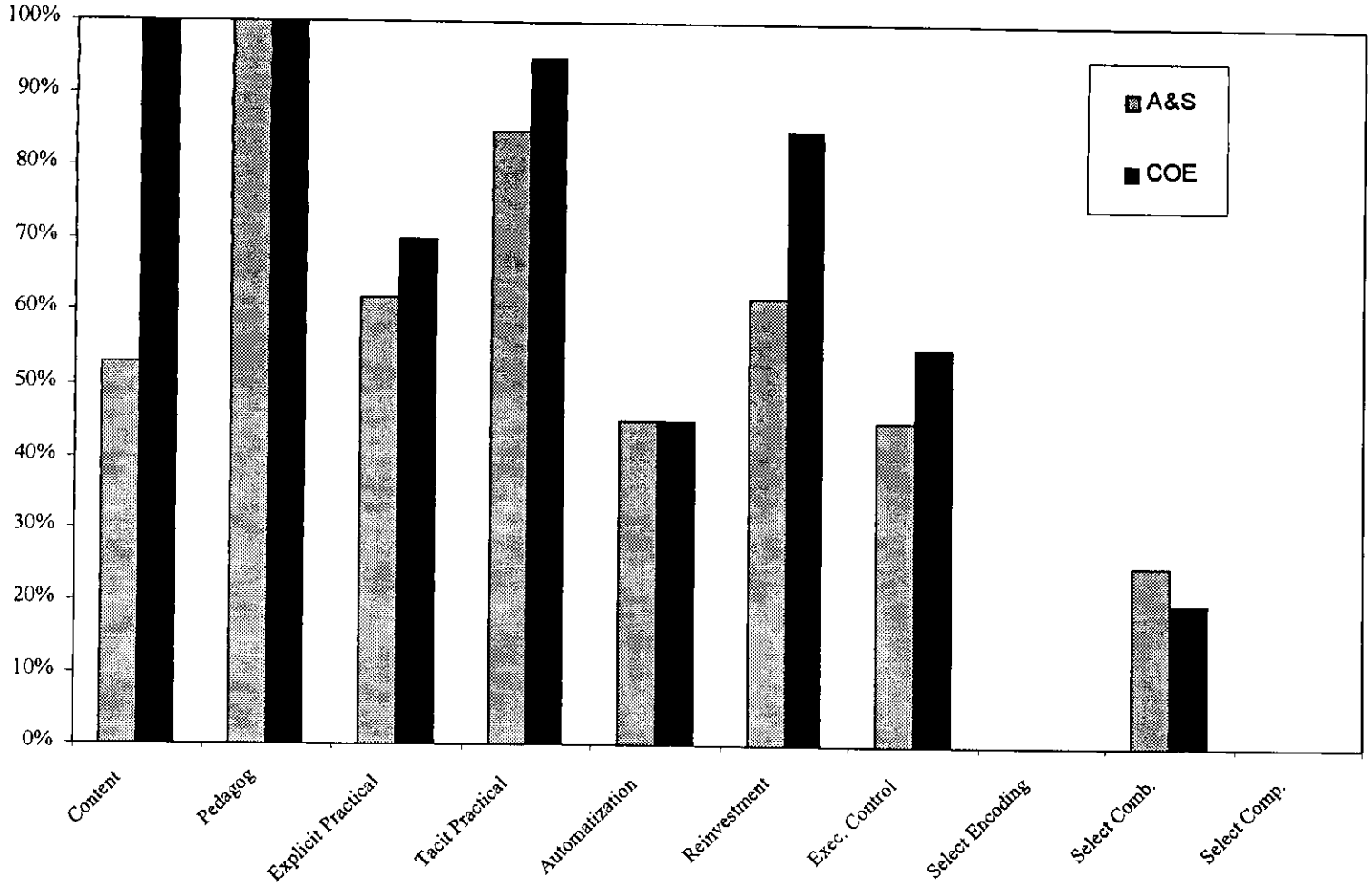

Figure 2. *Proportion of Narratives from a College of Education and College of Arts and Sciences that Included Elements of the Sternberg and Horvath Model.*

Content knowledge: The expert teachers in our two studies demonstrated evidence of content knowledge in three ways. They made specific statements of core principles of their content specializations, described ways in which they valued mastery of content knowledge and used this knowledge, and reported how they updated their knowledge in their field.

For those faculty who made statements of core principles, the statements were often contextualized in comments on how they presented important content to students. For example, a biology teacher stated core information in his field by listing questions that define the four levels of scientific learning. TIP recipients demonstrated that they understood the importance of keeping current in their respective fields by engaging in such activities as reading, writing, participating in conferences, reviewing journal articles and books in their fields, and establishing collaborations with colleagues with different areas of expertise.

Pedagogical knowledge: In addition to content knowledge, the narratives provided evidence of the faculty members' knowledge of how to teach, a feature that Sternberg and Horvath identified as pedagogical knowledge. Evidence for this type of knowledge (which includes knowledge of techniques to motivate students, classroom management skills, and how to design appropriate assessments for students) was found in all of the TIP narratives from both colleges. Although the Sternberg and Horvath model differentiates between general pedagogical knowledge and content-specific pedagogical knowledge (Shulman, 1987), such distinctions were not clear in the narratives. For this reason, these two classes of pedagogical knowledge were combined for both studies.

The first manifestation of teachers' pedagogical knowledge that was evident in the narratives was knowledge of learner characteristics. This aspect of pedagogical knowledge represents teachers' awareness and consideration of the learner and the differences among learners in the planning and conduct of instruction. The faculty studied also supplied ample evidence they were greatly concerned about teaching methodology and were knowledgeable concerning a wide variety of instructional principles and strategies. Typical of the strategies described were ones that are innovative and labeled as "best practices" methods. In general, nearly all participants described student-centered practices in which learners were actively involved in class sessions. Statements demonstrating awareness of the connection between goals and methods, appear to be more clearly characteristic of the pedagogical knowledge component of teacher expertise than are statements that independently enumerate goals and methods.

Practical Knowledge: A third type of knowledge which Sternberg and Horvath believe characterizes teaching expertise is knowledge of the social and political context in which teaching occurs. From an analysis of the narratives used in the studies, there is ample evidence to support that faculty in both colleges possess such knowledge.

Of the 39 narratives analyzed from both colleges, 35 of them contained statements that demonstrated the teacher possessed practical knowledge. Statements that reflected the teacher's knowledge and application of formally stated rules and procedures were classified as explicit practical knowledge while statements indicating the teacher's knowledge of subtle ways to manipulate the environment in order to acquire resources, accomplish goals, and achieve personal recognition were categorized as tacit knowledge (Polanyi, 1967).

Evidence of practical knowledge was manifested in a variety of ways by the experts in this study. One way TIP recipients demonstrated practical knowledge was in their success in securing resources (grant monies, equipment, materials, guest speakers, etc.) needed to be effective teachers and to support their development as experts. Another way the experts demonstrated practical knowledge was with their success in achieving approval, support, and permission for their professional activities and programs. Establishing collaborative arrangements within the department, college, and university, and with people and agencies outside the university was still another way the experts demonstrated their practical knowledge.

The expert teachers in this study frequently pointed out the exceptional nature of their presentations and publications, awards and honors won, excellent evaluations by students and peers, and selection to fulfill positions in state and national professional organizations. Being labeled as an expert provides a teacher with the opportunities for further career development and makes support for effective teaching easier to obtain.

Efficiency: Another cluster of features that contributes to the prototype of an expert teacher is efficiency. Experts can do more and do it better in a shorter time and with less effort than novices or experienced nonexperts. An explanation set forth by Sternberg and Horvath for superior problem-solving ability of expert teachers is that they save time from automatic responses and use this time to construct better problem models and work on leading edge questions and solutions.

Automatization: Automatization appears to be a prerequisite skill that enables the expert to have the time and cognitive energy to exercise executive control and to become highly productive in innovative ways. Since we found many cases of experts working on the leading edge and constructing better problem models, as well as executive control functions, we often inferred automatization ability.

There were statements in some of the narratives that we classified as directly relating to automatization. Faculty members mentioned activities and projects that were very time intensive but they were able to conduct them in spite of the time required. For example, faculty indicated they taught exceptionally large numbers of students or accepted additional responsibilities for supervising many students involved in special projects. They also reported service on multiple committees and leadership in extensive program development activities. These extra endeavors are time consuming and require automatization if other aspects of professional development are to be addressed.

Reinvestment of Cognitive Resources: Reinvestment of freed resources as a result of automatization was evident among faculty receiving a TIP award. The teachers reinvested their time and energy in course and program development. Designing new courses and incorporating new issues or methods in the conduct of existing courses or program experiences was frequently reported. A psychology professor, for example, stated "In my large Child Psychology class I am experimenting with a paper integrating film portrayals of parents and parenting with academic material from the course."

The narratives often noted reinvestment was in the form of leadership or participation in innovative projects. These projects illustrate new avenues of scholarly activity, representing in some

cases the experts' work in what Sternberg and Horvath refer to as the "leading edge." An example of this type of reinvestment was provided by a social studies professor in the college of education sample, who stated "I am co-chair of the college's Urban Education Initiative. This transdisciplinary task force seeks to find ways to prepare future and current teachers for service in economically disadvantaged urban schools."

Finally, a frequently cited reinvestment of cognitive resources was the preparation of publications or presentations to colleagues. Teachers described how they allocated a significant amount of their time and effort to produce publications and make presentations which received recognition in their respective fields.

Executive Control: According to Sternberg and Horvath, when experienced expert teachers have shifted from resource-consuming to resource-independent teaching functions, they move into higher-order problem solving. As opposed to the novices and the experienced non-experts, the experts engage in a planful process during which they reflect in order to understand the nature of their problems, construct move complex problem models, and continually monitor and evaluate their solution attempts.

The teachers in both colleges demonstrated a similar disposition toward reflection. Expert teachers made three types of statements that were categorized as executive control: (a) identification of an instructional problem with a solution attempt, (b) reflections on work that resulted in modifications of teaching or course assignments, and (c) requests for feedback on their teaching effectiveness as teachers and problem solvers. Teachers made specific references to using their research to inform their teaching, to eliciting students' questions and comments to help clarify their own ideas about content, and to assessing verbal and non-verbal cues that indicated learners' confusion.

Insight: A third constellation of teaching expertise described by Sternberg and Horvath is insight. This area represents the process of solving problems. Experts and nonexperts both solve problems, but the solutions of the experts are more likely to redefine the problems in ways that lead to solutions that are leading edge. Although the narratives did refer to leading edge solutions to problems, the teachers, in general, did not write in detail about how they reached those solutions and the thought processes involved. Although a few teachers made statements which were classified as selective combination, only minimal evidence was found for features in this constellation. Examples of insight may be more readily identified through personal interviews or observation of classroom instruction.

Summary, Discussion, and Conclusions

Recognizing excellence in teaching is a difficult task. The TIP award recipients have been honored as outstanding teachers, and this article has attempted to examine the validity of this assertion and to explore the nature of teaching expertise. The criteria for supporting the judgments of teaching expertise were taken from a conceptualization of expert teaching proposed by Sternberg and Horvath which was grounded in psychological research findings.

Using the Sternberg and Horvath prototype of an expert teacher, the authors analyzed the reflective narratives of 39 award-winning teachers in several academic disciplines at one of the largest universities in the state and nation. The TIP recipients studied demonstrated the four types of knowledge identified as characteristic of expert teachers. Many of them also demonstrated the three features of efficiency they set forth in the prototype model. However, the reflective narratives were of little help in determining the constellations of features referred to as Insight.

Through our discussions of the various components reflected in the narratives, the authors saw an interrelationship among pedagogical knowledge, practical knowledge, and the reinvestment of cognitive resources. The expert teachers reinvested their saved energies in the development of leading edge instructional strategies and learning environments that would be most beneficial for their students. Their practical knowledge enabled them to implement their innovative ideas. Furthermore, these teachers reported that their efforts not only benefitted the students but informed their own practice.

In summary, the data collected from TIP narratives by faculty in both colleges presents a general picture which is consistent with many of the features of teaching expertise identified by Sternberg and Horvath. This in turn supports a prototype conceptualization of teaching expertise. However, while the prototype view is helpful in exploring teaching expertise, it must be kept in proper perspective. This view or model of expertise addresses the cognitive dimensions of performance but neglects other critical dimensions such as affective aspects of teaching and student-teacher interaction. The authors did identify additional features of expertise not evident in the Sternberg and Horvath conceptualization. Many narratives included statements reflecting the teacher's global view of education, including the perceived purposes of education, recognition of education's contribution to society, and a goal to inspire a general love of learning. In addition, the faculty members often described the qualities and committments expected of teachers and the standards to which teachers should adhere. The affective dimension of teaching was also frequently addressed, with attention to student-teacher relationships and the need to overcome negative aspects of subject matter that many learners bring with them into the classroom. Finally, the narratives suggested an element of professionalism associated with the field in which the professor worked. This category included an understanding of both the cognitive and affective aspects of the profession and the teacher's role in helping students make career decisions.

This preliminary study of expert teaching is limited in terms of data sources used and the size of the sample. We believe it would be fruitful to conduct further studies involving a larger number of experts, comparing successful and unsuccessful award applicants, using multiple data sources, and exploring relationships among various features of the prototype and how student achievement is connected to particular features. Understandings derived from such studies would greatly advance efforts to improve education for college students.

References

Laframboise, K. L., Purdom, D. M., and Kromrey, J. D. (1998, April). Expert teaching in a college of arts and sciences: An investigation of Sternberg and Horvath's prototype view. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.

Polanyi, M. (1967). The tacit dimension. Garden City, NJ: Doubleday.

Purdom, D. M., Laframboise, K. L., and Kromrey, J. D. (1997, March). Expert teaching in a college of education: An investigation of Sternberg and Horvath's prototype view. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. Harvard Educational Review, 19 , 4-14.

Sternberg, R. J., & Horvath, J. A. (1995). A prototype view of expert teaching. Educational Researcher, 24, 9-17.