Chapter 6.27
ARS Evolution:
Reflections and Recommendations

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ABSTRACT

This chapter describes my 25-year journey and experience with audience response systems (ARS), starting with my first realization of the potential of ARS while teaching at a University as an adjunct professor. A synopsis of the initial ARS experiment conducted in the mid-1980s at IBM's Management Development Center serves as a baseline. The conclusions from this study justified the use of keypads in the classroom at IBM, and after publication, set the stage for the growth of the ARS industry. The ARS activities pursued after retiring from IBM in 1988 are described, including the advances that my companies made in software, graphics, and keypad technology, which we incorporated into our products. Finally, the chapter offers 10 recommendations for higher quality questions developed by ARS users. I conclude that these recommendations are critical prerequisites to the continued growth of the ARS industry in academia.

INTRODUCTION

A recent Internet search for "Audience Response System" related keypads yielded over 14,000 hits, and displayed over 200 companies that market ARS related products and services. The diverse applications included meetings, strategic planning, corporate training, and education (elementary, secondary and higher). Numerous articles praise the merits of audience response systems, but from my long experience in this field, I sense that many potential users are still on the sidelines.

With the introduction of infrared transmitters, costs of interactive classroom systems have dropped dramatically. Certain publishers even give transmitters free with new textbooks. So why are not clickers, handsets, keypads or transmitters more widely used in classrooms as

an intricate part of the learning process? When used, the primary ARS application is to answer test questions one after another to save time in data collection and scoring. For the most part, keypad questions have not been seamlessly integrated into the instructional course design and PowerPoint slide shows. The reason may be that instructors feel that the educational payback is not worth the time required. Another reason may be that high quality questions that stimulate the students' thought processes during lectures are difficult to develop.

My corporate training consulting-support activities to clients over the years have been in course instructional design and development. Their existing courses needed to be redesigned, in order to engage students with creative questions that would stimulate thought and increase participation. Integrating quality questions into a course is referred to as "interactive instructional design," and I am convinced that this represents an important threshold to expanding ARS in academia.

This chapter provides an overview of my reflections and experiences with ARS since the early 1980s. I conclude with 10 recommendations and criteria for producing higher quality questions.

ARS: WHERE ARE YOU?

My first awareness of the differences among students' participation levels and the possible need for an ARS happened while I was teaching at the University of Maryland. I recall explaining to my class how the Italian economist, Vilfredo Pareto, developed the 80/20 Principle to explain Italy's wealth in the early 1900s. He concluded that 80% of Italy's wealth was controlled by 20% of its population. The business world has since extended Pareto's Principle to assist in addressing its most important issues. I asked for personal examples that could support or dispute this Principle. An

excellent discussion followed, but involved about 6 of my 30 students. How ironic to be discussing Pareto's Principle and its applicability to business decision making, and at the same time observing that the phenomenon was happening right in my class! Only about 20% of my students volunteered their experiences. The remaining 80% just listened and took notes.

In subsequent classes, I used simple "ARS-like" experiments to see if I could engage the class into higher levels of participation. I gave my students "Flash Response Cards" at the beginning of class, and they were required to answer a few multiple-choice questions based on homework reading assignments. For example, a case study would have four possible approaches for a manager to consider. Each student would display his or her selected response (1, 2, 3, or 4) and I would tabulate the results with the assistance of a student. An advanced version had each number color-coded to help in tabulation. This question and response did stimulate discussion about the case studies and increase the level of participation. However, the overall process took excessive manual effort to tabulate results, and detracted from the classroom's primary mission. As I look back now, I had no idea that this simple experiment would create an interest that would last the rest of my working life!

IBM ADVANCED TECHNOLOGY CLASSROOM (ATC)

In the mid-1980s, I lead a research and development effort at the IBM Management Development Center at its Corporate HQ in Armonk, New York. This was an ideal research environment for my interests in classroom learning dynamics. Each week, IBM locations from around the United States send 100 newly appointed managers to this training facility for 5 days of comprehensive training on every aspect of basic management.

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