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Applying Dale's Cone of Experience to increase learning and retention: A study of student learning in a foundational leadership course

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ABSTRACT

The goal of this study will be to examine how Edger Dale's *Cone of Experience* is employed to positively impact student learning in a foundational leadership course. To accomplish this we will examine student projects in a foundational leadership course at Purdue in which students interactively evaluate leadership by creating surveys, summarizing the results and developing a leadership guidebook with practical recommendations. In addition, the authors will survey students who have completed this project and measure student achievement of learning outcomes as defined as what the student should know and realistically be able to do by the end of the course. This approach will focus on a self-assessment survey to gather in-depth understanding of learning and the reasons that student learning occurred as a result application of Edger Dale's Cone of Experience. The results will be the why and how of learning and retention, not just what. This method will produce information only on this particular course but general conclusions about the application of student projects in any course or discipline will be inferred.

Our study will show that in the foundational leadership course effective learning was achieved by applying strategies at the bottom of the pyramid using direct, purposeful learning experiences that simulates "doing the real thing," and represents reality or the closest things to real, every-day life.

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INTRODUCTION

The goal of this study will be to examine how Edger Dale's *Cone of Experience* (Figure 1) is employed to positively impact student learning in a foundational leadership course. To accomplish this we will examine student projects in a foundational leadership course at Purdue in which students interactively evaluate leadership by creating surveys, summarizing the results and developing a leadership guidebook with practical recommendations. In addition, the authors will survey students who have completed this project and measure student achievement of learning outcomes as defined as what the student should know and realistically be able to do by the end of the course. This approach will focus on a self-assessment survey to gather in-depth understanding of learning and the reasons that student learning occurred as a result application of Edger Dale's Cone of Experience. The results will be the why and how of learning and retention, not just what. This method will produce information only on this particular course but general conclusions about the application of student projects in any course or discipline will be inferred.

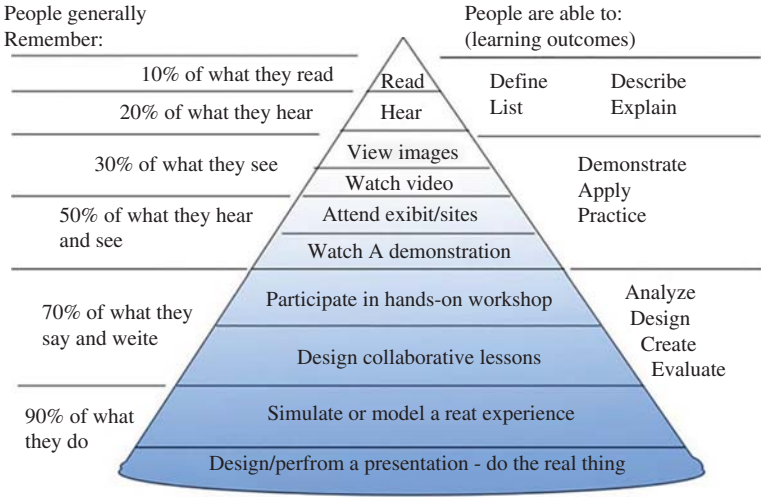

Figure 1. Dale's Cone of Experience.

Our study will show that in the foundational leadership course effective learning was achieved by applying strategies at the bottom of the pyramid using direct, purposeful learning experiences that simulates "doing the real thing," and represents reality or the closest things to reality, everyday life.

BACKGROUND

In 1946, Edgar Dale, introduced the Cone of Experience which shows the progression of experiences from the most concrete (at the bottom of the cone) to the most abstract (at the top of the cone). The Cone of Experience purports to inform readers of how much people remember based on how they encounter the information.

According to Dale's Cone of Experience (1946) (Figure 2), the base of the cone is characterized by more concrete experiences, such as direct experiences (real-life experiences), contrived experiences (interactive models), and dramatic participation (role plays). Direct purposeful experiences represents reality or the closet things to real, everyday life. The common theme among these levels is learners are "doing." The middle of the cone is slightly more abstract and is characterized by learners realistically

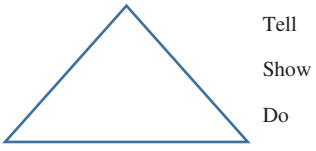

Figure 2. Simple Model of Dale's Cone of Experience (1946).

"observing" the experience. These levels are differentiated from the lower levels of the cone because students do not interact directly with the phenomenon. Levels in this section of the cone include demonstrations, field trips, exhibits, motion pictures, and audio recordings or still pictures. The peak of the cone is the most abstract where the experiences are represented non-realistically by symbols, either visual or verbal i.e. listening to the spoken word.

The cone charts the average information retention rate for various methods of teaching. The further you progress down the cone, the greater the learning and the more information is likely to be retained. It also suggests that when choosing an instructional method it is important to remember that involving students in the process strengthens knowledge retention.

It reveals that "action-learning" techniques result in up to 90% retention. People learn best when they use perceptual learning styles. Perceptual learning styles are sensory based. The more sensory channels possible in interacting with a resource, the better chance that many students can learn from it (Diamond, 1989).[1] According to Dale (1969),[2] instructors should design instructional activities that build upon more real-life experiences. Dale's Cone of Experience is a tool to help instructors make decisions about resources and activities.

RESEARCH PROBLEM

The purpose of this study was to identify the effects of experiential learning on transferability to the workplace. In education literature, it is well understood that teaching effectiveness is enhanced in many academic areas if experiential components are integrated in the course. The study identified the relationship between projects, learning and Dale's Cone of Experience and investigated the relationship between student activities and collaboration approaches to learning.

RESEARCH METHODS

In a foundational leadership course, the experiential learning activity was designed using Dale's Cone of Experience. The experiential activity was designed to help students construct a model for effective leadership skills and characteristics by the use of survey instruments. In detail, students interactively evaluated effective leadership skills/characteristics by creating surveys, interview practitioners, summarizing the results and developing a leadership guidebook with practical recommendations.

WHY STUDENT QUESTIONS/INTERVIEWS?

Students' interview question development played a crucial role in the learning process since "questioning lies at the heart of scientific inquiry and meaningful learning" (Chin et al., 2004, p. 521).[3] As Dillon (1988)[4] has stated: No other event better portends learning than a question arising to the mind.

To design the experiential activity, the instructor addressed the following concerns:

- Where will the student's experience with this instructional resource fit on the cone? How far is it removed from real-life?
- What kind of learning experience will this provide in the classroom?
- How does this instructional resource enhance the information supplied by the textbook?

By addressing, these issues, the experiential activity helped the student to develop a deep understanding of complex information and the underlying principles of effective leadership. The technique actively encouraged group research and collaboration into specific areas of effective leadership skills.

The study was conducted using the following steps:

- A Qualtrics survey was developed and administered to students enrolled in this course for the three prior years
- Created survey items:
  - I believe that learning experiences that simulates "doing the real thing," are more effective than traditional methodologies.
  - I would like to have more courses taught using the learning experiences that simulates "doing the real thing," and represents reality or the closest things to real, every-day life methodology.
  - In the Applied Leadership course (OLS 274), the experiential Leadership Survey Project enhanced my learning.

- I believe that I achieve learning outcomes more effectively in an experiential based course than in a traditional course.
- The learning outcomes in Applied Leadership (OLS 274) experiential Leadership Survey Project are transferrable to the workplace.
- The Applied Leadership (OLS 274) experiential Leadership Survey Project improved my leadership skills and understanding.
- The survey employed a 5-point Likert scale:
  - Scale 1 – Strongly Disagree
  - Scale 2 – Disagree
  - Scale 3 – Neither Agree or Disagree
  - Scale 4 – Agree
  - Scale 5 – Strongly Agree

DISCUSSION

The study included twenty-one respondents. All respondents had completed OLS 274, Applied Leadership, taught by the same instructor, utilizing the Leadership Survey project to enhance learning and transferability to the workplace. These respondents completed the course within the past 3 years.

This unique experiential projects includes activities both inside and outside the classroom. Students create surveys, administer surveys in the workplace, evaluate results, develop a leadership guidebook, and share findings with both students and management in the workplace.

The majority of the participants in this course are non-traditional students which is a significant factor because statistics have shown that non-traditional (adult) students are a growing presence on college campuses. For the purpose of this paper, a non-traditional student is defined as: a student over the age of 24 who has family and work responsibilities and other life issues that often interfere with degree completion. Furthermore, financial constraints including have children being a single parent, or being financially independent from parents have the potential to inhibit completion of educational goals. Delayed enrollment by not enrolling in postsecondary education in the same year as high school graduation further defines non-traditional students.

In addition, these students are enrolled in a satellite campus located at a large mid-western automotive facility. Students typically work full-time in a variety of work environments including manufacturing, healthcare, administration, non-profit, retail, etc. which results in an eclectic student body.

The purpose of the study was to determine, the attitude of non-traditional students toward experiential learning activities as a part of a foundational leadership course. To date, research on experiential learning and the achievement of learning outcomes has focused on the traditional students enrolled in an on-campus program. In this course, experiential learning activities are designed to challenge adult students' view of the workplace and force them to reflect critically on what happens in their work setting on a daily basis. Key question: Although experiential learning assignments often add to the workload of a class including a more substantial time commitment (a valuable commodity to non-traditional students), do non-traditional student prefer this teaching strategy?

It should be mentioned that immediate responses from the student while enrolled in the course were positive and enthusiastic. Although the project was demanding, student feedback indicated that this was a meaningful assignment which added value to the course. As a matter of fact, the students stated that the most meaningful part of this experiential learning activity was sharing their results with management in their work settings - a significant step in transferability of knowledge to the workplace.

RESULTS

The first survey question asked: "I believe that learning experiences that simulates "doing the real thing," are more effective than traditional methodologies." The results strongly indicated that 90% believed that this is a true statement. 50% of the respondents selected agree and 40% selected strongly agree. Figure 3 below gives an illustration of the option chosen by the respondents. This response strongly indicates student support for experiential learning in the classroom regardless of the discipline.

The second survey question: "I would like to have more courses taught using the learning experiences that simulates "doing the real thing," and represents reality or the closest things to real, every-day life methodology." The purpose of the question was to measure student response and attitude toward

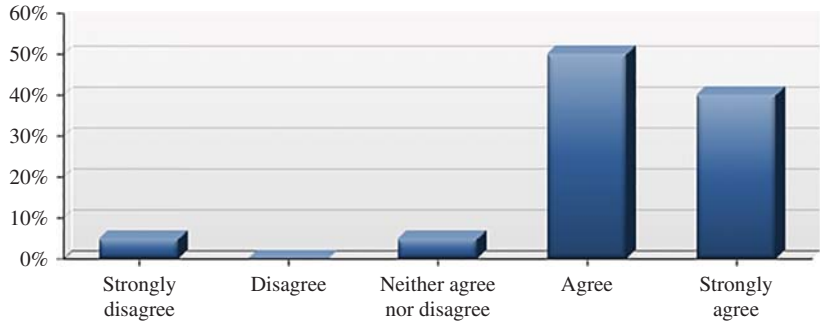

Figure 3. Responses to Question 1.

incorporating experiential learning into other courses as well as in other disciplines. Figure 4 graphically represents student support of inclusion of experiential activities with 48% selecting agree and 43% selection strongly agreed. These results were consistent with the response to Question #1 "doing the real thing."

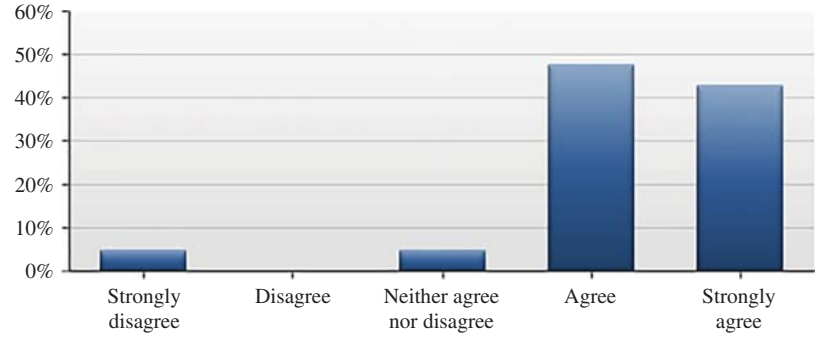

Figure 4. Reponses to Question 2.

The third survey question: "In the Applied Leadership course (OLS 274), the experiential Leadership Survey Project enhanced my learning." The questions was designed to measure the attitude toward the specific OLS 274 Leadership assignment. Figure 2 give a graphical interpretation of the selected options. In general, the respondents believed that this learning activity positively impacted learning in the course. However, there was a slight shift in the response with 70% agreed and 25% strongly agreed (Figure 5).

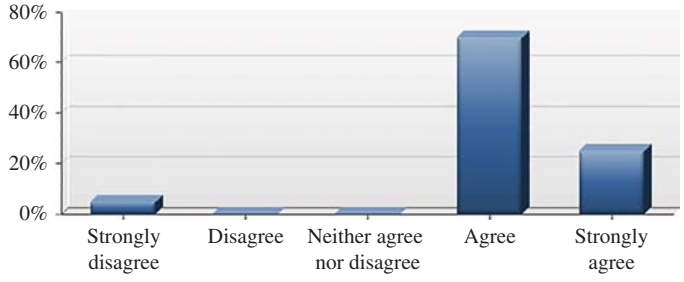

Figure 5. Responses to Question 3.

The fourth survey question asked: "I believe that I achieve learning outcomes more effectively in an experiential based course than in a traditional course." Question # 4 attempts to understand students' perception of learning outcome when experiential activities are included in the course. Figure 6 below interprets the selected options. A majority of the respondents indicated that agreed or strongly agreed that learning outcomes were achieved more effectively by the inclusion of experiential activities. 45% of the respondents agreed and another 40% strongly agreed.

The fifth survey question asked: "The learning outcomes in Applied Leadership (OLS 274) experiential Leadership Survey Project are transferrable to the workplace. This question asked respondents to

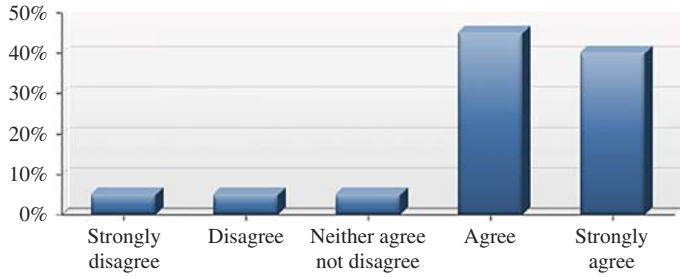

Figure 6. Responses to Question 4.

address the challenge of transferring knowledge to the job. According to Figure 7, 50% of the respondents agreed that experiential activities would improve transferability to the workplace. Another 45% of the respondents strongly agreed with the increased transferability.

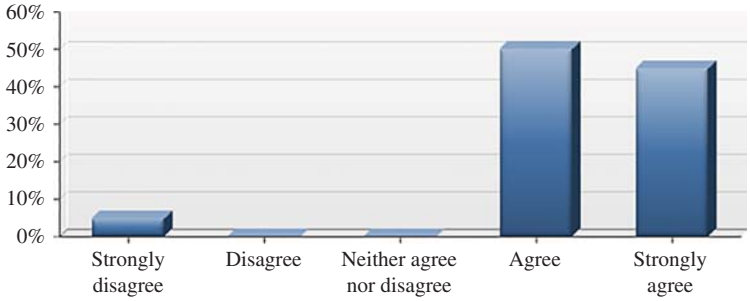

Figure 7. Responses to Question 5.

The sixth survey question asked: "The Applied Leadership (OLS 274) experiential Leadership Survey Project improved my leadership skills and understanding. This question was designed to assess the student perspective on the skill development. The results varied showing less agreement with the transferability directly to leadership skills. In response to this question 67% indicated agree while another 19% strongly agreed (Figure 8).

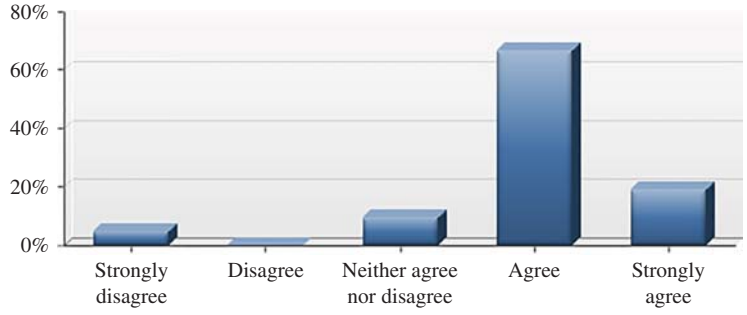

Figure 8. Responses to Question 6.

IMPLICATIONS

This study intended to build a bridge between Dale's Cone of Experience and learning as it relates to non-traditional students. In the past, research has been focused on traditional students. Instructor appreciation of experiential approaches to learning can enhance the possibilities of improving the quality of teaching in any course or discipline regardless of the demographics of the students.

RESEARCH LIMITATIONS/IMPLICATIONS

Generalization of the overall study is limited because of the number of students who responded to the survey. However, there are some clear pointers here about the relationship between experiential

learning activities and the transferability to the workplace as well as and retention of academic knowledge as it relates to the growing non-traditional student.

Experiential activities studies place the responsibility of learning onto students rather than their teachers, and indicate that this benefits student learning and retention (King, 1994; Pedrosa de Jesus et al, 2003).[5] Active student participation in learning can play a significant role in achieving meaningful learning and retention. These activities can include answers to unexpected puzzles, and filling a knowledge gap (Biddulph and Osborne, 1982).[6] Active participation can assist learners to develop a deeper understanding of the discipline in which they are studying as well as increase the interaction between the student and the instructor. (Pedrosa de Jesus et al, 2003)[7] and other students. In the Student Leadership project developing interview questions is also an essential aspect of problem solving (Chin and Chia, 2004).[3] This skill is transferable to any discipline.

Besides helping students learn, experiential activities can also guide teachers in their work. Some researchers (Crawford et al., 2000)[8] have explored the potential for using student input to influence the curriculum. Results indicate that knowing what students are thinking about the ideas presented, how they link these ideas with other things they already know, and the quality of student thinking and understanding (Watts et al., 1997)[9] lead the instructor to know what it is they want to know (Elstgeest, 1985).[10]

With innovation for improvement in mind, this study has expanded the knowledge base about the use of student-centered approaches and established a link between experiential learning activities and enhanced student learning.

CONCLUSION

In summarizing the results, three significant issues should be noted:

1. As past research has shown, from a traditional student perspective in an on-campus environment, experiential activities increase the learning outcomes of a course as well as the ability to transfer knowledge to the workplace. This survey has expanded this research and demonstrates that the same results can be replicated in studies with non-traditional students. Although non-traditional students typically have the real life, everyday work experience already, results of the survey established that these students confirmed that experiential activities significantly enhanced the learning outcomes of this foundational leadership course. This experiential learning activities encouraged these students to reflect critically on ways to apply leadership theory in the workplace. The survey results were consistent across survey questions with a significant level of support.
2. Non-traditional students as well as traditional students support the use of experiential learning in various courses and disciplines.
3. Further research is needed with respect to the variation in response to the questions about transferability to workplace compared to improvement to leadership skills.

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