

2-29-2016

## Teaching as an Intervention: Evaluating the AIAI-FTFD Teaching Model and 9 Skills of Communication in an Extension Learning Environment

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### Recommended Citation

Harris, V. W., Speegle, K. C., & Schmeer, A. (2016). *Journal of Human Sciences and Extension*, 4(1),11.  
<https://scholarsjunction.msstate.edu/jhse/vol4/iss1/11>

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## Teaching as an Intervention: Evaluating the AIAI-FTFD Teaching Model and 9 Skills of Communication in an Extension Learning Environment

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*Extension educators are continually seeking ways to make instruction more effective and engaging. This study evaluated the Attention, Interact, Apply, and Invite – Fact, Think, Feel, Do (AIAI-FTFD) Start-to-Finish Teaching Model for human service educators in an ongoing Extension educational program to determine the effectiveness of this model in implementing the concept of “teaching as an intervention” in Extension educational programming. Specifically, the study assessed the cognitive, emotional, and intent to change behavioral learning outcomes generated by using the AIAI-FTFD teaching model while completing the 9 Important Communication Skills for Every Relationship (9 Skills) program. A self-reported quantitative evaluation design was utilized to assess key objectives in the sample (n = 152). Noticeable and clearly-evident effect sizes were found in perceived knowledge gain and perceived confidence gain in the ability to implement the skills covered in the training. Subsequent discussion focuses on how the AIAI-FTFD Start-to-Finish Teaching Model can facilitate change and learning in educational settings.*

*Keywords:* teaching, effective teaching, Extension education, communication, human services

### Introduction

Using intentional and sound pedagogical practices is critical to maximizing the change process in an Extension learning environment (Cole, 1981; Mace, 1981; Powell & Cassidy, 2007; Stevenson & Harris, 2014). Catching the learners’ attention, introducing new information, facilitating interaction between the teacher and the learners, and providing experimental methods for the learners to apply and practice targeted cognitive, emotional, and behavioral learning skills, both during and after educational programming, has been shown to maximize learning outcomes (Edgar, 1969; Harris, Morrow, Moen, Teemant, & Kumaran, 2014; Merrill, 1997). Often, when teaching practices are not intentional and pedagogy is not sound, too much

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information is presented with too little time spent on applying and practicing target skills. Unfortunately, this occurs all too often in a typical learning environment. Cognitive overload, a situation in which a learner is presented with too much information at once, may inhibit an individual from successfully learning the core concepts being taught (Paas, Renkl, & Sweller, 2004). This information dumping and consequential overload may impact overall outcomes for learners. Conversely, active learning (e.g., in-class activity, application, and participation), as opposed to more-straightforward lecture (e.g., information dumping) techniques, has been shown to result in higher student gains on class-specific outcomes (Hackathorn, Solomon, Blankmeyer, Tennial, & Garczynski, 2011; Michel, Cater, & Varela, 2009). Many educators in a variety of subject areas and settings seek to facilitate student learning, prevent information overload, and help students achieve understanding and success. When faced with the goal of teaching content effectively to students, educators need strategies for how to cover manageable amounts of content in meaningful ways with all groups of learners.

One antidote to information dumping is teaching less better by focusing on a few target skills and carefully evaluating resultant learning outcomes (Harris et al., 2014). At the individual level, teaching approaches exist to implement this strategy in a variety of learning environments. The Attention, Interact, Apply, and Invite – Fact, Think, Feel, Do (AIAI-FTFD) Start-to-Finish Teaching Model is a teaching tool that can be used in many subject areas to practice the idea of teaching less better. This teaching model was specifically applied to a communication skills training in this study and then evaluated based on the participants' reported training outcomes. Through examining pertinent background information and application of this model, insight can be gained to potentially inform future approaches to education and teaching within Extension.

## **Background**

### **Teaching as an Intervention**

Effective teaching occurs when the learner gains knowledge and demonstrates related skills associated with the content being presented (Badger, 2008; Franz, 2007; Merrill, 1991). Previous research has demonstrated that effective teaching methods must include at least the following: assessing learner needs and addressing these specific needs in the teaching environment; founding teaching practices on theory-based and empirically-informed methodologies; understanding, negotiating, and managing learners and group processes successfully; and realistically evaluating the teaching experience (Gagné, Briggs, & Wager, 1992; Latham, 2002; Powell & Cassidy, 2007).

According to Wiggins and McTighe (2005), the goals of effective “curriculum and instruction [are] designed to engage learners in inquiry, promote transfer of learning, provide a conceptual framework for helping learners make sense of discrete facts and skills, and uncover the big ideas

of content” (p. 4). Instructors should consider what the learner will need in order to accomplish these goals and identify specific cognitive, emotional, and behavioral target skills (i.e., learning outcomes). Related approaches may also include identifying which higher-order thinking (cognitive) skills will be covered in the program or lesson (Anderson & Krathwohl, 2001; Bloom, 1956). It is virtually impossible to evaluate and measure these learning outcomes if they are not intentionally identified prior to teaching. Therefore, as identified above, effective teaching plans must begin with assessing the learners’ needs (Harris et al., 2014). Knowing the learners and their felt, ascribed, and future needs at the outset (Powell & Cassidy, 2007) allows the instructional outline to be specifically tailored to the learners’ unique needs, thus maximizing the potential for positive learning outcomes.

Once learners’ needs have been assessed, associated content has been determined, and specific learning outcomes have been identified, establishing clear learner-centered objectives and goals are essential to guiding the teaching preparation and delivery process (Bennett & Rockwell, 1995; Gagné et al., 1992). Clarifying and determining the instructor and learner objectives and goals informs best practice instructional designs for content mastery, understanding, and application (Harris et al., 2014; Merrill, 1991, 1997). Objectives can also help instructors focus the lesson, assess the effectiveness of instruction, and point toward opportunities for improvement in future training (Tyler, 1949).

Other best practices, as compiled by Rosenshine (1983), emphasize the importance of structure, examples, feedback, and opportunities for continued practice. The effectiveness of a particular teaching pedagogy is ultimately determined by whether or not identified learning outcomes were achieved. The overall aim of a teaching outline should be to shape the content and instructional techniques into an intentional lesson plan for how to engage the learner and maximize learning outcomes (Gagné et al., 1992; Harris et al., 2014; Wiggins & McTighe, 2005).

### **The AIAI-FTFD Teaching Model**

The Attention, Interact, Apply, and Invite (AIAI) – Fact, Think, Feel, Do (FTFD) Start-to-Finish Teaching Model (see Figure 1) is an instructional tool that can be used across a diverse set of topics and contexts in Human Service and Extension (HSE) disciplines to improve instruction and learning outcomes (Harris et al., 2014). The organization of the model can be used both as an outline instructors develop and modify and as a conceptual map for educators to use as they plan their lesson content. The model conceptualizes principles of effective teaching in a systematic, step-by-step, start-to-finish format, outlining specific preparation and delivery procedures (Gagné et al., 1992; Harris, Chartier, & Davis, 2010; Harris & Lee, 2006).

The primary foci of the AIAI-FTFD teaching model include initially assessing learners’ needs and then targeting learning outcomes measured by cognitive, emotional (e.g., confidence, attitudes), and/or behavioral skills that the instructor identifies as important to the learning process. The

AIAI-FTFD teaching model solicits instructors to begin the instructional process by successfully catching the attention of learners. This first step in the model, *Attention*, is designed specifically to engage learners and then move them quickly to the second step in the teaching process, *Interaction*. This step allows the instructor to engage learners with pertinent information and concepts. Information is communicated via different sensory modalities (i.e., visual, auditory, kinesthetic), primarily through facilitating discussion rather than lecture, except in certain contexts when lecture (or playing the expert role) is required. The instructor may also use the consultation role when learners are engaged individually or in groups with tasks (e.g., problem-based learning exercises) that require the instructor to provide input and expertise when asked (Powell & Cassidy, 2007; Teemant, Moen, & Harris, 2013).

Discussion facilitation is driven by asking learners four kinds of specific, goal-directed questions (i.e., Fact, Think, Feel, Do) about the given topic and then guiding the learners to interact with the information, the instructor, and each other. Specifically, the Fact, Think, Feel, Do (FTFD) component of the teaching model includes a systematic series of questions instructors may pose to the learners to engage in higher level critical thinking and meaningful discussion. Research indicates that effective questioning promotes higher levels of thinking and improves overall retention of information learned (Edgar, 1969; Gagné et al., 1992).

*Application*, or applying the information learned, is the third step in the AIAI-FTFD teaching process. There is direct positive association between the amount of time spent on this step and positive learning outcomes (Harris & Lee, 2006; Harris et al., 2010). Application consists of encouraging learners to make practical applications of the principles and materials the presentation covers. Application also allows for learners to achieve new cognitive, emotional, and behavioral learning outcomes pertaining to the material taught. The AIAI-FTFD teaching model emphasizes the importance of taking intentional time to allow learners to practice these target skills during the presentation and then introduces a strategy in the *Invitation* step for learners to be able to continue to practice and track these skills at home. The invitation is often introduced in the form of homework and/or through the use of a tracking chart to evaluate ongoing progress for achieving the identified target skills (Badger, 2008; Harris et al., 2014). The *Preparation* section of the AIAI-FTFD teaching model (see Figure 1) requires instructors to create lesson plans by (a) assessing learners' needs; (b) deciding on associated content; (c) determining cognitive, emotional, and behavioral target skills; (d) listing instructional objectives and overall learning goals; (e) identifying what the instructor and the learner will do to accomplish identified learning outcomes (i.e., target skills); and (f) determining the type of content, the mental processes that will be engaged, the method of delivery, and the general teaching roles instructors will play in executing this plan (e.g., expert, facilitator, or consultant) (Harris et al., 2010, 2014). The model also provides a specific method of instructional *Delivery* to implement this plan. Many methods of instruction are available, but few are organized into a start-to-finish, step-by-step model for preparing Human Service and Extension (HSE) professionals and other instructors to teach effectively.

**Figure 1. AIAI-FTFD Start-to-Finish Conceptual Instructional Model****THE AIAI-FTFD START-TO-FINISH INSTRUCTIONAL MODEL**

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**Preparation: Topic**

<b>Target Audience:</b> <b>Student Need(s):</b>		<b>Overall Goal:</b>			
<u><b>Content 2-3 Concepts/Principles I will teach:</b></u> 1. 2. 3.					
<b>Target Skills-Cognitive (knowledge), Emotional (confidence - attitude change), and Behavioral (skills) Processes:</b> 1. <b>Cognitive/Know (C)</b> – 2. <b>Emotional/Apply (E)</b> – 3. <b>Behavioral/Practice (B)</b> –		<b>Objectives (mapped to target skills):</b> 1. <b>(C)</b> – Participants will identify (know) . . . 2. <b>(E)</b> – Participants will apply . . . 3. <b>(B)</b> – Participants will practice . . .			
<b>AIAI-FTFD Variety:</b> <b>Role: Expert, Facilitator, or Consultant (Circle One)</b>					
<u><b>Unit/Section</b></u>	<u><b>Instructor Will Do</b></u> (List Items) 1. (C) Know  2. (E) Apply  3. (B) Practice	<u><b>Learner Will Do</b></u> (List Items) 1. (C) Know  2. (E) Apply  3. (B) Practice	<u><b>Content</b></u> (Circle Items) <i>This lesson will use:</i> 1. Facts 2. Concepts 3. Principles	<u><b>Mental Processes</b></u> (Circle Items) <i>This lesson will engage:</i> 1. Remember 2. Understand 3. Apply 4. Analyze 5. Evaluate 6. Solve 7. Create 8. Design	<u><b>Method</b></u> (Circle Items) <i>This lesson will use:</i> 1. Audio 2. Visual 3. Praxis
<b>Delivery: Lesson Outline</b>			<b>Role: Expert, Facilitator, Consultant</b>		
<b>Attention:</b>		<b>Interaction:</b>		<u><b>Question Types:</b></u> -Fact -Think -Feel -Do	
<b>Apply:</b>		<b>Practice Target Skills: Cognitive, Emotional, Behavioral (5-10 minutes)</b>			
<b>Invite:</b>					

## Communication Skills

In this study, the AIAI-FTFD model was specifically applied in the context of a communications skills training. Communication skills are fundamental to effective teaching and successful relationships (Harris, 2010; Teemant et al., 2013). Healthy communication and conflict resolution patterns are linked to family and relationship stability and well-being (Gottman, 1994a; Harris, Schramm, Marshall, & Lee, 2012; Larson, 2003). Unhealthy communication and conflict resolution patterns negatively influence individuals, couples, families, and children and are linked to marital dissolution and family fragmentation (Amato, 2005; Gottman, 1994b). Children often experience the physical and emotional absence of one or both parents along with severe economic hardship due to family fragmentation (Schramm, 2009). Therefore, establishing healthy patterns of communication and conflict resolution are critical to promoting individual, couple, family, and child stability and well-being (Harris, 2014a, 2014b). While many agencies may provide communication and conflict resolution training, Cooperative Extension is uniquely positioned to provide research-based, up-to-date, and unbiased information to stakeholders and clients at low or no cost.

The AIAI-FTFD Start-to-Finish Teaching Model can act as an educational model to assist Extension educators as they provide trainings and disseminate information on communication skills. In this study, the model's effectiveness as an instructional tool has been evaluated through its use in teaching the *9 Important Communication Skills for Every Relationship (9 Skills)*.

### 9 Important Communication Skills for Every Relationship

Larson and Holman (1994) have identified *interactional processes* as the most predictive factor of relationship satisfaction and quality when compared with *individual couple traits* and *context* (Larson, 2003). Gottman, Coan, Carrere, and Swanson (1998) identified gentleness, soothing behaviors, and de-escalation of negativity as the key factors in successful positive interaction. They found little or no support for the technique of active listening as a successful strategy for positive interaction. Similarly, no support was found for expressing anger or negative affect reciprocity as a deterrent to positive communication behaviors. Balance theory was cited as an explanation for the need to balance negative interactions with positive interactions. According to Gottman (1994b), the optimal ratio of positive to negative interactions is 5:1.

Gottman (1994b) identified four negative behaviors that act as a deterrent to positive communication: criticism, defensiveness, contempt, and stonewalling. *Criticism* involves attacking someone's personality, usually with blame and accusation. *Defensiveness* involves not accepting responsibility for behaviors. *Contempt* includes communication behaviors such as rolling the eyes, mocking, sarcasm, name-calling, and other verbal and non-verbal expressions. *Stonewalling* occurs when someone refuses to communicate by using the silent treatment.

Five healthy communication and conflict resolution behaviors that promote positive interaction have also been identified (Gottman, 1994a): calm down, I-messages, speak non-defensively, validate, and overlearn the other eight skills. *Calming down* involves disengaging from a potential negative interaction before something hurtful is said and should endure for at least 20 minutes or longer to ensure that a person has really calmed down. Otherwise, it becomes easy to slip back into an emotionally-charged conversation and to say or do things that are hurtful.

According to Gottman (1994b), bringing up a *complaint* about a specific issue or behavior is one of the healthiest behaviors in which individuals can engage because it allows resentment and frustration to become a venue for expression and discussion. Skillfully using “I messages” when bringing up a specific complaint is a particularly positive method of facilitating positive interaction and avoiding criticism. It includes beginning with the statement “I feel...” and then identifying a *behavior* and a *reason* why this behavior has become a frustration.

Individuals who acquire and use the skill of *speaking non-defensively* tend to speak with gentleness and positivity, avoid using criticism and contempt, and elicit trust from the listener without eliciting defensiveness. *Validating* others requires not only tracking the communication of the speaker through head nods, short statements, and eye contact, but also requires giving full attention to the speaker and seeking to understand the emotions and needs that are being communicated. Ultimately, the art of validation involves the ability to engage in perspective-taking and empathic behaviors. *Overlearning* these skills refers to learning all eight communication skills so well that they become a part of an individual’s regular interaction repertoire (Gottman, 1994b).

## Objectives

Transforming target skills into learning objectives is an important key to employing best practices in teaching (Gagné et al., 1992; Harris et al., 2014). The objectives identified for this study using the AIAI-FTFD method correspond to core goals of the *9 Skills* training. The objectives of the *9 Skills* program include:

**Objective 1.** Participants will increase their levels of understanding (knowledge) about the factors associated with healthy communication and conflict resolution patterns using the *9 Skills* that can help them reduce the risk for negative outcomes.

**Objective 2.** Participants will demonstrate increased changes in levels of confidence (attitudes) about their abilities to use the *9 Skills* to strengthen their communication and conflict resolution skills, and therefore reduce the impact of potential risk on themselves and their relationships.

**Objective 3.** Participants will demonstrate positive levels of intent to implement the *9 Skills* (behaviors) to increase positive interaction, decrease negative interaction, increase positive bonds, and increase satisfaction and well-being, four primary indicators of healthy relationship stability and success (Harris, 2014b; Harris et al., 2012).

### Purpose

The purpose of this study was to evaluate an ongoing Extension educational program, designed using the AIAI-FTFD Start-to-Finish Teaching Model for human services educators (Harris et al., 2014), as a potential model for employing effective teaching as an intervention in Extension educational programming. The research question that drove this exploratory study was, “What are the cognitive, emotional, and intent to change behavioral learning outcomes generated by employing the AIAI-FTFD teaching model as an intervention in designing, delivering, and evaluating the *9 Important Communication Skills for Every Relationship (9 Skills)* program?”

### Methods

This study represents an expansion of previous studies of the AIAI-FTFD teaching model (Harris et al., 2010, 2014). The authors used a self-report quantitative evaluation method across an array of program contexts to study the effectiveness of the AIAI-FTFD teaching model in an Extension learning environment among participants who completed the *9 Skills* training. The sample, research design and sampling method, and data collection and analysis are discussed below.

### Sample

The sample in this study was drawn from participants ( $n = 152$ ) in a Southeastern state who voluntarily completed a 1.5- to 2-hour Extension program titled, *9 Important Communication Skills for Every Relationship*. The *9 Skills* program was adapted from Dr. John Gottman’s (1994a, 1994b) research for use in an Extension learning environment. A majority of subjects who participated in this study were White, female, below age 29 or above age 50, and single or married. Most participants made less than \$40,000 a year or more than \$60,000 per year and had an Associate’s Degree or higher (see Table 1). Sample data for the *9 Skills* variables being studied was not included in this study unless it was generally complete. Specifically, in several cases where one or two data points were missing, the overall mean for the variable was calculated by reducing the  $n$  to those who had completed the questionnaire item and then averaging the overall scores to determine the overall mean.

Missing demographic information is identified in Table 1. The type of venue where collecting demographic data was not warranted nor desired by the training participants was generally the reason behind why missing data occurred. As noted in Table 1, the most common underreported

demographic data were age and ethnicity. Because this was an IRB-approved study, participants received a letter of information clearly informing them that participation in the program and the follow-up survey were strictly voluntary and that any survey item they did not want to complete was strictly at their discretion.

**Table 1. Demographic Description of 9 Skills Participants (N = 152)**

Characteristics	n	%	Characteristics	n	%
<i>Gender</i>			<i>Education Level</i>		
Female	116	76	Less than high school	5	3
Male	25	16	High school graduate/GED	38	25
Missing Data	11	8	Associate's Degree	42	28
<i>Age</i>			Bachelor's degree	30	20
14-19	8	5	Graduate degree	25	17
20-29	34	22	Missing Data	10	7
30-49	11	7	<i>Ethnicity</i>		
50-59	9	6	White	72	47
60-69	22	15	Black	15	10
70 and above	21	14	Hispanic/Latino	17	11
Missing Data	47	31	Asian/Pacific Islander	4	3
<i>Marital Status</i>			Native American	0	0
Single	57	38	Other	3	2
Married	44	29	Missing Data	41	27
Divorced	9	6			
Partnered (Cohabiting)	6	4			
Widowed	22	15			
Separated	2	1			
Missing Data	10	7			
<i>Income Level</i>					
< \$20,000	42	28			
\$20,000-\$39,999	28	18			
\$40,000-\$59,999	19	13			
\$60,000-\$79,999	13	8			
\$80,000 or more	27	18			
Missing Data	23	15			

## Research and Curriculum Design and Delivery

The research design used for this IRB-approved study was a self-report quantitative exploratory cross-sectional design using a purposive sampling method. The *9 Skills* curriculum used in this study was adapted from Gottman (1994a, 1994b) and was specifically designed for an Extension

environment in order to employ best practices in program design, implementation, and evaluation (Powell & Cassidy, 2007) using the AIAI-FTFD teaching model (Harris et al., 2014). The AIAI-FTFD teaching model was included in the notes section of the *9 Skills* PowerPoint used to deliver the curriculum with embedded accompanying teaching strategies, instructional methods, and questioning techniques. A full description of the curriculum is not possible within the context of this article, but readers who wish to view a version of the curriculum can find it on the eXtension website at <https://learn.extension.org/events/1354>. The curriculum was generally administered in either a one-time 1.5- to 2-hour session or in two separate 45-minute to 1-hour sessions. No compensation was awarded for participation in the study.

### **Data Collection and Analysis**

A one-time retrospective pre-then-post paper-and-pencil survey instrument was administered to assess participants' knowledge, confidence, and intent to change behavior at the end of the *9 Skills* program. Only eight of the nine skills were evaluated in the current study due to the difficulty in assessing the ninth skill of overlearning the other eight skills. A five-level Likert scale providing a range of responses (*strongly agree, disagree, neither agree nor disagree, agree, and strongly disagree*) was used to assess knowledge of the eight skills and level of agreement with statements such as "I understand how to avoid using criticism" and "I understand how to validate others" (see Table 2). Similarly, confidence in applying and using the eight skills was assessed using statements such as "I am confident I can avoid becoming defensive" and "I am confident I can speak non-defensively." Intent to change behavior was assessed using four statements targeting decreasing negative interactions, and increasing positive interactions, positive bonds, and satisfaction or well-being.

A retrospective pre-then-post survey instrument design was intentionally used as a good fit for the *9 Skills* Extension programming in order to evaluate learning outcomes both before and after the program for several reasons, as reviewed in Marshall, Higginbotham, Harris, and Lee (2007) and summarized below.

The experimental pretest-posttest design using a control or comparison group is considered to be one of the most respected methods that can be used to measure change in individuals (Campbell & Stanley, 1966; Kaplan, 2004). This design is highly regarded because of its control over internal validity concerns and ability to compare results from the same people or groups of people at multiple time points.

While there are advantages to using the pretest-posttest method, there are some limitations with this method, as well. One limitation comes with finding an adequate comparison group, which can be difficult or impossible for researchers to locate. Another limitation concerns the possible lack of resources and time available for community-based programs to complete comprehensive

pretest-posttest comparisons (Brooks & Gersh, 1998). Also, in order for the pretest-posttest comparisons to be meaningful, participants must attend the complete program from start to finish (Pratt, McGuigan, & Katzev, 2000). Due to the nature of community education programs, attrition and sporadic attendance may commonly cause issues (Pratt et al., 2000).

While the pretest-posttest information must be complete for comparisons to be made, it may be challenging for researchers to see the actual changes in attitudes, behaviors, or skills if the participants overstate their original attitudes, behaviors, or skills when completing the pretest (Howard & Daily, 1979). This overestimation may occur when the participants do not have a clear understanding of the attitudes, behaviors, or skills that the program is targeting (Pratt et al., 2000). A lack of knowledge on certain topics (e.g., attitudes, behaviors, skills) often supports the initial need for a program intervention, but this same issue may show participants during the course of the program that they actually knew much less than they thought when they completed the pretest. Thus, one must be aware of the potentially misleading information from pretest-posttest comparisons due to the participants' change in frame of reference over the course of the program (Howard & Daily, 1979). "Response shift bias," first referred to by Howard and Daily (1979), explains the "program-produced change in the participants' understanding of the construct being measured" (Pratt et al., 2000, p. 342). Response shift bias, along with the issues noted previously, should be examined when reviewing findings from pretest-posttest comparisons.

**Effect size.** The data were analyzed using descriptive statistics and paired sample *t*-tests. Effect sizes were calculated in order to evaluate the standardized mean differences before and after the program for each variable being studied. Focusing on effect size rather than statistical significance helps researchers determine the magnitude of standardized mean differences for a given sample and for specific identified variables. Cohen (1988) loosely characterized effect sizes as small ( $d = >.20$ ), medium ( $d = >.50$ ), and large ( $d = >.80$ ). Further, Cohen (1988) identified a small effect size as a *meaningful* mean difference, a medium effect size as a *noticeable* mean difference, and a large effect size as a *clearly-evident* mean difference (Howell, 2002). Because it is difficult to separate program pedagogy from content, the authors of this study determined that using effect size to evaluate standardized mean differences from before and after the *9 Skills* program implementation was a viable first step to exploring and assessing the effectiveness of the AIAI-FTFD teaching model in facilitating change in an Extension learning environment.

## Results

Results of the design, implementation, and evaluation of the *9 Skills* program using the AIAI-FTFD teaching model as an intervention generally ranged from noticeable to clearly-evident reported standardized mean changes specific to each variable being studied (see Table 2).

**Table 2. Results of 9 Skills Evaluation Before and After Programming (N = 152)**

		Retrospective Pretest Mean Score (SD)	Posttest Mean Score (SD)	Mean Change (SD) (Pooled SD)	t	P	Cohen's d (Effect Size)
<i>Knowledge Change</i>							
1	I understand how to avoid using criticism.	3.34 (.87)	4.28 (.76)	.94 (1.01) (.82)	11.55	.000***	1.14
2	I understand how to complain using I-messages.	2.88 (.99)	4.87 (.99)	.99 (.96) (.99)	12.77	.000***	1.00
3	I understand how to avoid contempt.	3.23 (.91)	4.22 (.73)	.99 (1.04) (.83)	11.87	.000***	1.19
4	I understand how to validate others.	3.52 (.95)	4.33 (.87)	.81 (1.02) (.91)	9.85	.000***	.89
5	I understand how to avoid defensiveness.	3.10 (.90)	4.04 (1.12)	.93 (1.36) (1.02)	8.50	.000***	.91
6	I understand how to speak non-defensively.	3.27 (.97)	4.20 (1.03)	.93 (1.27) (1.0)	9.03	.000***	.93
7	I understand how to calm down.	3.39 (1.21)	4.23 (1.14)	.84 (1.27) (1.18)	8.23	.000***	.71
8	I understand how to avoid stonewalling.	3.03 (1.18)	4.03 (1.18)	1.00 (1.40) (1.18)	8.86	.000***	.85
9	Overall, I understand how I can use the 9 Skills when communicating.	2.85 (1.31)	4.34 (.82)	1.49 (1.27) (1.09)	14.54	.000***	1.37
<i>Confidence/Attitude Change</i>							
13	I am confident that I can avoid using criticism.	3.17 (1.15)	4.18 (.91)	1.01 (1.05) (1.04)	11.92	.000***	.97
14	I am confident that I can use I-messages.	3.21 (1.15)	4.33 (.81)	1.12 (1.00) (1.00)	13.97	.000***	1.12
15	I am confident that I can avoid contempt.	3.14 (1.15)	4.19 (.84)	1.05 (1.12) (1.01)	11.66	.000***	1.04

16	I am confident that I can validate others.	3.42 (1.11)	4.40 (.74)	.98 (1.12) <b>(.94)</b>	10.88	.000***	1.04
17	I am confident that I can avoid becoming defensive.	3.06 (1.06)	4.18 (.82)	1.12 (1.09) <b>(.95)</b>	12.71	.000***	1.18
19	I am confident that I can speak non-defensively.	3.11 (1.01)	4.24 (.76)	1.14 (1.02) <b>(.89)</b>	13.79	.000***	1.28
21	I am confident that I can calm down.	3.48 (1.05)	4.37 (.86)	.88 (1.03) <b>(.96)</b>	10.64	.000***	.92
22	I am confident that I can avoid stonewalling.	3.14 (1.15)	4.24 (.90)	1.10 (1.11) <b>(1.03)</b>	12.29	.000***	1.07
23	Overall, I am confident in my ability to use the <i>9 Skills</i> when communicating.	2.79 (1.41)	4.20 (1.16)	1.41 (1.50) <b>(1.29)</b>	11.75	.000***	1.09
<i>Behavior Change (Intent)</i>							
25	I will use the <i>9 Skills</i> to increase positive interaction in my relationships.		4.40				
26	I will use the <i>9 Skills</i> to decrease negative interaction in my relationships.		4.36				
27	I will use the <i>9 Skills</i> to increase positive bonds (friendship) in my relationships.		4.44				
28	I will use the <i>9 Skills</i> to increase happiness and satisfaction (well-being) in my relationships.		4.46				

Note: \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Noticeable to approaching clearly-evident standardized mean changes were reported by participants in their understanding how to calm down when communicating, while clearly-evident standardized mean changes were reported by participants in their understanding of how to avoid criticism, defensiveness, contempt, and stonewalling and for how to speak non-defensively, validate others, and use I-messages. Overall, a large, clearly-evident effect size ( $d = 1.37$ ) was reported by participants for perceived knowledge gain from before to after the *9 Skills* program.

Corresponding to confidence gained in using the eight identified skills in their relationships from before to after the *9 Skills* program, participants in this study generally reported clearly-evident confidence gains across all eight variables being studied, especially with regard to speaking non-defensively and using I-messages. Overall, participants reported a large, clearly-evident standardized mean change associated with confidence gain in their ability to use the *9 Skills* when communicating ( $d = 1.09$ ).

Reported intent to change behavior data revealed mean scores ranging from 4.36 to 4.46 for decreasing negative interaction and increasing positive bonds, interaction, and well-being. Before and after program paired sample *t*-tests were not used for these four variables in this initial exploratory study due to the fact that some participants received the full program in only one setting, and as a result, assessing behavior change was not possible.

### Discussion

Exploring the magnitude of the cognitive, emotional, and intent to change behavior learning outcome changes associated with employing the AIAI-FTFD teaching model as an intervention in designing, delivering, and evaluating the *9 Important Communication Skills for Every Relationship (9 Skills)* program was the purpose of this study. Because it is difficult in an Extension learning environment to implement true experimental or quasi-experimental designs, using a retrospective pre-test then post-test design is a practical option for Extension program evaluation given the inevitable challenges and constraints with this type of programming (Marshall et al., 2007).

The AIAI-FTFD teaching model was designed to facilitate the process of change in an instructional setting (Harris et al., 2014; Mace, 1981). Because the model is designed to facilitate change in the teaching of any content in any context, its theoretical foundation assumes that a majority of the measured change is due to the effective use of the model and not to the specific content or the context (Harris et al., 2014). It appears from the data in this study that the AIAI-FTFD teaching model may be a viable instructional method for facilitating meaningful, noticeable, and clearly-evident cognitive and emotional change and intent to change behavior (Cohen, 1988). However, the authors readily acknowledge that content and context do exert an influence on learning outcomes, but suggest that without engaging instructional delivery, this influence can be substantially weakened (Reiser & Dempsey, 2012; Vygotsky, 1978).

The analysis of cognitive (i.e., knowledge) standardized mean differences from before to after the *9 Skills* program indicated that participants generally reported a medium, approaching large, clearly-evident increase in their understanding of how to calm down when communicating. Participants also reported large, clearly-evident standardized mean difference increases in each

of the other seven variables, especially in their reports of their overall understanding of how to use the knowledge gained from before to after the *9 Skills* program to communicate effectively.

Additionally, participants reported large, clearly-evident gains in their ability to apply (i.e., confidence) all eight skills being measured to their own circumstances, especially in the area of speaking non-defensively. Similarly, their overall reported confidence in their ability to use the eight skills when communicating indicated a large, clearly-evident effect, as a result of the *9 Skills* program. The reported cognitive and emotional (i.e., confidence) gains also resulted in reported high mean levels of participants' intent to change behavior in order to increase positive interaction, positive bonds, and happiness/satisfaction (well-being) and to decrease negative interaction.

The AIAI-FTFD teaching model requires instructors to identify cognitive, emotional, and behavioral target skills prior to teaching, to operationalize them into objectives, and then to map them throughout the teaching preparation and delivery process in order to maximize participant learning outcomes. Providing participants with an opportunity to practice the cognitive, emotional, and behavioral target skills within the learning environment and a way to continue to practice them through homework or using a tracking chart outside of the learning environment is one way the AIAI-FTFD teaching model assists instructors to facilitate meaningful change and maximize potential learning outcomes. The application of this model is shown specifically through the results described above regarding the *9 Skills* curriculum and training.

Marshall (Harris, 2010) has indicated that ignorance (lack of appropriate knowledge), incompetence (lack of appropriate skills), and resistance to conscience (an unwillingness to use appropriate knowledge and skills) are three primary impediments to change. As a result, instructors' intentional targeting of knowledge, application, and skills throughout the learning process is key to increasing positive learning outcomes. While many models of learning and instruction target knowledge, application, and skills as important learning outcomes, few, offer a specific methodology to design, implement, and evaluate these outcomes in an easy-to-learn and start-to-finish way for educators. Educators across multiple disciplines who have used and mastered the AIAI-FTFD teaching methodology have reported meaningful qualitative gains in their teaching effectiveness and in learner outcomes (Harris et al., 2014). The current study adds some initial quantitative evidence to the existing literature that the AIAI-FTFD teaching model may be effective in facilitating change in an Extension learning environment among Extension educators and clients.

### **Limitations and Implications**

Limitations of this study include the one-time, cross-sectional design. It was not possible to assess how robust the self-reported changes in knowledge, confidence, and intent to change

behavior were given the design. A cross-sectional evaluation and three-month follow-up evaluation of the *9 Skills* curriculum has recently been conducted with another sample. Knowledge, confidence, and behavior change results were analyzed and will be reported in an upcoming study to assess the robustness of the AIAI-FTFD teaching model in facilitating programmatic change over time using the *9 Skills* curriculum.

Additionally, the theoretical foundation of the model was developed for the teaching of any content in any context, so it assumes that a majority of the measured change is due to the effective use of the model and not to the specific content or the context (Harris et al., 2014). Due to the design of the study and absence of a comparison group, it cannot be determined how significantly the content and context of the *9 Skills* training may have influenced the outcomes reported related to the teaching model. The authors readily acknowledge these factors may affect learning outcomes and that further study is needed using longitudinal and comparative designs.

Another limitation of this study is the self-report nature of the survey instrument. Self-report can provide both advantages and disadvantages in conducting research. Advantages include the ease and lack of expense associated with conducting research, as well as the ability to assess individual perceptions about certain constructs and variables. Disadvantages include multiple cognitive and situational internal validity issues, such as history, selection, and response bias. Additionally, external validity issues also exist. Therefore, the results in this study, as with most exploratory studies, must be interpreted with caution.

### Conclusions

This study represents an ongoing attempt to explore how the AIAI-FTFD teaching model can be used to facilitate change in an instructional setting. Results of this study indicate that the AIAI-FTFD teaching model did not inhibit but may have facilitated change in cognitive, emotional, and behavioral learning outcomes among participants in this study. These initial results offer potential future directions for study of the AIAI-FTFD model, including longitudinal evaluations and follow-up studies across different contexts and subject areas. Using the model to design, implement, and evaluate programming represents another tool in the toolbox educators can use to intentionally pursue effective instruction and programming in an Extension environment.

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