

Enhancing Entrepreneurial Expertise: Experiential Pedagogy and the New Venture Expert Script

Ronald K. Mitchell
University of Victoria
 Susan A. Chesteen
University of Utah

In this article, the authors link entrepreneurial expertise with the notion of an expert script as a means for enhancing entrepreneurial expertise. The focus of this article is an instructional pedagogy that improves students' entrepreneurial expertise by applying the recommendations of information theorists regarding script acquisition. Expert information theory suggests contact with expert scripts as a primary means for acquiring expertise. Concepts from the simulation and gaming literature are employed to design the pedagogy that features such contact as its primary emphasis. The effectiveness of this pedagogy is examined using a model derived from expert information theory and tested using multiple discriminant analysis. The experiential pedagogy is shown to enhance novices' propensity to enter the new venture script, beyond that of either non-enhanced novices or experts, while providing a significant improvement in novices' ability to do the things the new venture script requires.

KEYWORDS: *enhancing entrepreneurial expertise; entrepreneurship instruction; experiential pedagogy; expert; expert script; new ventures.*

Entrepreneurship continues to increase in importance as most jobs continue to be created by newer businesses (Birch, 1988). Demand for entrepreneurship education is predicted to increase over the next 10 to 15 years, providing opportunities to develop innovative methods for teaching this dynamic field of study (Solomon & Fernald, 1991, p. 37). However, there is little research that rigorously differentiates better from worse ways of teaching entrepreneurial skills (Katz, 1991, p. 87).

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Entrepreneurial expertise has recently been linked with successful new venture formation (Bull & Willard, 1993). Further, the notion of specialized scripts has been associated with expertise (Abbott & Black, 1986; Glaser, 1984; Schank & Abelson, 1977). Contact with an expert script is proposed as an optimal means for enhancing expertise (Glaser, 1984; Norman, Gentner, & Stevens, 1976). In this article, we describe and evaluate the effectiveness of an instructional pedagogy that enhances students' entrepreneurial expertise through experiential contact with expert scripts. We also describe the development and psychometric assessment of two new scales designed to assist in the classification of individuals into expert, novice, and enhanced novice groups.

Theoretical Perspective

Expert Scripts

Information theory proposes that an expert may be distinguished from a novice by observing an individual's ability to recognize cues related to an expert script (Leddo & Abelson, 1986; Lord & Maher, 1990; Read, 1987). Striking differences between novices and experts have been identified, particularly in the way they store and retrieve information (Fiske, Kinder, & Lartner, 1983; Lurigo & Carroll, 1985). For example, a novice tends to respond to surface features of problems whereas an expert uses more fully developed schema organized around context-relevant scripts (Chi, Glaser, & Rees, 1982). The term *expert script* refers to highly developed, sequentially ordered knowledge in a specific field. An expert script is acquired through extensive real-world experience, and it dramatically improves the information processing capability of an individual (Glaser, 1984). Expert scripts are distinct from and should not be confused with dramatic (Goffman, 1959), forecasting (Shoemaker, 1993), or transactional (Berne, 1976; Stapleton & Murkison, 1990) scripts.

As experientially acquired knowledge, these scripts are termed *schemata* (Glaser, 1984). A fundamental assertion of expert information theory is that

knowledge is *schematized*, that is, organized in chunks or packages so that, given a little bit of appropriate situational context, the individual has available many likely inferences on what might happen next in a given situation. (Abelson & Black, 1986, p. 1, emphasis in original)

Thus one might speculate that if an individual is exposed to "a little bit of appropriate situational context," then that individual's ability to recognize the context as applicable to his or her situation may reveal his or her level of

expertise. In our study, these little bits of situational context, drawn from the extensive entrepreneurship descriptive literature, are defined as *script cues*. In a sense, these script cues serve as stimuli to elicit responses that signal the expertise of an individual. Hence experts in entrepreneurship are expected to recognize more script cues than are novices (Leddo & Abelson, 1986; Lord & Maher, 1990; Read, 1987).

Expertise Enhancement

To enhance expertise, Glaser (1984) suggests an educational process that uses individual contact with expert scripts as a primary instructional technique. The process follows a course of interrogation, instantiation, and falsification in which script rules and generalizations are tested and revised in ways that facilitate learning and thinking. Lord and Kerman (1987) refine this notion, proposing that comparing scripts is an efficient way for novices to learn expertise in a particular role.

This theory of instruction appears to have promise in entrepreneurship education, but its general nature requires more specific definition if it is to be operationalized in the classroom. The simulation and gaming literature provides direction for the design and implementation of an expert script-based instructional pedagogy. Petranek, Corey, and Black (1992), for example, propose a series of activities for experiential learning that engage students in three levels of learning from a simulation: participating, writing, and debriefing. We used their proposed series in the design of an experiential learning pedagogy employing new venture expert scripts.

Experiential Pedagogy

Recent research shows that it is "not the amount of education which makes a difference" in entrepreneurial success but rather "the type of education" (Chandler & Jansen, 1992, p. 233). Whereas expertise has been attributed to intensive study and substantial experience (Lord & Maher, 1990), and rarely has experiential pedagogy been applied in business courses that emphasize enhancing new venture expertise.

For two quarter-long business school courses designed to optimize students' capability to apply the principles and practices of entrepreneurship, we formulated an instructional strategy that incorporated new venture expert scripts. In each class, approximately one half of the students were randomly assigned to an "expertise enhancement" group. For these students, the script-based instructional strategy was carried out by using participating, writing,

and debriefing activities to enhance expertise consistent with the script comparison method suggested by Glaser (1984), and Lord and Kerman (1987). The control group was encouraged to complete a project of individual interest, such as to prepare a business plan or feasibility study. All students participated in the activities described in what follows as the base pedagogy.

The undergraduate course was a senior strategy class taught with an entrepreneurial emphasis. The master's course was a strategy elective focusing on innovation and entrepreneurship. Students in both courses were primarily business majors.

The base pedagogy for both courses incorporated an active approach in which concepts generally regarded as essential for success in generating new business ventures were applied in a variety of practical settings. As discussed in the paragraphs that follow, application of the active approach requires that a number of practical settings be identified and included in course implementation. The authors believe that the specific activities included in the base pedagogy may be somewhat flexible, depending on available resources, contacts, and opportunities, making the application of this pedagogy feasible in a fairly wide range of instructional circumstances.

The courses encompassed four basic components of instruction that were integrated to form the basis of the experiential learning context. These components were *knowing*, *thinking*, *doing*, and *participating*, all of which are active rather than passive in nature. As noted in the description that follows, the application of the script-based instructional strategy was conducted in the *participating* component of each course. In all other respects, each course was designed to follow the base pedagogy for each student.

In the base pedagogy provided to every student, *knowing* was stimulated through the lectures, readings, discussions, and unscheduled quizzes that were a part of theory-based seminars conducted throughout the quarter. Textual materials consisted of lectures and cases drawn from the Kao (1991a, 1991b) series texts for the undergraduates and from the Stevenson, Roberts, and Grousbeck (1989) text for the master's students. *Thinking* was encouraged through integrative assignments such as writing and publishing an article in a metropolitan newspaper or giving an impromptu case analysis. *Doing* was engendered through site visits, group interaction in assigned-case workshops, and dialogues with practicing new business venturers during class sessions. As noted previously, *participating* was accomplished through one of two activities, depending on whether students were randomly assigned to the treatment group (enhanced novices) or to the control group.

In the treatment group's experiential activity, novices compared their entrepreneurial scripts to those of experts, as suggested by expert theory. The

group's participatory portion of this activity was an experiential project in which the novices were divided into groups and assigned an "entrepreneur mentor"—someone who had successfully created a new enterprise (Low & MacMillan, 1988). Each group conducted an in-depth interview that covered at least the questions shown in Table 1.

Individual students in the treatment group were then asked to report their experience in a three-part journal that included (a) a description of that individual student's "rules for succeeding in entrepreneurship" (the student's script), (b) a summary of the rules for successful venturing as provided by the entrepreneur mentor (the mentor's script), and (c) a critical assessment of the similarities and differences between the two. On completion of the reports, the treatment group novices were separated from the control group to engage in a debriefing session in which each group reported its experience and key points from the mentor interview, compared the entrepreneur mentor's script to the group's own script, and discussed strengths and weaknesses of the mentor's script.

The various components of the script-based experiential activity are shown in Table 2. Measurement of the effectiveness of the script-based experiential activity was accomplished using two new expertise scales.

Expertise Scales

Expert theory provided the foundation for the construction of the two script cue recognition-based measurement scales: the Entry scale, containing 15 items, and the Doing scale, containing 18 items. Each script recognition cue used to form these scales was created using criteria in the Read (1987) script/scenario construction model. Scale construction involved (a) a review of the entrepreneurship and expert theory literature to derive appropriate script cues; (b) the division, by a panel of experienced entrepreneurs, of these cues into script entry cues and script doing cues (explained more fully in later paragraphs); and (c) a test of these items, when combined as scales, for convergent validity using reliability analysis.

The justification for using these script recognition cues as empirical evidence comes from expert theory. The "inability to infer further knowledge from the literal cues in the problem statement" (Glaser, 1984, p. 99) is considered the primary reason for a novice's difficulty with problem solving. As noted previously, novice responses center on the surface features of problems (Chi et al., 1982). Therefore, it seems logical that the ability to recognize script cues (as opposed to selecting a distracter statement) can be used to distinguish experts from novices.

TABLE 1: In-Depth Interview Questions: Enhanced Novice Group

1. Try to assess your mentor's level of *consciousness* of an entrepreneurial script in the following way:
 - Find out how elaborate your mentor's knowledge is about new business venturing:
 - Has your mentor had experience in a lot of new businesses?
 - Has he or she had "firsthand" (deep) experience?
 - What surprises him or her?
 - Assess your mentor's *problem solving* approach:
 - Can your mentor simplify problems or does a new business look like chaos?
 - Can he or she identify relevant facts more quickly than can you, or the others who work with him or her?
 - Evaluate your mentor's *information processing* capability:
 - Does your mentor organize his or her knowledge around literal objects and surface features or does he or she use "principles" or "new venture laws" to explain events?
 - Determine your mentor's approach to *error correction*:
 - Does your mentor have cross-checks and balances for decisions to minimize error?
 - Are decisions tied to his or her script?
 - How does he or she explain failures (random events vs. they know better [i.e., a correct pattern or script was not followed])?
 - Assess the context:
 - Do the "rules" differ by situation (i.e., depending on goals, plans, scripts, and themes)?
2. Try to assess your mentor's *willingness* to venture using the following questions:
 - How action oriented is your mentor?
 - Has your mentor missed more or taken more opportunities?
 - How valuable is time (worry about wasting)?
 - How driven is your mentor to meet a huge, almost unreachable goal?
 - Does your mentor like control or willingly give it up?
 - Is your mentor open to new ideas/opportunities?
 - Is your mentor a risk taker?
3. Attempt to assess your mentor's *ability* to venture by asking at least these questions:
 - Has your mentor failed before? What did he or she learn? Has he or she succeeded before? How? Why?
 - Does your mentor have venture-type assets (money to invest, a surplus of ideas, extra time)?
 - Does your mentor understand aspects of entrepreneurial strategy discussed in class (innovation, value, sustainability, nonappropriability, etc.)?
4. Ask these questions to assess your mentor's *depth* of new venture knowledge:
 - How much experience with new ventures does your mentor have? How many past new ventures?
 - Can your mentor give you examples/stories of situations where realizing the similarity of one tough situation got him or her out of another?
 - Does your mentor understand how to gain a small numbers bargaining advantage and keep it?
 - Does your mentor "stick to his or her knitting"?
 - Can your mentor readily distinguish between new business problems and ongoing business problems?
 - Can your mentor cut quickly to the heart of a problem? How?

TABLE 2: Elements of the Script-based Experiential Activity

	<i>Glazer (1984)</i>	
	<i>Interrogation</i>	<i>Falsification</i>
<i>Participating</i>	Depth interview with entrepreneur mentor	Hearing the results of other depth interviews
<i>Writing</i>	Written description of entrepreneur mentor script: Part II of assigned report	Written comparison of student novice script based upon individual prior experiences, case studies & lectures from classes: Part I of assigned report
<i>Petronek, Corey, and Black (1992)</i>		Written comparison analyzing similarities and differences between student novice and entrepreneur mentor scripts
<i>Debriefing</i>	Responding to class questions following group report on depth interviews	Verbally evaluating the information experienced in class debriefing session

Some cues included in the Entry scale are as follows (subjects were invited to select the choice that describes them most closely):

- When investing in a new venture, I think it is worse to
- (a) wait too long and miss a great opportunity,
 - (b) plunge in without enough information to know the real risks.

Is it worse to

- (a) waste your time thinking over an opportunity,
- (b) commit time and money to a cause that may not succeed.

I want to get

- (a) a piece of the big money,
- (b) through life financially in one piece.

I am looking for a

- (a) place to invest my resources,
- (b) better way to manage my resources.

If I have a lot of free time available, it is more desirable to

- (a) find a new venture to put my time and talents into,
- (b) take the opportunity for some well-deserved recreation or travel.

Expert entrepreneurs are expected to select item (a) in these examples because making these selections tends to reveal the propensity of an individual to enter the new venture script.

Some of the cues included in the Doing scale are as follows:

My knowledge about new business

- (a) is fairly elaborate due to the many variations I have observed,
- (b) comes from my intuition; each new business has a "personality" which can be sensed.

I have more highly developed contacts in the

- (a) new venture area specifically,
- (b) community generally.

When someone describes a problem in a new business, I

- (a) recognize key features of the problem quickly and can suggest alternatives from examples I can cite,
- (b) use my instincts to suggest questions which should be asked to solve the problem.

I am more

- (a) aware of many new venture situations, some which succeeded and others which failed, and why,
- (b) familiar with my own affairs but keep up on business in general.

I have

- (a) failed in at least one new venture,
- (b) never failed in a new venture.

An individual who chooses item (a) recognizes elements critical to the execution or doing of things that are required in a new venture. It is assumed that the level of expertise of an individual is positively related to the number of script cues the individual recognizes.

The items that were created for the Entry scale embody characteristics strongly associated with willingness to embark on a new venture (Glade, 1967; Khilstrom & Laffont, 1979; McClelland, 1986; Sexton & Bowman, 1985). It is commonly accepted that characteristics such as propensity to take action, moderate risk taking to capture an opportunity, and a continual search for opportunities (vs. nonventure application of resources) indicate that an individual is more willing to venture.

The items that were created for the Doing scale embody the elements strongly associated with the actual creation of a new venture (Low & MacMillan, 1988; MacMillan, 1983; Smilor & Gill, 1986; Stuart & Abetti, 1990; Vesper, 1980). Entrepreneurial experiences such as previous ventures (successes and failures), as well as the building and use of networks, improve an entrepreneur's ability to start a venture.

Reliability analysis produced a coefficient alpha score of .67 for the Entry scale and .61 for the Doing scale. These are considered to fall within an acceptable range (Eisenhardt, 1988; Finkelstein, 1992; Van de Ven & Ferry, 1980).

Method

The method used to ascertain whether the script cue recognitions of enhanced novices more closely approximate those of the experts is described in the following four subsections: sample selection, experiential treatment, random assignment of students to treatment versus control groups, and control of threats to internal validity.

Sample

The subjects for the study were 174 residents of a large western U.S. metropolitan area. The groups comprised (a) a novice group (control) in which subjects either had no contact with venturing concepts or had not personally created a new enterprise, (b) an enhanced novice group (treatment) in which subjects who had not personally created a new enterprise received expertise enhancement course materials and experiences, and (c) an expert group of entrepreneurs who qualified under the following definition of expert. Experts in this study were individuals who had either started a business that had been in existence for more than 2 years or started three or more businesses, at least one of which is a profitable, ongoing entity.

Experiential Treatment

The experiential treatment centered around the participating portion of the experiential series described earlier in the Experiential Pedagogy subsection of this article. It is important to note that the only difference between the assigned experiences of treatment and nontreatment groups was the participation by the treatment group in the script-based experiential in-depth interview and subsequent journalizing and debriefing activities involving expert entrepreneur mentors.

Random Assignment

A total of 25 novices were randomly assigned to the treatment (enhancement) group. Assignment to pretest/posttest and treatment/nontreatment status within this experiment was accomplished using a randomized Solomon Four-Group design. Selected comparisons by group are given in Table 3.

TABLE 3: Selected Group Comparisons: Beginning of Study

Description	Novice (control)		Enhanced Novice (treatment)		Expert (entrepreneurs)	
	Number	Percentage	Number	Percentage	Number	Percentage
Male	61	64.9	18	72.0	45	83.3
Female	33	35.1	7	28.0	9	16.7
Caucasian	87	91.6	22	91.7	53	98.1
Mean age	29		26		43	
Self-assessed:						
Success chance good	71	74.8	19	79.2	54	100.0
Experience limited	60	63.2	17	70.9	6	11.1
High new-venture enthusiasm	65	68.5	19	79.2	49	90.7
Venture stage						
Start-up	19	20.0	5	20.0	13	24.1
Rapidly growing	16	16.8	3	12.0	22	40.7
Maturing	9	9.5	1	4.0	11	20.4
Declining	—	—	—	—	1	1.9
Not applicable	51	53.7	16	64.0	7	12.9
College senior	49	51.6	17	68.0	—	—
MBA	26	27.4	8	32.0	—	—
Community	20	21.0	—	—	54	100.0
Group total	95 ^a	100.0	25	100.0	54	100.0
Sample percentage		54.6		14.4		31.0

a. One participant did not reveal gender.

Internal Validity

The randomized Solomon Four-Group experimental design employed in this study usually provides a high level of control over threats to internal validity (Fraenkel & Wallen, 1990). In our study, approximately one half of the individuals in classes in which the enhancement exercises were conducted were randomly selected to receive both a pretest and a posttest. A *t* test ($N=16$) was performed using the Entry and Doing scale scores of novices who had no exposure to enhancement activities. The results reported in Table 4 show no pretest bias. Table 4 also shows the results of a matched-pairs *t* test ($N = 11$) for equality of pretest means between the novice (control) and enhanced (treatment) groups. No significant difference was found between pretest means on the Doing scale; however, a significant difference was found between pretest means on the Entry scale, possibly suggesting a difference between the groups in their propensity to venture. The inequality of the pretest means on the Entry scale was not deemed to invalidate the results of the

TABLE 4: *t* Test of Controls for Pretest Bias

	Pretest/Posttest Comparison		Between Groups Pretest Means	
	<i>t</i> Value	Two-Tail Probability	<i>t</i> Value	Two-Tail Probability
Entry scale	-0.36	.723	3.46	.006
Doing scale	-1.15	.269	-0.80	.441

analysis because, as shown later in the article, the Doing scale provides 78% of the discriminating power in the analysis of study results.

Analysis

The capability of a new venture's management team has been the traditional focus of both the practitioner literature and venture capitalists (Hall & Hofer, 1993; Hisrich & Jankowicz, 1990; Sandberg, 1986; Stuart & Abetti, 1990). Two characteristics of entrepreneurs, skills and skill propensity, have been shown to be related to new venture performance (Herron, 1990). Further, expertise has been related to new venture formation (Bull & Willard, 1993). The desirability and effectiveness of expertise enhancement interventions may be weighed if distinctions can be drawn between experts and novices based on levels of specialized knowledge recognition. The critical idea is whether experiential learning can result in enhanced novice scripts that more closely approximate those of the experts. In this case, it is desirable to discriminate among the three expertise groups (expert, novice, and enhanced novice) as a dependent variable, using scores drawn from the Doing and Entry scales as independent variables.

Results

A multiple discriminant analysis (MDA) of the three groups was conducted using two independent variable scale scores (Entry and Doing) derived from 33 script cues. A test of equality of group mean vectors (based on Wilks's lambda) resulted in a multivariate $F = 20.06$, $df_1 = 4$, $df_2 = 340$, $p < .0001$. Thus the three groups have significantly different levels of script cue recognition. The Entry and Doing scales were also found to be significant predictors of group membership ($p < .0001$).

Two discriminant functions were found to be significant below the .01 level, with discriminant function 1 accounting for approximately 78% of the

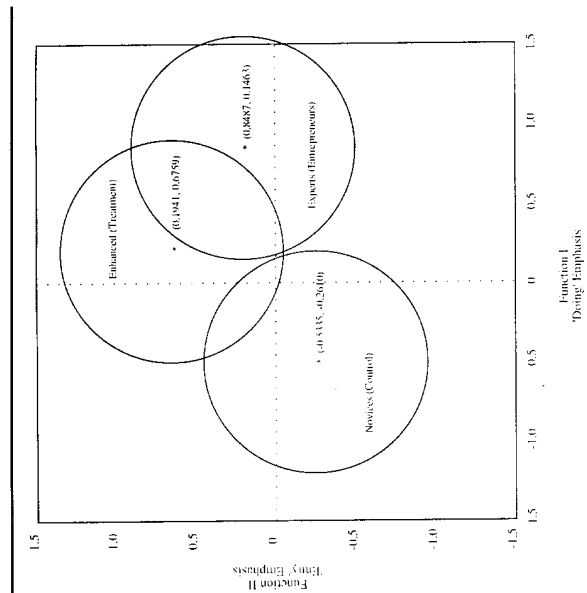


FIGURE 1: Discriminant Function All Group Scatterplot: 20 Percent Isodensity Circles *indicates a group centroid

discriminating power, and the two functions together accounting for 100%. In addition, the discriminant functions' eigenvalues were found to be significant ($p < .01$) using an approximate chi-square statistic.

The centroids (means) of the three groups are plotted in Figure 1 as ordered pairs (coordinates) to the right of each centroid so that the separation of groups can be visualized. Isodensity ellipses (circles) that are expected to contain 20% of the subjects in each group were plotted with a diameter of each circle computed to be 1.34 units (Watson, 1982). The isodensity circles in Figure 1 depict the overlaps among the groups. The groups are overlapped appreciably although the means are significantly different for these new venture expertise characteristics.

The classification functions derived by MDA were computed using the post-test results of the 174 participants in the study, and the observations were

classified as belonging to the group having the highest estimated posterior probability. A jackknife analysis (Lachenbruch, 1967) was used to withdraw each observation successively from the predictor function for classification while permitting the remaining observations to contribute to the computation of the discriminant function. The classification matrix giving the number of subjects classified into the different groups compared with their actual groups using proportionate prior probabilities (Eisenbeis, 1977), as well as the percentages classified correctly, are reported in Table 5.

The total correct classification was found to be 84.2% for the novice (control) group, 20.0% for the enhanced novice (treatment) group, and 54.7% for the expert (entrepreneur) group. The two discriminant functions substantially increase classification capability because, based on the proportion of each group in the sample, it would be expected that 54.6%, 14.4%, and 31.0% of the subjects, respectively, would be classified correctly. The lower enhanced novice classification percentage (20.0%) shows that the enhanced novices' scale scores fall somewhere between those of experts and novices, indicating that members of the treatment group are no longer strictly novices but are not yet experts.

An interpretation of the two discriminant functions is possible when the loadings, each in excess of .95 for both variables, are examined. The means plotted in Figure 1 show that on discriminant function I, the novice group has the lowest combined score, the expert group has the highest score, and the score of the enhanced (treatment) group is about halfway between those of experts and novices. With a rotated loading of .967, discriminant function I (shown on the horizontal axis of Figure 1) appears to be emphasizing the doing dimension of entrepreneurship (i.e., the actual creation of a new venture). Groups at higher positions on this function tend to expose themselves to information differently, create and sustain competitive advantage, and seek higher control. The expert group appears much farther along in the venturing life cycle in that its members have experienced failure episodes in their venturing pasts, have built support and resource networks, and have had frequent contact with other entrepreneurs. These characteristics are reflected in the items of the Doing scale.

Discriminant function II is notable for the separation of the enhanced novice group on the high side of the vertical axis. The high rotated discriminant loading (.967) of discriminant function II stresses the entry dimension of entrepreneurship (i.e., the willingness to embark on a new venture). Groups at higher positions on this function tend to have a low need for support and conformity and reveal qualities of assertiveness, initiative, risk taking, and a high tolerance for ambiguity. The plot indicates that the enhanced novice group is separated somewhat from the other groups along the vertical axis.

TABLE 5: Jackknifed Classification Matrix for Script Cue Recognition Scales: Numbers of Cases Classified Into Groups

Actual Group	Percentage Correct	Novice (control)	Enhanced (treatment)	Expert (entrepreneur)
Novice (control)	84.2	80	1	14
Enhanced (treatment)	20.0	12	5	8
Expert (entrepreneur)	54.7	22	2	29
Total	65.9	114	8	51

It is likely that this phenomenon is due, in part, to the effects of the experiential treatment. There are at least two explanations for this outcome. First, the enhanced novice group has in some sense overlearned the critical aspects of expertise in the entry dimension due to its intense and rapid exposure to the vital entrepreneurial issues and strategies. The entrepreneurial experts, however, may have learned problems and issues surrounding the entry dimension of venturing over a much longer period. Therefore, the experts may have forgotten some vital concepts to which the enhanced novices have just been exposed. Second, it is plausible that the heuristic nature of the instructional treatment may have had an emotional impact on the students. In a previous study, students' eagerness to become entrepreneurs varied directly with the charisma, ebullience, and enthusiasm of expert mentors (Mitchell & Chesteen, 1993). Because the experiential treatment in this study provided in-depth contact with high profile, appealing, and dynamic entrepreneur mentors, it is reasonable to assume that the level of enthusiasm of the students increased, thus raising their willingness to venture (enter the script).

Discussion

Entrepreneurial expertise is a key component in venture founding and ultimate success (Bull & Willard, 1993; Cooper, 1993). It is proposed that expertise can be acquired through an individual's participation in specific processes such as significant study, experience, and the exposure to schemata through contact with experts. Whereas the general design of the educational courses described in this study optimizes a student's capability to apply the principles and practices of entrepreneurship in a business setting, the activities of the script-based experiential instructional strategy were tailored specifically to boost the student's readiness to venture by enhancing entrepreneurial expertise.

A unique feature of this portion of the instructional pedagogy is that it is a synthesis of the theoretical developments from the entrepreneurship, simulation

and gaming, and the expert theory literature streams. As a direct derivative and application of expert information theory to the acquisition of entrepreneurial scripts, the experiential treatment appears to improve students' level of entrepreneurial expertise as measured by script cue recognition scales. Leddo and Abelson (1986) argue that expert failure occurs either at the time of script entry or as individuals engage in doing the things that the script requires. These two thresholds are parallel to the start-up and operation of a new enterprise. Accordingly, the scale scores that were used as independent variables in this study represent an individual's ability to recognize script-based cues related to venture entry or venture doing.

We used the scales to examine the effectiveness of the experiential treatment in accomplishing our instructional objective to mentally prepare the subjects to venture. After the participating, journalizing, and debriefing activities of the experiential treatment were completed, the enhanced novice group's scores indicated more readiness to enter *and* to do (accomplish) than did those of the novice group. Although the expert group is located significantly higher on the axis of function I (doing dimension), the enhanced novice group is located substantially above the expert group on function II (entry dimension). The foregoing observations raise several issues.

First, the results suggest that venture expertise can be stimulated effectively *within* the instructional setting by the planned series of experiential activities involving contact with experts. But by revealing something about the *nature* of the stimulus, potential problems with the unilateral application of the expertise enhancement portion of this pedagogy are also revealed. The demonstrated effects of the experiential treatment indicate that whereas the doing dimension is enhanced, the entering propensity may be too sensitive to the treatment. It is conceivable that this could lead to situations in which the original instructional objective (i.e., that enhanced subjects will be able and amenable to draw on the valuable insights and experiences of expert entrepreneurs to make optimal decisions about new venture activities) is undermined. Although the evidence implies that some degree of overfearning in the entry dimension may result from the treatment, that effect may not be a negative one given that the enhanced novices are not yet jaded by past venture failures. Further, the instructional strategy provides a framework that will allow these new potential venturers to identify beginning points and worthwhile directions.

Second, although we do not claim that the classification system described in this article can be used to predict new venture success, this idea is provocative as a likely hypothesis. If it were possible to predict new venture success using the scales with a reasonable degree of accuracy, then stakeholders

in the venturing process could assess levels of readiness to venture in a prospective venturer *before* the venture is initiated. This could conserve resources and decrease waste from premature investment in new enterprises that are flawed due to lack of sufficient entrepreneurial expertise. Extensive longitudinal research, however, would be required to test this hypothesis adequately.

An additional and useful feature offered by this pedagogical approach is that it will permit individualization of instruction. An instructor can compare the scripts and subsequently match individual students with the most appropriate mentors. For example, in circumstances where students score low on the Entry scale, indicating reluctance to enter a venture script, a mentor whose scripts foster risk tolerance and leadership skills might be optimal. In circumstances where the scores on the Doing scale identify a lack of preparation to actualize a venture script, an ideal entrepreneur mentor may be one who has built support networks, has obtained the requisite venturing assets, or possesses rich experiences.

In summary, this study has confirmed that the level of entrepreneurial expertise of an individual is functionally related to that person's ability to recognize cues from entrepreneurial expert scripts. Further, an experiential pedagogy in which novice entrepreneurs are systematically placed in contact with experts has a significant impact on novices' script cue recognitions. Thus a logical link between entrepreneurship research, experiential teaching methods, and expert information theory is established by the research results reported in this article. We believe that entrepreneurial expertise can be enhanced through the application of specific experiential techniques, and we have characterized the form that the results of such enhancements might take. Finally, we have provided an application of a methodology through which key aspects of entrepreneurial expertise can be assessed. These endeavors *highlight* the potential for instructional methods that integrate entrepreneurship, experiential, and expert theory research in a way that meets the needs of tomorrow's new venture students.

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Ronald K. Mitchell is an Assistant Professor in the Faculty of Business at the University of Victoria. His research in expert theory-based entrepreneurial experiential education has been published in the Association for Business Simulation and Experiential Learning Proceedings (1993) and presented at the 1993 annual meeting of the Academy of Management.

Susan A. Chesteen is a Professor of Management and an Adjunct Associate Professor of Pharmacy Administration at the University of Utah. Her areas of specialization include statistics, health care administration, and quality management. She received the College of Business Rosenblatt Prize in 1988 and the College of Business Outstanding Teaching Award in 1986. She is a widely published author with recent publications in Medical Group Management, Journal of Health Systems, American Journal of Hospital Pharmacy, Business Forum, Risk Management, and Training and Development Journal.

ADDRESSES: *RKM, Faculty of Business, University of Victoria, Box 3015, MS 8264, Victoria, British Columbia, V8W 3P1 Canada; telephone 604-721-6403; fax 604-721-6067. SAC, David Eccles School of Business, University of Utah, Salt Lake City, UT 84112 USA; telephone 801-581-8693; fax 801-581-7214.*