A Conceptual Model for Selecting Extension Delivery Methods to Plan Better Programs

Rama Radhakrishna
Brad Olson
Anil Kumar Chaudhary
The Pennsylvania State University

Extension educators today face several challenges in designing, delivering, and evaluating programs. Achieving successful program outcomes is becoming increasingly difficult. Educators must choose amongst a wide variety of technology and delivery methods, all while facing resource constraints such as cost, time, and materials. Educators require a tool that helps them to select delivery methods that achieve more successful program outcomes. We developed a conceptual model that connects the scholarly works of Bloom et al., Dale, and Bennett with over 30 program delivery methods. This article demonstrates the model's utility by applying it to a past program on smoking cessation.

Keywords: conceptual model, tool, Extension program, delivery methods, Bloom, Bennett, Dale

Introduction

Extension has a long history and tradition of delivering programs to clientele. Over the last 100 years, Extension educators have witnessed significant changes in the delivery of programs that has been driven by technological changes, the nature of Extension program offerings, the clientele it serves, and the resources needed to deliver programs. The technological revolution in the last 10-plus years has significantly altered the way Extension delivers its programs. For example, more programs are now delivered online using a variety of devices and communication technologies. Many of our in-service training programs and meetings are offered through the internet. In addition to these changes, Extension is faced with declining resources and an increased demand for documenting program outcomes. In light of such constraints and changes, Extension educators must find new ways to increase the effectiveness and efficiency of their program delivery methods. A need exists to provide Extension educators with a tool that can effectively and efficiently select the most appropriate delivery methods to achieve better program outcomes.

Direct correspondence to Rama Radhakrishna at brr100@psu.edu

Several researchers have documented the value of various educational delivery methods in effectively communicating information to clientele. Fedele (1985) indicated that information delivery is done by a number of methods. For example, print-based information serves the clientele with specific answers to a myriad of topics. Audio-visual methods such as radio and video tapes often provide information without personally involving Extension educators. Mass media delivery methods, such as radio, television, and newspapers, are used to advertise events, foresee client needs, and report agriculture business information. These methods are used in a variety of ways and in a number of contexts, depending on the needs of program participants. In recent years, Extension has changed its delivery mechanisms due to technological advances, clientele's access to the internet, and clientele's familiarity and confidence using internet resources. Additionally, reduction in funding and increased demand for putting information on the internet and delivering information using electronic devices have contributed to a shift from the use of traditional methods.

Richardson (2001) classified educational delivery methods into three groups: experiential, reinforcement, and integrative. According to Richardson, to promote effective and efficient learning, a delivery system should include methods, wherever possible, that provide desired experiential opportunities for the learner, reinforce the learning, and provide opportunity for the learner to integrate new information with existing knowledge and skills. Richardson further identified several factors that should be considered in the delivery of educational information: the target audience, the educational objective, the type and content of the message being provided, the characteristics of the delivery method, and the method's utility for providing desired learning support. However, one additional factor that should be considered in the selection and delivery of information is the desired or expected outcomes as a result of delivering an Extension program using a particular method or a combination of methods. This article examines and connects several delivery methods to the desired outcomes that Extension programs commonly intend to produce.

The purpose of this article is to provide a tool, in the form of a conceptual model, which connects the models of three educational scholars: Bloom, Engelhart, Furst, Hill, and Krathwohl (1956), Dale (1970), and Bennett (1975). These models serve as foundations for teaching in both formal and nonformal settings. By connecting educational research to specific delivery methods, the conceptual model can aid Extension educators in selecting the most appropriate delivery methods to achieve better program outcomes. We will first briefly describe the key components of each educational model. Then, we will connect the three educational models using our conceptual model in the context of Extension programming. We will then discuss the application of the conceptual model to a specific program whose goal was to change awareness, attitudes, and behaviors of program participants.

Description of the Three Scholarly Models

The taxonomy of Bloom et al. (1956) categorizes learning into three domains: cognitive, psychomotor, and affective. The cognitive domain describes mental development: knowledge, comprehension, application, analysis, synthesis, and evaluation. The psychomotor domain describes physical or motor skill development: imitation, manipulation, precision, articulation, and naturalization. The affective domain refers to the development or alteration of beliefs and values: characterizing, organizing, valuing, responding, and receiving. Extension programs can use all three domains to select and articulate intended program outcomes.

Dale's (1970) cone of experience connects learning to different types of educational experiences and instructional methods. The *cone* refers to the model's shape, in which different methods are arranged according to the type of educational experiences they provide the learner, with learning being compounded as more experiences are combined. In *verbal receiving* experiences, the learner uses verbal symbols (i.e., words) to learn concepts. *Visual receiving* experiences include using visual symbols such as readings, diagrams, still pictures, and drawings to learn concepts. Other forms of verbal and visual receiving include radio, recordings, motion pictures, and educational television. *Receiving and participation* add to the learning process and include demonstrations (observation and questioning), dramatized experiences (acting or watching others act), and contrived experiences (using models that represent reality or real-life experiences). Learning by *doing,* or having direct purposeful experiences, is the optimal way for the learner to experience and learn a concept or process. Verbal and visual receiving are classified as *passive* experiences, while receiving and participation and doing are classified as *active* experiences. Extension program participants may benefit the most from direct, purposeful experiences (i.e., learning by doing), but due to time, money, or other limiting factors, visual and verbal receiving or receiving and participation experiences may be more feasible.

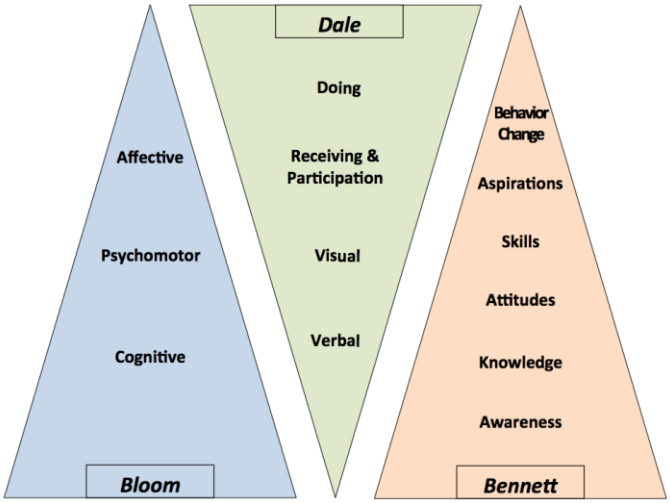
Bennett's (1975) hierarchy uses a series of levels to evaluate an Extension program's ability to affect participants and outcomes; two such levels include KASA (*knowledge*, *attitude*, *skills*, and *aspirations*) change, followed by behavior change. We add the concept of *awareness* before *knowledge* to form an expanded acronym of AKASABc (Rogers, 2003). The concept of *awareness* provides information that an educational program exists to address a particular issue (e.g., obesity), but *knowledge* provides how-to information specifically about the program curriculum, how to join the program, and why the program can help to reduce obesity (Rogers, 2003). This order represents a logical progression of participant change. A program first builds awareness, then provides new knowledge, increases desirable attitudes about the subject, provides the necessary skills to address the subject, increases participants' willingness or desire to take action, and finally results in that action, ideally in the form of sustained behavior change. An Extension program may seek to affect or change all components of AKASABc or may only seek to change a few, depending on program goals and resources.

All three educational models can be used independently to shape educational programming and Extension delivery methods. However, the conceptual relationships between the three models have not been clearly identified and presented in a user-friendly manner for practitioners to use in program design, delivery, and evaluation.

Approach (Development of Our Conceptual Model)

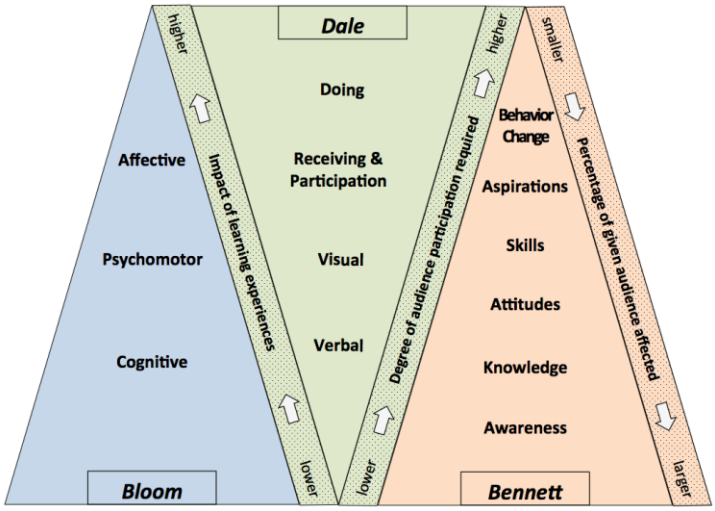
We began the development of our new conceptual model by representing the models of Bloom et al.'s (1956) taxonomy of learning domains, Dale's (1970) cone of experience, and Bennett's (1975) modified KASA/behavior change levels with awareness as an additional level, each as a separate hierarchical triangle with their respective model components listed inside (Figure 1).

Figure 1. Hierarchical Triangles of Bloom et al., Bennett, and Dale Models



We wanted our model to indicate the relationships between the three scholarly models (Bloom et al., Dale, and Bennett) and other factors that shape the success of program outcomes, including: *Percentage of given audience affected, Resources needed, Impact of learning experiences,* and *Degree of audience participation required* (Figure 2). Our model indicates these relationships between models in two distinct ways: 1) the physical shape of each triangle model; and 2) the related factor labels in between the triangles with ranges and directional arrows. The physical shape of each model signifies *more* or *higher* as the triangle width *increases* from the thin apex to the wide base and signifies *fewer* or *lower* as the triangle width *decreases* from the wide base to the thin apex.

Figure 2. Hierarchical Triangle Models with Factor Labels in Between

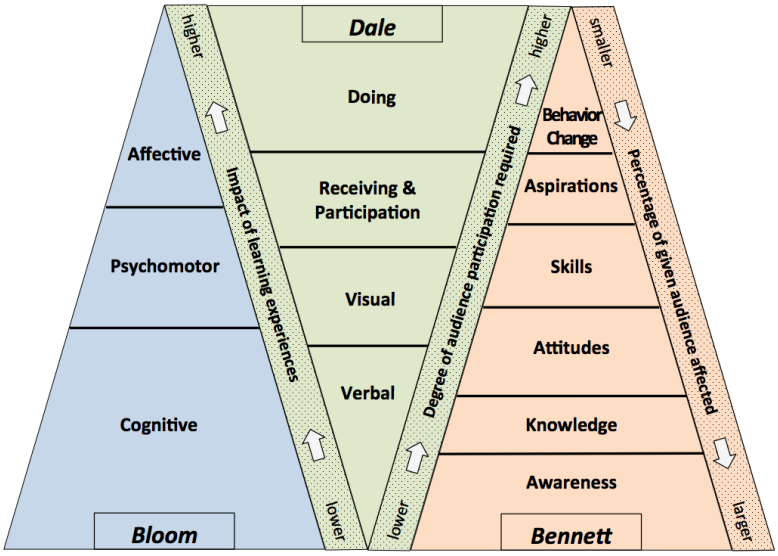


The Bloom et al. and Bennett models are both represented by upright triangles because they explain the effects of educational programming on a given audience in similar ways. The shapes of the Bloom et al. and Bennett models demonstrate that a larger percentage (wide base of the triangle) of the audience will be affected at the lower levels (*cognitive*, *awareness*, and *knowledge*) than will be affected at the higher levels (*affective*, *aspirations*, and *behavior change*), as represented by the width (thinner apex of the triangle). The factor label *Percentage of given audience affected* shows that given a program aimed at changing all levels (awareness through behavior change or cognitive through affective change), the educator can expect a larger segment of the audience to achieve lower levels of change and a smaller segment to achieve higher levels of change. There are clearly many influences that may play a role in program outcomes and the model cannot provide specific percentages or figures. However, this factor label demonstrates a generally held notion of behavior change agents that changing awareness or knowledge among a large number of people in a given program is more realistic than changing the behaviors of that same number of people (Kelly & Barker, 2016; Markman, 2014; Pratt & Bowman, 2008).

Dale's cone of experience already has a triangular shape, which fit well with our modeling logic and layout. The triangle's inverted shape comes from the compounding of learning as the participant is exposed to multiple educational experiences from one-way verbal receiving (bottom vortex) to more interaction and direct action or doing (wide top). The two factor labels associated with Dale's model, *Impact of learning experiences* and *Degree of audience participation required*, also indicate the effects at different levels of program outcomes. As the audience is engaged with more sensory and active experiences, the impact of learning increases. In order to get audience members to achieve purposeful action or to learn by doing, a greater level of participation or engagement from the learner is required by the educator.

The models do not share the same number of concept levels (Bloom et al. – 3, Dale – 4, Bennett – 6); therefore, we aligned the levels based on logic and experience, placing horizontal lines across each triangle to separate the levels (Figure 3). Cognitive learning, awareness, and knowledge are primarily delivered through speech or lecture (verbal receiving), though cognitive learning can also rely on visual elements (visual receiving). Attitudes can be affected by oral argument alone (verbal receiving); however, *seeing is believing*, therefore attitudes are also linked with visual receiving. Skill and psychomotor development are often carried out through visual demonstrations, but also through active participation and practice. Aspirations represent the will or desire to act, but a person exhibits behavior change only when repeated or purposeful action is taken. The affective domain is the highest domain in Bloom et al.'s taxonomy and represents independent thought, valuation, and response. The affective domain is in line with Dale's doing, where the learner actively takes on their own educational experiences and Bennett's behavior change, where the individual is choosing to alter their behavior based on their aspirations. The affective domain is also connected to receiving and participation because without the receiving and participation experience, the learner would not be able to fully achieve the intended behavior change (Frisby, Weber, & Beckner, 2014).

Figure 3. Alignment and Relationships of Bloom et al., Dale, and Bennett Model Components



Next, we selected several common delivery methods, based on literature cited in this article (Bennett, 1975; Bloom et al., 1956; Richardson, 2001) and our own experiences, for each of Dale's four levels. We positioned each group of delivery methods within the fourth and final triangle of our model, mirroring Dale's inverted triangle. The delivery methods associated with each level of Dale's cone of experience are listed below:

Verbal Receiving: In-person question and answer session; group discussion; lecture; radio; and online streaming and recorded audio.

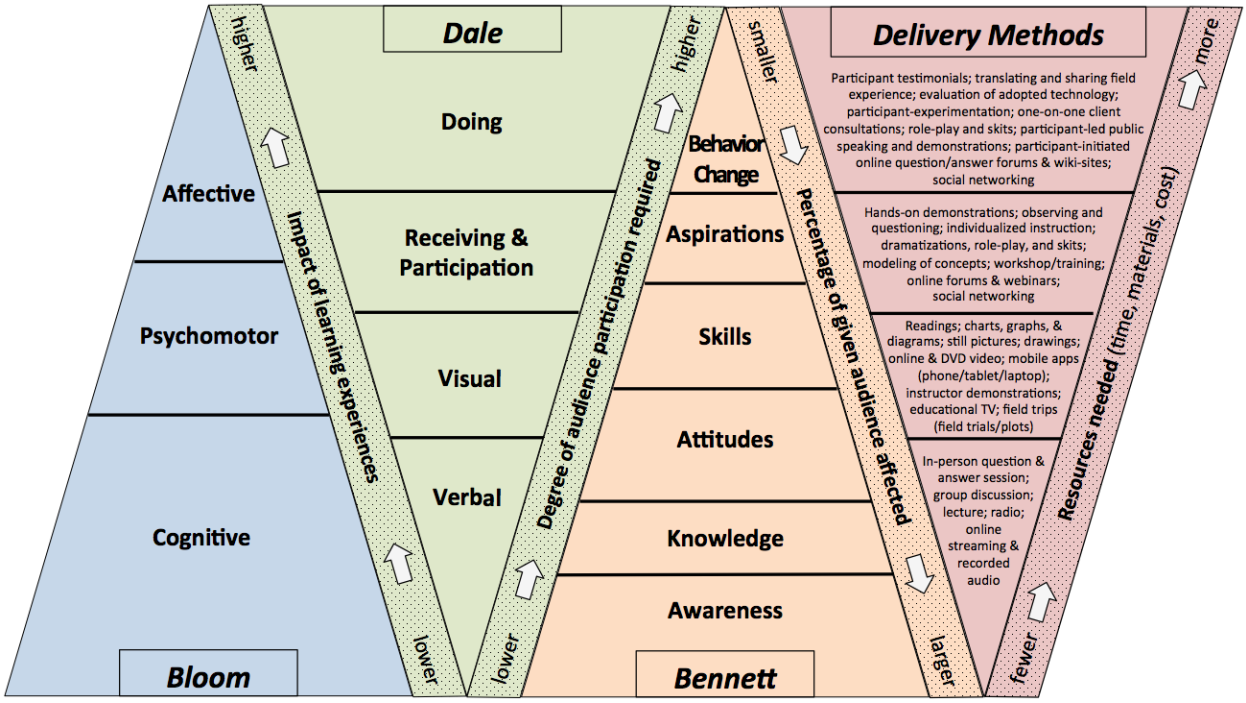
Visual Receiving: Readings; charts, graphs, and diagrams; still pictures; drawings; online and DVD video; mobile applications (phone/tablet/laptop); instructor demonstrations; educational TV; and field trips (field trials/plots).

Receiving and Participation: Hands-on demonstrations; observing and questioning; individualized instruction; dramatizations, role-play, and skits; modeling of concepts; workshop/training; online forums and webinars; and social networking.

Doing: Participant testimonials; translating and sharing field experience; evaluation of adopted technology; participant-experimentation; one-on-one client consultations; role-play and skits; participant-led public speaking and demonstrations; participant-initiated online question/answer forums and wiki-sites; social networking.

We then added the delivery methods triangle along with the remaining factor label *Resources needed* to form our final model (Figure 4).

Figure 4. Final Model Connecting Bloom et al., Dale, Bennett, and Delivery Methods



It was important to indicate the relationship between the learning process/educational outcomes and the resources needed to support such programming. We identified three main resources (time, materials, and cost). This factor label is associated with the delivery methods triangle, but the relationship also applies to the Bloom et al., Bennett, and Dale models. In order to achieve higher forms of learning (affective, doing, behavior change), more in-depth, participant-driven experiences and methods are needed. In general, these higher forms of learning and change

require more time to occur, more materials to be used, and more costs associated with venues, food/drink, educational materials, transportation, equipment, and follow-up with participants for program evaluation (Radhakrishna & Bowen, 2010).

To download an 8.5" x 11" PDF version of the model in color or monotone, use the following shortened URL (https://tinyurl.com/ydxkeunb) or the full-length URL (https://drive.google.com/open?id=0B6-dWXG-Vxl5VnpBUUZ1SW9QT0E).

Using the Conceptual Model

To demonstrate the conceptual model's utility, we applied the model to a previously developed smoking cessation program designed for middle and high school students. The goal of the program was to create awareness of the negative effects of smoking and to change the attitudes and behaviors of the program participants.

The most effective way to begin using the conceptual model is to first identify the learning goals or objectives of the program. This program had three aims: increase awareness of negative smoking effects; change attitudes about smoking (i.e., from favorable to unfavorable); and change behaviors (i.e., stopping those who do smoke and preventing those who may start smoking). Once the goals/objectives have been identified, the educator matches them to the appropriate levels in Bloom et al.'s taxonomy or Bennett's hierarchy. Bennett's hierarchy provides the greatest number of delineated levels, making it easier to match specific program objectives to the conceptual model's concepts, but either panel can be used for this purpose.

After locating the awareness level in the Bennett panel, the educator physically turns the model to the Delivery Methods panel and identifies the set of methods (i.e. verbal receiving methods) aligned with the awareness level. At first look, the methods may seem limited to only verbal receiving. However, if the educator places the awareness objective within the context of Bloom et al.'s cognitive domain, they will see that the cognitive domain aligns with verbal receiving and visual receiving methods. The conceptual model shows that in order to increase awareness, the educator could use verbal methods such as an in-person talk at a school assembly, a group discussion, or question and answer session with students in class. Visual methods such as informational diagrams or posters could also be used to spread awareness of the harmful effects of smoking.

Applying the same steps, the conceptual model demonstrates that similar verbal and visual receiving methods could also be used to change attitudes. The educator could show photos of the effects that smoking has on the lungs, skin, or mouth to change students' attitudes. They could hold an in-person class discussion with a smoking-related cancer survivor to reinforce the consequences.

To achieve behavior change, the educator could use multiple methods from the Delivery Methods panel, working their way up through all levels to the top. To achieve Bennett's behavior change or Bloom et al.'s affective domain, the educator could have students act out skits in which participants are shown how smoking leads to cancer and brings a lot of pain and even death. Participants who have been around people who smoke could share their experiences such as finding it hard to breathe or having their clothes smell like smoke after being around that person.

The conceptual model also shows the related factors of achieving different levels of participant change. More time, resources, and participant engagement are needed to stop people who smoke and prevent others from starting. While fewer participants may be affected at this level, the impact of the experiences on those affected participants will be greater.

Conclusion and Implications

Our conceptual model is a novel way of connecting and presenting three foundational scholarly works of Bloom et al., Bennett, and Dale with common delivery methods used in Extension programming. The model serves as a tool to aid the Extension educator in four ways:

1. It is a reference guide to recall the components of three educational models of Bloom et al., Dale, and Bennett;
2. It lists over 30 different delivery methods that can be used in Extension programs;
3. It visually and conceptually connects all three educational models (Bloom et al., Dale and Bennett) and components with specific educational techniques (delivery methods) to aid Extension educators in selecting specific methods for desired program outcomes; and
4. It informs the educator, through the four different factor labels in-between, about the potential educational impact of their methods, the degree of audience engagement required, the amount of resources needed, and the relative number of people that can be affected at each level.

As a result of these benefits, Extension educators who use this tool will be better prepared to design and select effective delivery methods that will lead to better program outcomes.

As Extension educators implement this model, we will determine its effectiveness in achieving better outcomes through continued research. Potential next steps include using an experimental design approach to empirically measure the associations of components within the model to each other and to compare the overall effectiveness of using the model to traditional delivery method selection.

We propose this conceptual model to generate discussion and further empirical inquiry to validate and test the model using existing programs. For example, one could review a program to determine if a particular delivery method resulted in the desired change as suggested by the model. However, we acknowledge there are limitations inherent in this proposed model. We urge caution in applying the model to current program planning and delivery method selection.

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Rama Radhakrishna is a professor of Agricultural and Extension Education in the Department of Agricultural Economics, Sociology, and Education and assistant dean for graduate education at

the Pennsylvania State University with a scholarship focus on program development and evaluation.

Brad Olson is an instructor and doctoral student in the Department of Agricultural Economics, Sociology, and Education at the Pennsylvania State University with a scholarship focus on agricultural communications and community engagement.

Anil Kumar Chaudhary is an assistant professor of Agricultural and Extension Education in the Department of Agricultural Economics, Sociology, and Education at the Pennsylvania State University with a research focus on program evaluation, survey methodology, and social network analysis.