

SAMPLE WORKSHOP MATERIALS

The purpose of the Changing Public Behavior training workshop is to increase participant skills and confidence in collecting and using audience information for designing an outreach strategy. In 2008, the project conducted 5 pilot workshops, led by the University of Wisconsin Extension, which tested innovative techniques and resources for building educator skills.

In September 2009 we held our last pilot workshop effort in Puyallup, WA. **The attached materials were used during workshop activities and serve as reference materials for continued learning opportunities.** Participants have critiqued these draft resources and revised copies will be available on the CPB website. Revised workshop materials will also be incorporated into the CPB Self-Study Module, an online training tool: <http://fyi.uwex.edu/wateroutreach/changing-public-behavior/self-study-module/>

PILOT WORKSHOP AGENDA

NEEDS ASSESSMENT RESULTS

SAMPLE WORKSHOP MATERIALS

WORKSHEETS

Behavior Change Planning Tool — 1
Behavior Theories and Worksheet — 3

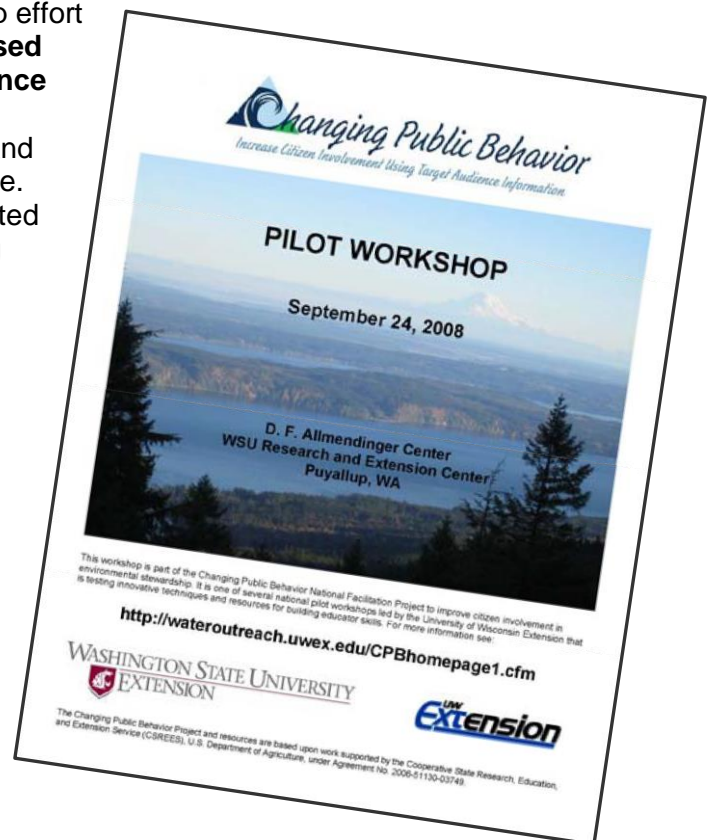
THE 7- STEP PROCESS IN PRACTICE: A Case Study Example— 5

PRACTICE STATIONS

Use the Water Outreach Education Web Site — 19
Interviewing Skills — 21
 Background: Informal Interview with Key Informants — 23
Observation Skills — 27
 Background: Structured Observations — 29
Participatory Action Research Techniques — 31
 Background: Participatory Action Learning and Sample Methods — 32

BACKGROUND INFORMATION

Behavior Change Theories and Techniques — 43
Community-Based Research and Outreach: *Ethics Considerations* — 65
Education Practices Checklist — 67
Guidelines for Selecting a Social Assessment Tool — 73
Selecting Intervention Techniques: A Continuum of Choices — 81



Pilot Workshop

WSU Research and Extension Center
Puyallup, Washington
Wednesday, September 24, 2008
9 AM – 4:30 PM

Agenda

9:00 AM Registration, continental breakfast

9:30 AM Welcome

- Introductions, say hi to your neighbor
- Goals for the workshop
- Needs assessment responses
- Walk through the day's activities

9:50 AM Background: Planning to change public behavior

- Planning to change behavior as part of the outreach planning initiative – where does it fit?
- Introduce the *Educating about Behavior and the Environment* worksheet. Complete information for Steps 1 and 2, **as a first draft**.
Revise during the afternoon session.

10:10 AM Background: Changing public behavior – theories and approaches

- Behavior change theories and examples
- Analyzing a personal change in behavior
- Analyzing a hypothetical audience – how might their beliefs affect a proposed change in behavior?
- Test your skills

BREAK as needed during practice sessions

11:15 AM Practice: Analyzing a situation – small group exercise/ ice breaker

- Review an Arkansas watershed case study
 - Case study overview
 - Using the Arkansas *situation statement* – in your small group
 - Identify *potential* actions to target for behavior change
 - Identify one or more target *audiences* for outreach about each behavior
- Debrief

- 11:40 AM Background: Social assessment tools and uses**
- Social assessment tools – types, resources; application examples
 - Engaging the target audience in planning
 - Using the target audience searchable database
- 11:50 AM Practice: Using social assessment data – small group exercise**
- Using sample data from the Arkansas watershed case study: Review your ideas about the potential audience; Develop preliminary recommendations about what would encourage audience behavior change.
 1. Choose *a topic* addressed by the case study information.
 2. Identify *survey results* relevant to the topic you chose; which potential audience does this survey information apply to?
 3. What would you do to *initiate a dialog* with the target audience?
 4. Discuss how you could *work in collaboration* with your audience to identify barriers and opportunities for behavior change?
 - Debrief
- 12:20 PM Evaluate morning sessions: discussion and short written response**
Instructions for lunch hour activities
- 12:30 pm Lunch and Social Assessment Practice Stations**
- Introduction to the Practice Stations
- Stations – Complete activities at two or three stations:**
- Using the Target Audience database [Kate]
 - Participatory action research techniques [Elaine]
 - Interviewing skills []
 - Observation skills []
- 2:00 PM Debrief: Social assessment activities**
- 2:15 PM Work on your own situation: Review and refine your situation**
- **STEP 1:** Situation description – Describe, and also consider:
 - Who are your team members?
 - **STEP 2:** Targeted audience(s) – Describe, and also consider:
 - How will you engage the targeted audience in planning?
 - **STEP 3a:** Environmental practice – Describe:
 - **STEP 3b:** Ideal behaviors required for the environmental practice – List:
 - **STEP 4:** Get to know your audience
 - What you need to know about your audience?
 - What technique(s) will you use for gathering information?
- 2:45 AM Background: Using information to select a target behavior**
- Step #5 on the *Educating about Behavior and the Environment* worksheet
 - Practice example – large group

BREAK as needed during the work session

3:00 PM Background: Selecting target behaviors and outreach techniques

- Goals for outreach and the Education Continuum
- Practice example – large group

3:15 PM Work on your own situation: Use what you know about your situation or practice using a sample scenario we provide

- **STEP 5:** Using what you already know about your target audience or your best estimate of how they will react, rate the likelihood that the audience will adopt the proposed behaviors
- **STEP 6:** Select one or more target behaviors for the outreach initiative
- **STEP 7:** Select one or more outreach techniques

3:45 PM Background: Recap your findings

- Debrief. Talk about your outreach plan/example
- Water Outreach Web site resources/ Plan
- Ethics of working to change behavior/any ethical dilemmas?
- Monitoring and evaluation/example – My Environmental Education Evaluation Resource Assistant Web site (MEERA)

4:00 PM Practice: Putting it all together – small group exercise

- What information do you need to improve your ability to select effective outreach techniques for your situation?
- How would you monitor results?
- How would you evaluate your effort?

4:15 PM Evaluate the afternoon session and the day: Discussion and short written response

4:30 PM Adjourn



<http://fyi.uwex.edu/wateroutreach/changing-public-behavior/>

The *Changing Public Behavior Project* and resources are based upon work supported by the Cooperative State Research, Education, and Extension Service (CSREES), U.S. Department of Agriculture, under Agreement No. 2006-51130-03749.

WSU Educator Needs Assessment Results

The following information was collected from Washington attendees, before they participated in a Changing Public Behavior workshop in September 2008. There were 35 respondents.

Target Audiences for Participants		
Adults (97%)	Aquaculture business	Business/industry water users
Conservation professionals (46%)	Developers/planners/realtors	Ethnic groups
Farmers	Gov't. agency/Extension pros (43%)	Homeowners (51%)
Households	Landowners (54%)	Local decision makers
Loggers	Recreational water users	Students, K – 12 (40%)
Students, higher education	Teachers	Volunteers (66%)

Figure 1. Respondents identified the audiences they work with (combined results). *Shaded results indicate audiences identified by 40% or more of respondents.*

Table 1. (Q1. a) What educator skills or experiences do you need? (Check all that apply.)

Shaded areas highlight topics of high interest.

Educator Skills	% identifying as needed skill
	N=35
A. Clarifying personal motives and interests related to an environmental concern, audiences, and stakeholders	37%
B. Identifying an environmental management opportunity or concern	26%
C. Assessing and describing an environmental management opportunity or concern	26%
D. Identifying target audiences and stakeholders	40%
E. Initiating a dialogue with target audiences & stakeholders	69%
F. Describing an environmental <i>practice</i> that affects the environmental concern	20%
G. Analyzing the environmental practice to identify <i>single behaviors</i> that make up the practice	34%
H. Identifying target audience interests and skills	54%
I. Using target audience information to assess the potential for behavior change	74%
J. Prioritizing and agreeing on critical behaviors	29%
K. Developing and implementing outreach activities that influence selected behaviors	80%
L. Monitoring results	71%
M. Evaluating results	74%
N. Modifying description of the environmental concern or opportunity based on results	26%

Table 2. (Q1.b) What social assessment skills do you need? (Check all that apply.)*Shaded areas highlight topics of high interest.*

Social Assessment Skills	% identifying as needed skill
	N=34
A. Employ ethics in audience assessment processes	32%
B. Work in collaboration with the audience	47%
C. Select a data gathering or social assessment procedure	79%
<ul style="list-style-type: none"> Audience segmentation Background research Delphi method Focus groups Informal interviews Observations Participatory Action Research Public meeting facilitation Rapid Appraisal Surveys 	
D. Apply a data gathering procedure	71%
E. Record oral and visual data	47%
F. Analyze and summarize results	68%
G. Apply results	59%
H. Share results	59%

Table 3. (Q2) How would you prefer to learn any new skills?

Learning Method	# of respondents identifying as preferred method(s)
	N=34
A. In person	97%
B. Web cast	24%
C. Online — learn on my own	44%
D. Other	2%
	1. Others are great but I lack the time. 2. Practice!

BEHAVIOR CHANGE PLANNING TOOL: Educating About Behavior and the Environment

Use this worksheet to: a) Set measurable and achievable goals; b) Identify the audience and develop audience information; c) Identify outreach techniques unique to the problem and each target audience. While it's important to complete each step, results of any one step often take you back to a previous step to provide more detail or clarity.

STEP 1 – Assess and describe the problem or opportunity in cooperation with stakeholders, key informants, and experts:

STEP 3&5–Behavior change analysis

- 3a. Describe the preferred **environmental practice** that could have an impact on the environmental problem. Integrate advice from experts, stakeholders, and key informants.
- 3b. Outline **single behaviors** required to implement the environmental practice. An *ideal* behavior is a single, observable action that experts consider people need to perform in order to reduce or help resolve a specific environmental problem.
5. Assess potential for adoption of single behaviors and potential for adoption of the environmental practice.

STEPS 2 & 4 – Audience

2. Identify and engage in a preliminary dialogue with the potential target audience(s) and secondary audience(s) in cooperation with stakeholders, key informants, and experts.
4. Collect and analyze information about each audience relative to the proposed behaviors. Consider current behavior, perceived consequences, barriers, social norms, knowledge, skills.

STEPS 6 & 7 – Identify relevant outreach/education strategy

6. Compare audience information with single behaviors. Select behaviors with potential for adoption.
- 7a. Use audience information to craft one or more audience specific outreach or education techniques to address selected behaviors.
- 7b. Monitor and evaluate.

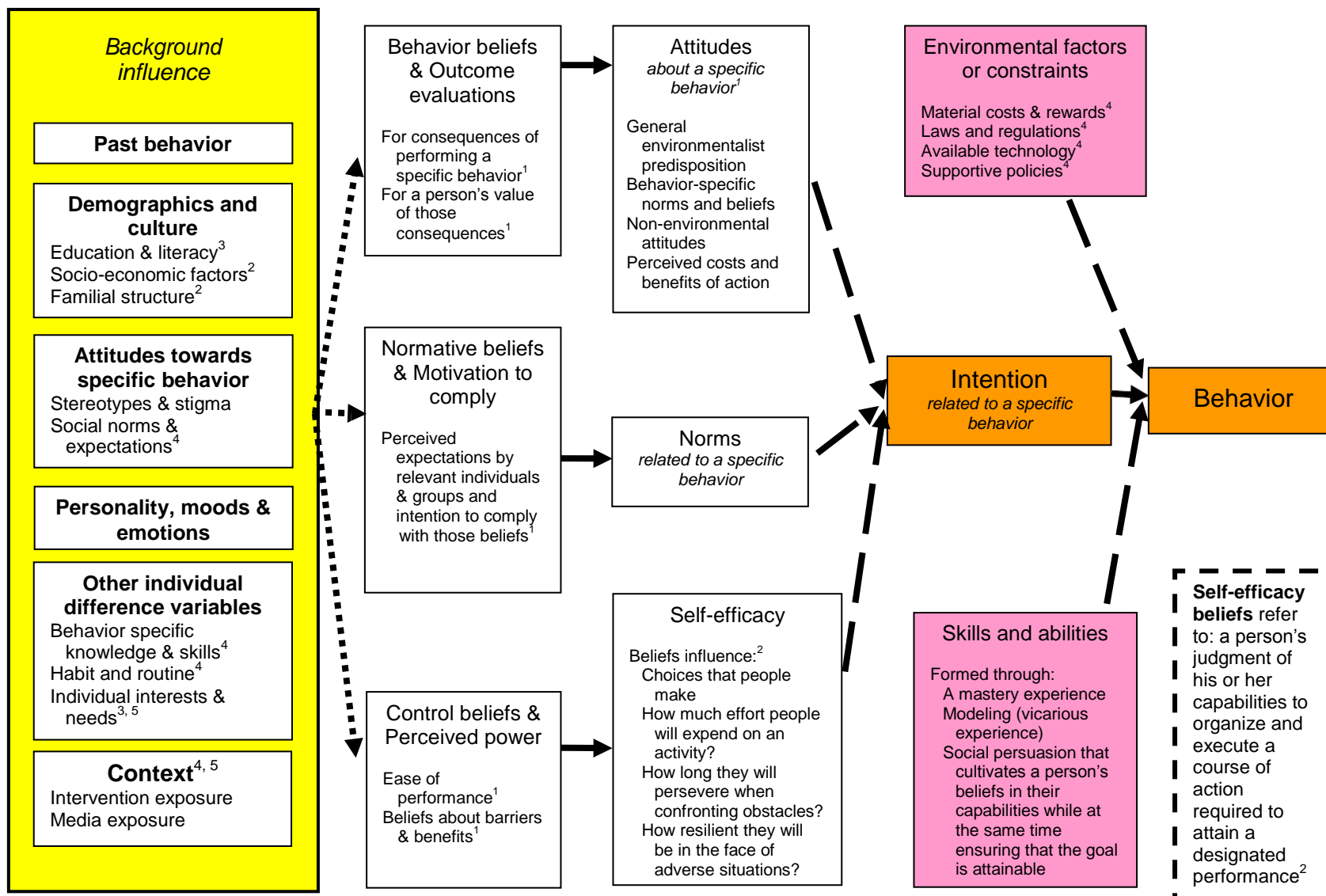
2. Primary audience: _____ Secondary audience: _____			5. Rate potential for behavior change Is it likely that the user will adopt the behavior? [yes, maybe, don't know, no]						6. Select recommended behavior(s)	7. Describe outreach or education strategy.
3a. Environmental Practice Describe the practice that a specific audience can implement to address the environmental problem.	3b. Single Behaviors Outline steps to accomplish the environmental practice. What does the audience need to be able to do?	4. Audience Information Identify and understand "segments" of the relevant population. What does the audience already do relative to the preferred behavior? Are there barriers? What are audience skills/ interests/ needs?	Does it meet an audience need or address an interest?	Does it have an impact on the problem?	Does it provide users with an observable consequence?	Is it similar to what the user does already?	Is it simple for the user to do?	Is it low cost in \$, time and energy for the user?	Select behaviors that have potential for adoption. Revise problems statement and target audience selection, if necessary.	Use audience information. <ul style="list-style-type: none"> • Ask for a commitment? • Provide a specific prompt, near behavior? • Communicate the norm? • Remove barriers? • Provide information? • Increase skills? • Engage in a problem-solving activity?

DEFINING SINGLE BEHAVIORS – Leading to an environmental practice
Hints for defining each single behavior
1. Define the environmental problem and overall objective of the communication or outreach program. Refer to these ideas as you develop a list of single behaviors that will lead to the preferred environmental practice.
2. Identify target audiences. <i>Primary</i> audiences are people who perform the behavior. <i>Secondary</i> audiences are people who influence the primary audience.
3. Express ideal behaviors as: a) what the primary audience <i>should do</i> ; not what should be done for them b) single, observable events c) specific behaviors (begin with an action verb) d) one behavior per statement
Sample environmental practice: managing household waste
Identify ideal behaviors. For example, ideal behaviors for managing waste might include: a) separate recyclable containers, paper, hazardous materials, and organic materials from other trash b) store each type of material in separate containers c) put out appropriate materials on the correct pick-up day d) compost organic garbage and take hazardous materials to the appropriate collection site
Developing the education strategy
1. Compare “doers” and “non-doers.” What specific factors make one adopt a practice and the other not? 2. Identify skills and performance deficits. Do people refrain from a practice because they don’t know how to do it or because of other factors, such as access to appropriate technology or lack of awareness of positive consequences? 3. Address skills deficit. Develop strategies which provide skill information or teach necessary skills. 4. Address performance deficit. Identify strategies that reduce barriers and increase positive consequences. 5. Conduct quantitative research. Study results of education program with a sample of the target audience. Determine applicability of study sample to larger audience. Fine tune recommendations. 6. Conduct behavior trials.

PUTTING YOUR EDUCATION STRATEGY INTO PRACTICE – Sample techniques
Using commitment to promote behavior
Waste reduction: • ask household, when delivering a compost unit, to place a sticker on the side of their recycling container indicating that they compost
Energy conservation: • invite homeowners to participate in a home assessment; conclude by asking when they expect to complete activities such as weather-stripping
Water conservation: • ask households to sign a pledge committing themselves to watering their lawn on odd or even days based on their house number
Using prompts to promote behavior
Waste reduction: • signs at the entrances to supermarkets remind shoppers to bring reusable shopping bags
Energy conservation: • signs encourage drivers to turn off engines while parked in locations where drivers frequently wait (schools, train stations)
Water conservation: • ask homeowner for permission to place a tag on the outside water faucet encouraging watering on odd or even days
Using norms to promote behavior
Waste reduction: • ask supermarket shoppers to wear a button that shows their support for buying products that are recyclable or have recycled content
Energy conservation: • in stores, attach decals to energy-efficient products indicating how many people believe it is important to purchase environmentally friendly products
Water conservation: • to encourage odd/even watering, ask householders to place a sign on their front lawn that asks “Are You Odd or Even?”
Remove barriers to behavior
Waste reduction: • it is difficult to identify products that are recyclable or have recycled content. Solution: provide prompts that make identification easier.
Energy conservation: • homeowners lack the skill to install energy-efficient devices. Solution: use home assessment opportunities to instruct homeowners.
Water conservation: • too expensive to install a low-flow toilet. Solution: allow the cost of the toilet and installation to be paid for from savings in the water bill.

Behavior Theories and Worksheet

An Integrative Model of Behavior (Adapted from Fishbein & Cappella, 2006)



1. Ajzen & Fishbein, 2005; 2. Source: A. Bandura, 1986 and 1997 from a summary provided by F. Pajares, Emory University, <http://des.emory.edu/mfp/eff.htm>; 3. Booth; 4. Stern et al, 1999; 5. Rogers, 2003

Tracking theories and behavior change

Referring to behavior change theories, analyze a change in behavior. Explain what you would look for or what was involved in making the change in behavior. Make notes about your own project, as they occur to you.

A personal change in behavior

Background: As relevant to the proposed change, describe yourself in terms of age, gender, education, socioeconomic status, personality, and individual interests

What behavior did you change?

A hypothetical audience

Background: Middle class, well educated, water-edge property owner with a large lawn (multiple acres), who wants to fit in with neighbors

Desired change: Create an environmentally sustainable lawn habitat, e.g. reduce mowing, nutrient, and pesticide needs such as by reducing the proportion of blue-grass to other plantings

Background, beliefs, and context	Personal change example	Water-edge property owner example	Your project
Background influences			
Behavior beliefs and attitudes			
Normative beliefs and norms			
Control beliefs and self-efficacy			
Environmental factors or constraints			
Skills and abilities			

The 7-Step Process in Practice: A Case Study Example

The Changing Public Behavior (CPB) project focuses on increasing citizen involvement because *people* are an important element of a conservation plan. The CPB Self-Study Module is designed to help natural resource professionals develop and use audience information to plan outreach initiatives. The Self-Study Module, worksheet, and self-assessment rubric are online at:

<http://fyi.uwex.edu/wateroutreach/changing-public-behavior/self-study-module/>

The purpose of this case study example is to illustrate how the seven steps of the module were incorporated in a real situation. We've correlated actions taken in planning and delivering a successful Arkansas outreach initiative to each of the steps in the module.

SELF-STUDY MODULE

STEP 2: Identify preliminary target audience(s)

Once you have identified the goal of your outreach effort, brainstorm who, specifically, could be a part of making that goal happen.

In cooperation with stakeholders, key informants, and experts:

- Identify and engage in a preliminary dialogue with the potential target audience(s).

Who was involved in planning the Arkansas outreach strategies?

Stakeholders, key informants, experts:

- Illinois River Watershed Partnership (IRWP) Education Committee (described in Step 1: Situation)
- University of Arkansas Cooperative Extension Service (CES)
- With audience assessment help from:
 - University of Arkansas Survey Research Center (SRC)
 - Maloney Associates, Inc (marketing firm)

The Arkansas project had a large budget and therefore had the potential to target a number of different audiences in a variety of ways. Project reports did not describe the process the outreach planning team went through to choose their target audiences.

STEP 2: IDENTIFY PRELIMINARY TARGET AUDIENCE

Identify a target audience(s) for the Arkansas project:

Changing Public Behavior, Educator Self-Study Module
University of Wisconsin, Environmental Resources Center

DRAFT 4

Each of the seven steps has:

A description of the step (yellow box)

Related background information from the Arkansas project

A brief activity to complete (green box). For some steps we've provided examples of possible activity entries. In other steps, you will be asked to provide answers related to the Arkansas project.



Project Name:



Illinois River Watershed Urban NPS Outreach and Education Project¹

This Arkansas Project not only afforded a documented evaluation of changes in nonpoint source pollution (NPS) awareness and behaviors, but it was invaluable in helping the Illinois River Watershed Partnership (IRWP) gain momentum in its work to engage stakeholders and to manage and restore the watershed.

The Project had a relatively large budget that allowed them to study their target audience and a control group using surveys as assessment tools. A pre-survey measuring attitudes and behaviors was conducted by phone with both groups. An outreach campaign was then developed and implemented. A post-survey measured changes in attitudes and behaviors in both groups. Data from each group was then compared to learn which of the outreach techniques were successful.

Illinois River Watershed Water Quality Education/Outreach

- April 2007 – September 2007
- Upper Illinois River Watershed
(Arkansas side)
- IRWP, UA Survey Research Center, UA
Cooperative Extension Service
 - Public education programs
 - Public outreach campaign
 - Post-campaign phone surveys



¹ Case study information adapted from *Final Report: Illinois River Watershed Urban NPS Survey Project 02-1900* and *Final Report: Illinois River Watershed Urban NPS Outreach and Education Project 02-1900*, University of AR, Cooperative Extension, 2007.

Self-Study Module

STEP 1: ASSESS AND DESCRIBE THE PROBLEM OR OPPORTUNITY

In cooperation with stakeholders, key informants, and experts:

- Determine what information is needed and where to find it
- Analyze information and clarify the issue
- Identify potential environment practices that can make a difference

Outlining a problem statement from Step 1 helps prepare you for Step 2.

Situation: The Illinois River originates in Arkansas and flows into Oklahoma where it is designated as a Scenic River. The Illinois River Watershed covers 1,052,864 acres with 45% in Arkansas. It was selected in the 1998 “Arkansas Unified Watershed Assessment” as the third highest priority watershed in need of restoration and protection as it includes two imperiled aquatic species, provides drinking water supplies for a population of about 18,000, contributes to several state and interstate waters of concern, and is an EPA 319 priority watershed.

While confined animal agriculture and municipal wastewater dischargers may historically be phosphorus contributors, the problem is complex and should be addressed by all stakeholders in the watershed. Excess urban fertilizers, pet wastes and sediment loads from construction sites and eroding stream banks are likely impacting the watershed. The increase in residential, commercial and industrial development as well as road and other infrastructure construction in northwest Arkansas must be addressed when considering watershed management and restoration efforts. With rapid urbanization, the new residents must be educated about the challenges facing the watershed and their roles in improving and protecting its resources. In December 2005, the Illinois River Watershed Partnership (IRWP), a diverse group of Northwest Arkansas leaders, was formed with the ultimate goal of developing and implementing a

watershed management plan for the entire Illinois River basin. The IRWP is structured to involve a wide diversity of entities, and thus a diversity of opinions and motivations. The Board of Directors is comprised of 3 members in each of the following 6 categories: Agriculture, business, conservation, construction, government and technical, research and education. Additionally, there are between three and thirteen other members in an At-Large category, designed to give our Board flexibility in growth as well as to maintain its diversity and balance. The IRWP and the University of Arkansas Cooperative Extension Service (CES) worked together to define the environmental issue and develop project goals.

What were the project vision and goals?

	Management	Outreach
Vision	▫ To eliminate or minimize urban nonpoint source pollution	▫ To raise residents' awareness and knowledge of urban NPS impacts and to incite individual prevention actions.
Goal	▫ To realize measurable impacts in water quality by conducting a carefully planned outreach campaign.	<ul style="list-style-type: none"> ▫ To conduct an urban NPS mass media outreach campaign in concert with educational programs. ▫ To assess measurable changes in public knowledge, attitudes, and pollution prevention actions. ▫ To create a guide for future local outreach and education campaigns and a model for successful replication in other urbanized watersheds across the state and region.

STEP 1: ACCESS AND DESCRIBE THE PROBLEM OR OPPORTUNITY



Entry example: Common urban NPS pollution in northwest Arkansas (urban fertilizers, pet waste, poorly functioning septic systems, construction site runoff, eroding stream banks) are impacting the watershed. Urban residents must be educated about these issues and the roles they need to take to improve and protect watershed resources.

Self-Study Module

STEP 2: IDENTIFY PRELIMINARY TARGET AUDIENCE(S)

Once you have identified the goal of your outreach effort, brainstorm who, specifically, could be a part of making that goal happen.

In cooperation with stakeholders, key informants, and experts:

- Identify and engage in a preliminary dialogue with the potential target audience(s).

Who was involved in planning the Arkansas outreach strategies?

Stakeholders, key informants, experts:

- Illinois River Watershed Partnership (IRWP) Education Committee (described in Step 1: Situation)
- University of Arkansas Cooperative Extension Service (CES)
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The Arkansas project had a large budget and therefore had the potential to target a number of different audiences in a variety of ways. Project reports did not describe the process the outreach planning team went through to choose their target audiences.



STEP 2: IDENTIFY PRELIMINARY TARGET AUDIENCE

Identify a target audience(s) for the Arkansas project:

Self-Study Module

STEP 3. DETERMINE SPECIFIC ACTIONS CITIZENS NEED TO TAKE TO ACCOMPLISH YOUR MANAGEMENT GOALS

In cooperation with stakeholders, key informants, and experts:

- What does the audience need to be able to do?
- Outline steps to accomplish the environmental practice

3a. Describe the preferred **environmental practice that could have an impact on the environmental problem**. Integrate advice from experts, stakeholders, and key informants.

3b. Outline **single behaviors** required to implement the environmental practice. An ideal behavior is a single, observable action that experts consider people need to perform in order to reduce or help resolve a specific environmental problem.

It was determined that Arkansas residents need to better manage stormwater runoff, lawn and garden activities, and vehicle maintenance; youth need to apply stewardship practices in their daily lives; the construction industry needs to enhance stormwater management compliance to reduce sediment erosion, and developers and planners need better information on low impact development options.



STEP 3: WORKSHEET ENTRY

Entry Example

3a. Environmental Practice(s)*:

Specifically, people need to:

1. Test their soil for fertilizer and lime needs
2. Understand how to interpret soil test reports
3. Know when and how to fertilize their lawns
4. Compost
5. Conserve water
6. Use native plants, plant rain gardens, use rain barrels
7. Dispose of household hazardous waste correctly
8. Avoid putting pollutants in storm drains
9. Be aware of watershed runoff issues
10. Pick up pet waste

3b. Single behaviors*:

Outline single behaviors related to the practice of knowing when and how to fertilize their lawns (#3 above). Residents need to:

- Dig soil samples correctly
- Locate soil testing facility
- Interpret test results correctly
- Check weather conditions before spreading fertilizer
- Apply fertilizer correctly

*The Arkansas project had a large budget and therefore had the potential to select a number of practices and behaviors to include in their outreach strategies.



Self-Study Module

STEP 4. COLLECT AUDIENCE INFORMATION RELEVANT TO THE

Identify and understand “segments” of the relevant population.

- What does the audience already do relative to the preferred behavior?
- Are there barriers?
- What are audience skills, interests, needs?

Collect and analyze information about each audience relative to the proposed behaviors. Consider current behavior, perceived consequences, barriers, social norms, knowledge, and skill.

Assessment procedure used: Pre-survey

To determine the design of the outreach education strategy and to develop a baseline to measure its effectiveness, the University of Arkansas Survey Research Center (SRC) conducted a pre-outreach survey in urban areas of both the Illinois River Watershed (experimental population) and Faulkner County (control population). Faulkner County was selected as a control group because its residents are demographically similar to urban residents in the Illinois River Watershed, yet far enough away that they will not receive the educational program.

A 54-question survey was developed through the IRWP Education Committee and refined by the Survey Research Center. The pre-outreach survey was conducted during the summer of 2006 with a random sample of residents. Randomly generated phone numbers were purchased from a national sampling firm for pre-survey interviews. Complete responses were analyzed from 793 urban residents in the Illinois River Watershed, and 580 from the control population. Table 1 includes sample information from the survey, adapted for this case study.

Table 1. Arkansas pre-survey data sample

Categories of information	Experimental population	Control population
Population profile	<ul style="list-style-type: none"> • Education, income and age similar to control (not defined in report) • Higher percentage of Latino, Asian, and Native American respondents than control • Majority live in single family homes and own them • Ratio of women and men similar to control (not defined in report) 	<ul style="list-style-type: none"> • Education, income and age similar to experimental population (not defined in report) • Higher percentage of Caucasian and African-American respondents than experimental population • Majority live in single family homes and own them • Ratio of women and men similar to experimental population (not defined in report)
KNOWLEDGE AND AWARENESS		
Impression of water quality	<ul style="list-style-type: none"> • Water quality rated “fair” 	<ul style="list-style-type: none"> • Water quality rated “fair”
Familiarity with terms	<ul style="list-style-type: none"> • 70% familiar with the term <i>watershed</i> • 71% familiar with the terms <i>storm water</i> and <i>storm drain</i> • 31% accurately identified the major impact of phosphorous pollution 	<ul style="list-style-type: none"> • 76% familiar with the term <i>watershed</i> • 67% familiar with the terms <i>storm water</i> and <i>storm drain</i> • 20% accurately identified the major impact of phosphorous pollution
Perception of causes of pollution	<ul style="list-style-type: none"> • 23% identified farming activities as those most responsible for degrading water quality • 7% identified residential activities as those most responsible for degrading water 	<ul style="list-style-type: none"> • 10% identified farming activities as those most responsible for degrading water quality • 11% identified residential activities as those most responsible for degrading

Categories of information	Experimental population	Control population
	quality <ul style="list-style-type: none"> 9% viewed new construction as most responsible for degrading water quality 	water quality <ul style="list-style-type: none"> 9% viewed new construction as most responsible for degrading water quality
Importance of personal actions	<ul style="list-style-type: none"> 75% believed that their actions can have some or great affect on their region's water quality 36% believed that individuals are ultimately responsible for protecting and improving water quality 	<ul style="list-style-type: none"> 75% believed that their actions can affect their region's water quality 31% believed that individuals are ultimately responsible for protecting and improving water quality
Knowledge of storm water concepts	<ul style="list-style-type: none"> 21% know that storm water runs off their property into a creek or stream 39% know that when rainwater leaves storm sewers it flows into lakes, rivers, and wetlands 	<ul style="list-style-type: none"> 28% know that storm water runs off their property into a creek or stream 47% know that when rainwater leaves storm sewers it flows into lakes, rivers, and wetlands
BEHAVIORS		
Regarding managing household hazardous waste	<ul style="list-style-type: none"> 52% recycle household hazardous products 	<ul style="list-style-type: none"> 36% recycle household hazardous products
Regarding lawn care	<ul style="list-style-type: none"> 12% tested for lawn fertilizer needs in the last year 	<ul style="list-style-type: none"> 18% tested for lawn fertilizer needs in the last year
Regarding pet waste management	<ul style="list-style-type: none"> 47% never pick up pet waste from their yards 	<ul style="list-style-type: none"> 49% never pick up pet waste from their yards
PUBLIC POLICY		
Support for buffer zone requirements	<ul style="list-style-type: none"> 82% believe that buffer zone requirements should exist for urban grassed areas 	<ul style="list-style-type: none"> 79% believe that buffer zone requirements should exist for urban grassed areas
Importance of water quality	<ul style="list-style-type: none"> 66% said that water quality was very important 	<ul style="list-style-type: none"> 71.7% said that water quality was very important



STEP 4: WORKSHEET ENTRY

Pre-Campaign Survey Results
Basis for Outreach Emphases

- Less than 40% understood storm drains empty into local waterways
- Most could not name their local creek
- 41% applied fertilizer in the past year
- Only 12% has their soil tested to determine nutrient needs
- Top sources for news/information (TV, newspaper, radio)

SURVEY

Audience information:

Table 1 illustrates the type of information you would analyze and record on your worksheet.

Self-Study Module

STEP 5. ASSESS POTENTIAL FOR ADOPTION OF SINGLE BEHAVIORS AND THE ENVIRONMENTAL PRACTICE

Rate potential for behavior change:

- Does it meet an audience need or address an interest?
- Does it have an impact on the problem?
- Does it provide users with an observable consequence?
- Is it similar to what the user does already?
- Is it simple for the user to do?
- Is it low cost in \$, time, and energy for the user?

Arkansas CES and the IRWP Education Committee utilized the pre-campaign survey results to prioritize NPS pollution prevention topics, target audiences and methods. Additional consultation from a University of Arkansas PhD student specializing in EcoPsychology provided a great deal of insight and research that media messages promoting positive comments/behaviors (“Everyone Does this...” or “You can protect...”) really incite pollution prevention actions whereas negative (“Don’t do that...!” or “It’s SO polluted...”) messages typically effect limited change because the public is convinced that they their actions can’t overcome the current environmental problem. Investigations into other states’ urban NPS campaign examples and experiences also revealed the importance of concise, but repeated messages rather than a list of concepts and actions.

While much of the demographics and responses from both groups were very similar, less than 40% of the respondents understood that storm drains empty into local waterways, and while 41% applied fertilizer to their lawn/garden during the past year, only 12% had their soil tested to determine the actual plant nutrient needs. With the survey data and these suggestions in mind, CES/IRWP Education Committee considered a) what the urban residents of the upper Illinois River Watershed needed to know, b) what the IRW residents needed to do (or stop doing), and c) what was the best way to show them how

to make behavioral changes. They also considered the short time allotted to try to capture measurable changes through the pre- and post-survey tasks.

In some circumstances your audience may have already adopted appropriate behaviors; your outreach efforts may build on those activities. In declining order, Arkansas residents with lawns in the experimental and control group said in 2006 that they did one or more of the following to maintain their lawn or garden: (order indicates highest to lowest percentages of respondents who claim to have performed these activities) *water, apply mulch, apply fertilizer, use pesticides and/or herbicides, use compost, test for fertilizer needs.*

“Dirt Drop-Off” Events

- Promote ease and benefits of soil testing
precise fertilizer application = reduced nutrient runoff
- Fayetteville Farmer’s Market = convenience








SOIL TESTING



STEP 5: WORKSHEET ENTRY

Rate Potential for behavior change

Is it likely that the user will adopt the behavior? [yes, maybe, don't know, no]

3b. Single behaviors (examples)	Does it meet an audience need or address an interest?	Does it have an impact on the problem?	Does it provide users with an observable consequence?	Is it similar to what the user does already?	Is it simple for the user to do?	Is it low cost in \$, time, and energy for the user?
Residents will calibrate their spreaders	Unknown	Yes – people use less fertilizer	Yes – people use less fertilizer	No	Yes	Yes
Residents will test for nutrients before fertilizing lawns	Unknown	Maybe	Yes – They would save \$ on fertilizer.	No	Maybe	Maybe
Residents will pick up lawn pet waste	Maybe	Maybe	Yes – cleaner streets, yards, shoes	Maybe	Maybe	

Self-Study Module

STEP 6. SELECT RECOMMENDED BEHAVIOR(S)

Compare audience information with single behaviors. Select behaviors that have potential for adoption. Revise problems statement and target audience selection, if necessary.

After analyzing the survey data, the Arkansas team decided the behaviors listed in Table 2 had the most potential for adoption based on the high percentage of their audience that lacked knowledge about the path of runoff water and high percent that applied fertilizer without testing soil nutrients.

Table 2. Selected behaviors for urban homeowners (audience)

Environmental practice	Single behaviors selected: Audience(s) need to...
Lawn care: fertilizing	Test soil to determine proper application quantities.
Lawn care: fertilizing	Interpret soil test results accurately
Yard waste removal	Compost yard waste
Water conservation	Plant a rain garden or construct a rain barrel
Proper household hazardous waste disposal	Bring household hazardous waste to a municipal pick-up day



STEP 6: WORKSHEET ENTRY

Select behaviors with potential for adoption:

See the “Single behaviors selected” column in Table 2. Comparing recommended practices against the rating chart in Step 5 indicates that these practices meet at least two of the six criteria for adoption. The others need to be addressed in the outreach design.

Self-Study Module

STEP 7. Describe outreach or education strategy

7a. Use audience information to help you choose a technique:

- Ask for a commitment
- Provide a specific prompt, near behavior
- Communicate the norm
- Remove barriers
- Provide information
- Increase skills
- Engage participants in a problem-solving activity

7b. Monitor and evaluate

Arkansas outreach techniques

From a long list of ideas, three main themes emerged:

- “Where Does It Go?” (watershed runoff awareness),
- “Don’t Guess – Soil Test!” (encouraging proper application of urban fertilizers)
- “Only Rain Down the Drain” (urban NPS Pollution prevention).

Action

With television news named as the most frequently indicated source of news for residents of the Illinois River Watershed (83.7%) along with newspapers (68.8%), radio (49.7%), and internet (48.4%), a mass media campaign with concise but repeated messages was orchestrated across multiple media outlets. “Where Does It Go?” (watershed runoff awareness), “Don’t Guess – Soil Test!” (encouraging proper application of urban fertilizers), and “Only Rain Down the Drain” (urban NPS Pollution prevention) were promoted repeatedly through the www.irwp.org website, 13 newspaper print ads, 4 30-second TV

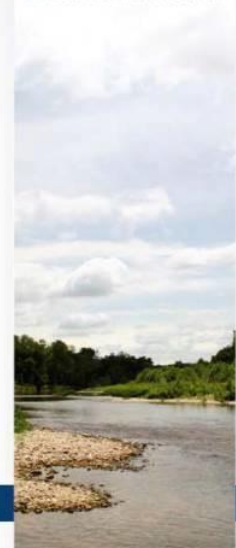
PSAs, 4 15-second radio PSAs, 2 billboards, an 8-week online “Watershed Challenge”, and a series of 8 “Watershed Wednesday” pollution prevention segments in conjunction with evening weather forecasts on the local ABC affiliate. Concurrently, CES and IRWP urban NPS pollution prevention education programs included 26 civic presentations (1277 participants), 12 hands-on interactive youth programs (2,035 participants), 8 trainings including construction erosion and sedimentation workshops and Low Impact Development seminars/workshops (473 participants), 2 field days (143 participants) and 8 events including soil testing “Dirt Drop-Offs” and Household Hazardous Waste “Round-Ups” to reinforce the outreach campaign messages (reaching in excess of 2,400 participants). These outreach and education programs were only conducted for the urban residents in the Upper Illinois River Watershed and not the control population in Faulkner County. Therefore, when the post-campaign survey was conducted, changes in urban NPS awareness, knowledge and pollution prevention actions were attributed to the effectiveness of targeted outreach and education efforts.

Outreach Campaign

- Mass media campaign (“Soil Testing” and “Where Does It Flow?”)
- Website
- Mass media:
 - 13 Newspaper ads
 - 6 Radio ads
 - 4 Television ads
 - 2 Billboards
- 8-week online “My Watershed Challenge” and NBC meteorologist’s “Watershed Wednesdays”
- 7-Minute “Follow the Water” homeowner BMP video

OUTREACH CAMPAIGN

ILLINOIS *River*
WATERSHED PARTNERSHIP



Support

Materials that were developed and/or printed to support educational programs for this project included an Illinois River Watershed map/education panel poster, EPA’s “After the Storm” and “Make Your Home the Solution to

Stormwater Pollution” brochures, “Protecting Water Quality from Urban Runoff” brochure fact sheet, kid’s stormwater stickers, “10 Things That You Can Do to Prevent Polluted Runoff” bookmark, “Take the Stormwater Challenge” placemat and CES’ “Arkansas Watersheds”, “Test Your Soil for Fertilizer and Lime Needs”, “Understanding the Numbers on Your Soil Test Report”, “Fertilizing Your Lawn”, “Composting”, “Home Water Conservation”, “Rain Gardens in Northwest Arkansas”, “Native Plants for Northwest Arkansas Rain Gardens”, “Why Rain Barrels?”, “Household Hazardous Waste” and the “Household Hazardous Waste Checklist” as well as Beaver Water District’s “Rain Barrel Construction”.

Measure [✧ indicates an increase]

Measurable impacts found through the survey process included increases in urban Illinois River Watershed residents’ awareness of such concepts as watershed (12.6% ✧), storm water (17.3% ✧), storm drain (8.8% ✧) along with consequences of excess phosphorous (9.9% ✧) and a greater understanding of the destination of urban runoff (47.7% ✧). The post-campaign also indicated that education has helped to change or reinforce attitudes about impacts on water quality of population growth, the idea that individuals are ultimately responsible for protecting and improving water quality and that individuals are capable of affecting water quality. The project’s educational programs have likely helped promote greater use of fertilizer and/or pesticide package directions (19.9% ✧) and weather (9100% ✧) for determining quantities of fertilizers and pesticides to apply, increased use

Develop a strategy for short-term or long-term change?

Consider whether you want to focus on an immediate problem or specific behavior, or whether you want to look towards a long term, sustainable result, or both. You may want to create an outreach strategy that offers a combination of techniques applied at various stages of an initiative.

Continuum of choices

<http://fyi.uwex.edu/wateroutreach/changing-public-behavior/self-study-module/self-study-module-step-7/>

Deciding whether to focus on a short-term, specific-behavior change or something more permanent requires that you integrate an understanding about *how people learn and change* into your thinking about what you want to do. There is no one right answer, but a continuum of choices. Outreach or education techniques can be grouped according to where they fit in a continuum of how people learn and change.

of the Extension Service’s information and soil testing services (77.4% ✧), increased interest in volunteering to stencil storm drain messages (6.7% ✧) and to attend workshops on environmentally-friendly gardening (13.1% ✧) and construction erosion control (8.3% ✧). IRWP’s educational program may have contributed to a rise in the importance IRW residents attribute to water quality, maintaining a strong level of support for buffer zone requirements and willingness to pay for them. Furthermore, the outreach is likely to have stimulated a desire for more information, community and individual leadership on how residents can prevent water pollution. Furthermore, the IRWP has gained recognition among IRW residents (55.5% versus 14% in the control population in 2007) and along with it increased residents’ awareness of such demonstration projects as rain gardens (14.4% in IRW versus 5.2% in Faulkner County).

Post-Campaign Survey Results

- 54% had heard of the IRWP
- 35% recalled soil testing ads
- 6.5% tested their soil as a result
- 46% would volunteer for creek clean-up projects
- 71% said more information would most encourage them to take water quality protection measures
- Roadmap for garnering measurable outreach/education results

SURVEY

ILLINOIS *River*
WATERSHED PARTNERSHIP



Evaluate

Needless to say, this evaluation has also identified numerous needs for continued education about water quality and how to promote it. These include a continuing need to educate about what nonpoint source pollution is, who is responsible for it and how it affects the Illinois River, lakes and wetlands within the watershed, including the current status of the quality of water in these. While a large minority knows the destinations of various types of water, the majority does not. And, while residents are making strides in use of fertilizers and pesticides, information about gardening using appropriate quantities and when to use them is still needed. Residents also need information about the importance of cleaning up pet waste. While interest in educational workshops and volunteer activities fell from stated 2006 levels, it is probably more honest and indicates an interest in these opportunities. Following through on them would be productive not only for those involved, but also for the entire community.

Overall, the gains from this project are numerous and will serve to stimulate more attitudinal and behavioral change over time. It was a great challenge to develop and implement the project's outreach and educational programs in such a short time, but the IRWP and the CES are heartily committed to continuing these efforts.



STEP 7: WORKSHEET ENTRY

Describe outreach techniques, measure and evaluate:

WORKSHOP PRACTICE STATION

Use the Water Outreach Education Web site

PROBLEM: Use the *Target Audience Database* to help design an outreach technique relevant to your audience,

DIRECTIONS:

1. Go to the Target Audience Database: <http://fyi.uwex.edu/wateroutreach/changing-public-behavior/target-audience-research/search-findings/>. Based on your job or experience, identify *one audience* for an outreach focus _____
2. Name a specific behavior you want to address, if known

3. **On the Target Database Web page:** review the introduction and briefly explain what the database includes to yourself or to a colleague:

4. **On the Target Database Web page:** select the *Audience* tab; then select the audience most like the one for your proposed initiative. Which audience did you choose?

5. Refine your results by selecting a *Study Theme* or a *Best Education Practice*. How did you choose to refine your results? _____

6. Identify *one research finding* that you could apply in designing your outreach initiative: _____

7. Click on the research finding to see the *citation*. Who is the author of the research study? _____

8. What other Audiences, Study Themes, or Best Education Practices are addressed by this study? _____

9. Use the “bread crumbs” at the top of the page to return to the Target Audience Database home page. Then select a *Study Theme* that’s potentially relevant to your outreach focus. Which did you choose? _____

10. **Refine your results** by selecting an *Audience*. Identify *one finding* that you could apply in designing your outreach initiative: _____

12. Continue to review research findings and *select at least 4 more findings* that you could apply in designing your outreach initiative.

WORKSHOP PRACTICE STATION

Interviewing skills

PROBLEM:

Your colleagues are attending today's workshop to learn how to focus their outreach initiatives on behavior change. Find out how they are doing. What **barriers** to applying behavior change theories are they experiencing?

DIRECTIONS:

1. Read the attached background information, *Informal Interview with Key Informants*
2. Write 2 – 3 interview questions to ask two of your colleagues. For example: What do you currently do in your outreach efforts to *encourage changes in behavior*?

ACTIVITY:

1. Write your questions for colleagues here:

Questions 1:

Questions 2:

Questions 3:

2. Interview two colleagues; Take notes during the interviews

Notes from 1st interview:

Notes from 2nd interview:

List the barriers you identified during the interview process.

Did the interview process help you identify any new information about barriers to implementation? If so, please list them.

Informal Interview with Key Informants

To develop an education strategy that addresses specific behaviors, the outreach design team needs to learn as much as possible about the doers and non-doers of the target behavior. Here are some tips to get you started in developing and conducting an interview.

Use an interview to: Learn more about what specific factors make one person adopt a practice and the other not. Identify skills and performance deficits. Do people refrain from a practice because they don't know how to do it or because of other factors, such as access to appropriate technology or lack of awareness of positive consequences?

Create an interview guide: For each topic and audience, create an interview guide to standardize the information that interviewers will gather. The following chart provides suggested interview topics for all participants and for non-doers alone.

SAMPLE INTERVIEW GUIDE		
Interview topic	All	Non-Doers
Behavior	<ul style="list-style-type: none"> What do men or women currently do and why? 	<ul style="list-style-type: none"> Why don't they do this behavior now?
Consequences	<ul style="list-style-type: none"> What benefits have they had or perceived in doing the action? 	<ul style="list-style-type: none"> Would they try the proposed behavior? Why or why not? What do they think they would get as a result of doing this new behavior that <i>they</i> value?
Barrier	<ul style="list-style-type: none"> What problems have they had doing this action? What have they done to overcome these problems? 	<ul style="list-style-type: none"> What barriers do they perceive to doing the proposed new behaviors? What do they worry about, think they'll have to give up, suffer through, put up with, or overcome in order to get the benefit they decided they want from this new action?
Social norms	<ul style="list-style-type: none"> Who do they care about and trust on this topic? What does that person/group think about what they are doing? 	<ul style="list-style-type: none"> Who do they care about and trust on this topic and what do they think that person/group would think if they tried the new proposed behavior?
Knowledge and skills	<ul style="list-style-type: none"> How did people hear about this action? How did they learn to do it? 	<ul style="list-style-type: none"> Do they think they can carry out this new action without embarrassing themselves or failing?

Select the sample

A sample is the portion of the target audience who will be interviewed. Two major factors are involved in determining a sampling approach – cost and diversity of the target audience. One possible approach is to make the sample representative, i.e., it should reflect the characteristics of the target audience. Social scientists on the outreach team can help select the sample and should take the lead role if you want to

create a research quality process. Selecting a sample appropriate for research is a specialized, technical process.

Conducting an interview

The interview process should include these important considerations:

- **Introductions:** The interviewer greets the respondent in a culturally appropriate way, introduces him or herself, and asks the person's name.
- **Motivation:** The interviewer motivates the respondent to talk about the topic. S/he explains the purpose of the visit and the importance of any opinions or information that the respondent might provide. The interviewer explains that the information is confidential and will not be used for any other purposes. S/he asks if the respondent has time to talk right now. If not, the interviewer makes an appointment for a more convenient time.
- **Trust and respect:** The interviewer conducts the interview in an atmosphere of trust. S/he uses the respondent's name frequently (if appropriate in the culture) and treats him or her with respect and genuine friendship. The interviewer should not disagree with or discuss the respondent's views, but rather accept them. The interviewer is there to learn from the respondent.
- **Thanks:** When closing, the interviewer thanks the respondent for his/her collaboration and help. S/he repeats how important the respondent's opinion is and how much s/he has learned. If possible, the interviewer gives the respondent practical examples of how the information being gathered will be used.



Asking questions

There are three ways to ask questions: open-ended, closed-ended, and leading. Interviewers should try to use more open-ended than closed-ended questions in order to understand more completely why people think, believe, or act as they do. They should not use any leading questions at all. Generally, men should interview men and women should interview women. Women are best interviewed separately from men.

- *Closed-ended questions* are generally answered with a yes/no or with one-word.
- *Open-ended questions* allow people to talk more about what they think, do, and feel.
- *Leading questions* “lead” people to give the answers that they think the interviewer wants them to give.

Probing techniques

Once the interview is underway, interviewers will find they need to explore further or probe what the respondent is saying. This is particularly true if this is the first time a respondent has been asked about what s/he does and how s/he thinks and feels concerning a specific topic. The following are a few common probing techniques interviewers can use to explore a respondent's answers. Remain silent for a few moments. Repeat the respondent's words as a question. Ask the respondent to place him/herself in the position of somebody else. Ask the person to explain further.

Selecting, training, and supervising interviewers

Focus training and supervision on how well the interviewers are performing the steps of the interview, following the interview guide, using open questions and probing techniques, and applying an ethical approach. Try to include people who have access to, and rapport with, target groups in the field team.



Resources

This tip sheet is adapted from *Starting with Behavior* by Elizabeth Mills Booth (1996. Washington D. C.: Academy for Educational Development). Also see NOAA Coastal Services Center, http://www.csc.noaa.gov/mpass/tools_interview.html

WORKSHOP PRACTICE STATION

Observation skills

PROBLEM:

Your colleagues are attending today's workshop to learn how to focus their outreach initiatives on behavior change. Is the workshop *useful for participants*?

DIRECTIONS:

Review attached information on conducting a social assessment using structured observation. Then use observation to identify evidence that the workshop is helping your colleagues achieve their goals.

ACTIVITY

1. Identify 2 – 3 behaviors to observe

Examples:

Is the participant making notes on the Behavior Change Planning Tool?

In conversations with colleagues, the participant offers ideas for how to apply workshop tips.

2. Choose a method for selecting your sample, and observe at least 2 participants during the afternoon session. Use the chart on the back to record your observations.

3. Report findings during the afternoon evaluation session

MY OBSERVATIONS OF COLLEAGUES			
Person	Behavior #1	Behavior #2	Behavior #3

Structured Observation



To develop an education strategy that addresses specific behaviors, the outreach team needs to learn as much as possible about the **doers** and **non-doers** of the target behavior. Observation can inform the educator about needs and opportunities. Here are some tips to get you started in using observation

Use observation to: Observe as many of the behaviors as possible. There is usually a great deal of difference between what people say and what they actually do. Learn more about what specific factors make one person adopt a practice and the other not. Identify skills and performance deficits. Do people refrain from a practice because they don't know how to do it or because of other factors, such as access to appropriate technology or lack of awareness of positive consequences?

Observation can take place informally or it can follow a structured approach, but is always practiced in cooperation with the target audience. In preparation for the observation, you should have created a list of ideal behaviors that describe the steps of a practice. To design a structured observation, turn your list of ideal behaviors into an Observation Checklist.

The observer asks the person to perform the practice and checks off those behaviors the person executes.

SAMPLE OBSERVATION CHECKLISTS

An **Observation Checklist** describing the steps of "correct pesticide use" might include:

- _____ Stores pesticides out of reach of children and animals.
- _____ Uses the correct amount of water (as indicated by the label).
- _____ Uses the correct amount of pesticide (as indicated by the label).
- _____ Wears shoes which cover the entire foot while mixing/applying the pesticide.
- _____ Wears gloves while mixing and applying the pesticide.
- _____ Does not apply when windy, or just before anticipated precipitation.

An **Observation Checklist** describing the "results of agricultural practices" might include the following:

- _____ Incorporates organic material into the soil.
- _____ Plants crops on the contour.
- _____ Plants trees around the plot (wind breaks).
- _____ Plants living fences on the contour.
- _____ Uses a compost pile.

Field test the Checklist: Field test the Observation Checklist several times and make any needed changes in the format and vocabulary. The Checklist should be as simple and practical as possible so that it can be useful as a monitoring and evaluation tool throughout the environmental program.

Select the sample: A sample is the portion of the target audience who will be observed. Two major factors are involved in determining a sampling approach – cost and diversity of the target audience. One possible approach to sampling is to make the sample representative, i.e., it should reflect the characteristics of the target audience. Social scientists on the outreach team can help select the sample and should take the lead role if you want to create a research quality process. Selecting a sample appropriate for research is a specialized, technical process.

Once you have determined the categories of people to be interviewed, select the sample within each group. There are several ways to select a sample.

- **Random:** Select respondents randomly from a list of all of the potential respondents in a specific area.
- **Systematic:** Select one house/household out of every “x” houses/households (one house out of five, for example) for observation. The number “x” is randomly selected.
- **Convenience:** Select respondents on the basis of their accessibility and convenience for the observer. Convenience samples are appropriate if the ideal behaviors are ones that are performed in public places rather than in the home or on the farm.

Selecting observers: Select observers carefully since the validity of the data gathered relies primarily on the quality of their work. Sometimes people directly involved in a program would be best at conducting the observation. Not only will they learn from their observations, but the process will make them feel more involved and more likely to utilize the data to make decisions about their work. Generally, however, you will wish to use neutral, outside observers who are not biased and can be selected for specific qualities that will make them good observers – interest, patience, neutrality, attention to detail, reliability, and resourcefulness. Both men and women observers should be used.

Training observers: Observers must be thoroughly trained in the use of the observation instrument and in applying an ethical approach. During training, the observers need to review each item in the instrument and agree on exactly what behavior constitutes each item. They then observe several role plays and compare their results as a group (agreements and disagreements) item by item. Finally, they need to practice in the field until they are totally comfortable with the instrument.

Supervising and monitoring observers: Observers must be supervised to assure that the data they are collecting are reliable and accurate. During the field work, the supervisor should spot-check inter-observer reliability by asking two observers to observe the same activity and comparing the scoring on the instruments. Their data are considered reliable if they agree on 80% or more of the items.

Use results as a baseline: Documenting initial observational data creates a baseline for a program and can then be compared to data collected once an intervention is underway.



Resources: This tip sheet is adapted from *Starting With Behavior* by Elizabeth Mills Booth. (1996. Washington D.C.: Academy for Educational Development). See also NOAA Coastal Services Center, http://www.csc.noaa.gov/mpass/tools_observation.html

WORKSHOP PRACTICE STATION

Participatory action research techniques

PROBLEM: Practice designing a participatory learning activity that would engage your participants in identifying *potential stormwater concerns* on the property surrounding today's meeting location

DIRECTIONS:

1. Review attached information on participatory action research
2. Select one or more techniques below that could be applied to this situation.

Verbal-Oriented

- ☐ Semi-structured Interviews (SSI)
- ☐ Focus Groups

Visual-Oriented

- ☐ Diagramming and Visualizations
- ☐ Ranking and Scoring Methods

ACTIVITY:

1. Imagine that you would conduct the action research next week: Describe how you would organize the action research activity and who would participate:

- o Planning team –
- o Participants –
- o Technique for inviting participants –
- o Steps for the activity –

2. Describe how you would use the results

Participatory Action Learning

Participatory Learning and Action (PLA) is one approach to developing site or content-specific information in collaboration with the people who are either affected by a situation, or who affect the situation, or both. Educators can use PLA for planning, implementing, and evaluating effective environmental outreach efforts. (Israel et al, 1998; The Loka Institute)

Background

Participatory research is the self-conscious empowering of communities to address issues and problems that affect their everyday lives. The goal is to facilitate learning that also serves as a catalytic intervention in social transformative processes — assisting organized activities of ordinary people who have little power and few means to come together and change the structural features of their social milieu in an effort to realize a fuller life and more just society (Park, 1993).

PLA is geared towards identifying, understanding, and addressing local issues or problems as experienced and expressed by the communities of interest. It is a dynamic and fluid process of collaborative investigation, learning, and action on the part of “outside” experts and communities of interest. In this process communities of interest are recognized and treated as experts.

Key principles of community-based participatory action research

1. Emphasize the local relevance of outreach efforts.
2. Build on local strengths and resources while enhancing the capacities of community participants.
3. Facilitate collaborative partnerships between outreach educators and community members in all phases of the research and outreach process.
4. Integrate knowledge and action for mutual benefit of all partners.
5. Promote a co-learning and empowering process.
6. Involve a cyclical and iterative process.
7. Address environmental issues from a perspective mutually integrative of ecological and social concerns.
8. Disseminate findings and knowledge gained to all partners.
9. Ensure the rights of all research participants to informed consent, anonymity, and confidentiality; adhering to “subjects” review process standards and procedures.



When to use PLA

PLA is most effective when applied in the context of relatively small geographical areas. It has been used most often but not exclusively in rural areas. Socially, it is most effectively used in working with

relatively small communities-of-interest or target audiences in rural or urban areas: “a group of people or a community who have a common concern and whose interests are advanced by organizing...to solve that problem” (VeneKlasen et al. 2007). This implies the existence or potential for a sense of collective interests, organization, and mobilization to emerge... thereby building upon community members’ diverse range of interests, motivations, experiences, and skill (Park, 1993).

The process usually begins with a problem – the sense of which arises from the people who are affected by it and whose interests demand that it be solved – that is social in nature and calls for a collective solution. It begins with the instigator mobilizing and organizing the community for investigation and action. The instigator must know the community personally as well as scientifically before starting the participatory research work.

Techniques

PLA involves the application of a range of visual and verbal interactive methods that allow for communities of interest to “do their own appraisal, analysis and planning, take their own action, and do their own monitoring and evaluation” (Chambers 2002; Williams 1996:i). Educators or researchers learn from the community and make sure that *community members are in charge of developing the research plan, analyzing data and creating an action plan*. Educators are there to facilitate the community members’ activities and to draw out diverse members and opinions of the community (Figure 1). Participation is interactive, with an ultimate emphasis on promoting “self-mobilization” among communities of interest by building their capacity to address local issues, thereby promoting local sustainability (Table 1).

Figure 1. Participatory Learning and Action characteristics

Participatory Learning and Action (The New York City Alliance Against Sexual Assault, 2007).

- Outsiders facilitate, but do not dominate meetings.
- Facilitators use methods that emphasize openness over closed discussion, group identity over individuals, visual over verbal learning, and comparisons over measurements.
- There is emphasis on sharing information and experiences among researchers and participants as well as between participating organizations.

Table 1: A Typology of Interactive Participation and Self-mobilization (borrowed from Pretty et. al. 1995; Adnan et. al. 1992)

Typology	Characteristics
Interactive Participation	People participate in joint analysis, which leads to action plans and the formation of new local institutions or the strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. Groups take control over local decisions, and so people have a stake in maintaining structures or practices.
Self-mobilization	People participate by taking initiatives independent of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. Such self-initiated mobilization and collective action may or may not challenge existing inequitable distributions of wealth and power.

Participatory methods

PLA uses a large variety of techniques dependent on the situation. Methods are applied for three inter-related processes:

1. **Research** – the collective investigation of problems and issues with the active participation of the constituency in the entire process;
2. **Education** – collective analysis, in which the constituency develops a better understanding not only of the problems at hand but also the underlying structural causes (socioeconomic, cultural, political); and
3. **Mobilization** – collective action by the constituency aimed at long-term and short-term solutions to these problems. Included in this process is critical reflection by all participants on the process itself (Williams 1996:i).

Methods are generally grouped according to whether they focus on verbal or visual gathering of information (Pretty et al, 1995). The techniques are not difficult to learn, but it is helpful if the outreach team has a repertoire of ideas to apply. This tip sheet provides a few sources of techniques. The Changing Public Behavior Web site highlights details of some of these techniques to help educators get started with using this approach.

VERBAL-oriented

Semi-structured Interviews (SSI): Semi-structured interviews are conducted with a fairly open framework which allow for focused, conversational, two-way communication. Unlike the questionnaire framework, where detailed questions are formulated ahead of time, semi structured interviewing starts with more general questions or topics. Relevant topics are initially identified and the possible relationship between these topics and the issues such as availability, expense, effectiveness become the basis for more specific questions which do not need to be prepared in advance. The majority of questions are created during the interview, allowing both the interviewer and the person being interviewed the flexibility to probe for details or discuss issues. Semi-structured interviewing is guided only in the sense that some form of interview guide is prepared beforehand, and provides a framework for the interview (D'Arcy Davis Case, 1990).

Focus Groups with communities-of-interest (with an emphasis on dialogue): Focus groups are managed discussions on particular topics (as determined by a moderator) among a small group of people who have some characteristics in common as members of the community of interest or a subgroup within the larger community. Focus groups allow community participants to actively express their opinions on particular issues and in doing so promote community engagement and participation. Focus groups can be useful in building rapport and understanding between researchers and members of the community as well as building consensus within a group or providing insight into conflicting opinions and viewpoints. (Butler, Dephelps, & Hewell, 1995; NOAA Coastal Services Center)

VISUAL-oriented (learning by doing)

Diagramming and Visualizations: These are pictorial or symbolic representations of information that are (generated, discussed, and analyzed in an active and participatory manner), facilitate the exploration of complex relationships, and generate collective knowledge (Pretty et al. 1995:77). *Some examples* of participatory diagramming and visualization techniques include but are not limited to: Community Mapping; Mental map Analyses; Transect Walks; Seasonal Calendars and (daily) Routine Diagrams; Venn Diagram of Existing Organization(S); Flow Diagrams of Systems and Impact; Comparative Diagrams Analysis.

Ranking and Scoring Methods: Ranking and scoring methods can be used to explore people's perceptions, elicit their criteria, and understand their choices regarding a wide range of subjects, from resource allocation and selection to wealth and well-being assessment. These methods are particularly valuable for illustrating to both the outside agencies and local analysts how radically different each group's perceptions and beliefs can be, and what similarities exist. It is (also) important to note that it is not the final matrix that is important, but (rather) the discussion that occurs as it is being created and the knowledge that is shared (Pretty et al. 1995:84-5). *Some examples* of participatory ranking and scoring methods include but are not limited to: Line game; Preference ranking; Matrix ranking and scoring; and Calculating well-being or wealth ranking.



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Participatory Action Learning: Sample Methods

Technique	Description	Purpose	Using the Technique
Transect walks and diagrams	<p>One of the tools for gaining hands-on experience in a community is to take an observational walk, i.e., a walk during which attention is specifically paid to people, activities, resources, environmental features, etc. Observational walks may be taken in a meandering way, following a particular feature of the landscape or the interests of the observer(s). The walk can also be structured as a transect, i.e., a straight line cutting across the terrain in a specific way, such as a compass direction. Walks of these kinds help to verify the information provided on maps, both through direct observation and in discussions with people met along the way. Ideally the walk is organized for a small group, so as to maximize the opportunities for interactions.</p> <p>Strengths</p> <ul style="list-style-type: none"> • Transect walks are a highly participatory and relaxed technique. • They enhance local knowledge and can also be used in low-literacy communities. • They may be extremely useful in validating findings of participatory mapping exercises. <p>Weaknesses</p> <ul style="list-style-type: none"> • Transects may be time-consuming. • Good transect diagrams require some graphic skills. 	<p>There are several types of transects, among which two broad categories are social and land-use transects. The former concentrate on housing types, infrastructure and amenities, religious and cultural features and behaviors, economic activities, skills and occupations. The land-use category focuses on environmental and agricultural features (such as cultivated land, forests, ranges, barren land and erosion phenomena, streams, bodies of water, types of soil and crops). A typical transect takes in a combination of social and land-use information.</p> <p>“Participatory transect walks involve <i>systematic(ally) walking</i> with local people across a cross-section of a locality and discussing different aspects of land-use and ecological areas observed during such walks. A transect walk is a useful method for (learning about) local ecological conditions and (their related) social dimensions)” Mukherjee (2001).</p>	<ul style="list-style-type: none"> • Decide what issues to focus on and the information that needs to be gathered. • Agree with the relevant interest group who will take part in the transect walk and discuss with them the purpose of the exercise. • During the walk, take notes on relevant features observed; seek clarifications from local people; discuss problems and opportunities. • After the walk, meet with participants to discuss notes; involve participants in drafting a transect diagram to be used for further discussion and feedback to the community at large.
Participatory mapping	<p>Participatory mapping starts with collective discussions among groups of community members and then proceeds to drawing maps of their perceptions about the geographical distribution of environmental, demographic, social and economic</p>	<p>Participatory mapping is useful for providing an overview (or 'snapshot') of the local situation. It can also serve as a good starting point for environmental and social</p>	<ul style="list-style-type: none"> • Explain the purpose of the exercise to the interest group. • Agree on the subject of the mapping exercise and on the

Technique	Description	Purpose	Using the Technique
	<p>features in their territory. The participants are usually requested to draw their own map, e.g., on a flipchart or on the ground, plotting features with symbols that are understood and accepted by all members of the group, regardless of literacy. In certain cases, purchased maps, aerial photographs or basic drawings on paper or on the ground can be used as a basis for the participatory exercise.</p> <p>Strengths</p> <ul style="list-style-type: none"> Mapping and the associated discussions quickly provide a broad overview of the situation. They encourage two-way communication. They help people in seeing links, patterns and inter-relationships in their territory. Individuals who are illiterate can also participate. <p>Weaknesses</p> <ul style="list-style-type: none"> Subjectivity and superficiality: mapping exercises must be complemented by information generated by other participatory assessment tools. Some cultures may have difficulties in understanding graphic representations 	<p>assessment. Periodically repeated participatory mapping may help in monitoring and evaluating changes in the distribution of social resources (e.g., infrastructures like schools and health units) and in the use of natural resources. 'Historical' and 'anticipated future' mapping (i.e., drawing a series of maps referring to different moments in time) are versions of participatory mapping that are helpful in describing and analyzing trends over time.</p> <p>"Participatory mapping is an important method for PRA/PLA-type exercises and can help in highlighting different aspects of community life such as social aspects, resources, livelihoods, health, wealth, literacy, census data, livestock etc. In participatory mapping and model-building, local communities prepare the map/model of their locality" Mukherjee (2001).</p>	<p>graphic symbols to be used; participants choose their own symbols.</p> <ul style="list-style-type: none"> Ask a participant to be responsible for drawing or plotting symbols according to the suggestions of the group. Promote participation of all interest group members by posing questions to several individuals; allow the group to discuss different opinions and perceptions. Once the map is finalized, ask participants to interpret the overall picture; if appropriate, suggest that they identify the main problems revealed by the map and ask them about possible solutions within the locally available resources (which are already drawn, or could now be drawn, on the map). Remember that the map is community property; leave the original in the community and make copies of it if other uses are foreseen.
Ranking exercises	<p>Ranking exercises, which may be done with groups or individuals, are a way to enable people to express their preferences and priorities about a given issue. When followed by a discussion of the 'reasons' for the ranking, the technique may generate insights about the criteria through which different individuals, groups or social actors make decisions on the kinds of issues of interest.</p> <p>Strengths</p>	<p>Ranking exercises have been used for a variety of purposes, such as:</p> <ul style="list-style-type: none"> identification of priorities and preferences quantification of opinion and preferences elicited through interviewing or brainstorming comparison of preferences and opinions as expressed by different social actors 	<ul style="list-style-type: none"> Make a list of items to be prioritized or obtain a list of items generated by other exercises and recruit the participants to be involved in the exercise. Define a simple ranking mechanism. This may be based on a pair-wise comparison of items in the list ('Is A better than B?'), on sorting cards representing

Technique	Description	Purpose	Using the Technique
	<ul style="list-style-type: none"> Ranking is a flexible technique which can be used in a variety of situations and settings. Whenever categorical judgments are needed, ranking is a suitable alternative to closed-ended interviewing. Ranking exercises are generally found to be amusing and interesting by participants and are helpful in increasing their commitment to action-research. Information is provided on both the choices and reasons for the choices. <p>Weaknesses</p> <ul style="list-style-type: none"> Pre-testing is needed for the ranking mechanism and the tools to be used to facilitate it. Choices may be affected by highly subjective factors. In order to generalize results to the whole community, a proper sampling strategy is needed. 		<p>items in order of preference, or on assigning a score to the different items.</p> <ul style="list-style-type: none"> Prepare a matrix on which preferences identified by participants could be jotted down (e.g., on the ground, with a flipchart, on a chalkboard). Explain the ranking mechanism to each participant and ask them to carry out the exercise (e.g., give them three stones to place on any categories they want in response to a specific guiding question - which crop is the most difficult to raise, which problem to solve first, etc.). Ask participants to explain the criteria on which their choice has been made ('Why is A preferable to B?'). Synthesize the ranking results (e.g., count how many times an item has been preferred with respect to others) and list the criteria of choice.



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PILOT WORKSHOP

BACKGROUND INFORMATION

Behavior Change Theories and Techniques

Linking environmental management with behavior change goals requires an understanding of how to apply behavior-change theories and techniques. This resource offers an introduction to behavior change designed to guide educator planning. Educators can decide what to learn about people, how to select indicators of change, and how to use audience information to create change.

The ideas included in *Behavior Change Theories and Techniques* are subtle and complex; they provide an overview of the following topics:

- I. Changing behavior – One behavior and one audience at a time
- II. Why do people change their behavior?
- III. Using social assessment techniques to identify target outreach behaviors
- IV. Choosing what to assess
- V. Creating change



After reviewing this introduction, you may want to investigate further on your own. Details about theories introduced in this document are summarized in Tables I (p. 19) and II (p. 25). Figure 11 (p. 17) provides a diagram that integrates the theories, elaborating on an Integrative Model developed by Fishbein and Cappella (2006). Table III (p. 31) provides an example for how to connect survey questions and behavior change theories. The Changing Public Behavior project also provides a worksheet to help educators apply behavior change theories as part of their planning effort, available on the Water Outreach Web site (UW ERC, 2007).

I. Changing behavior – One behavior and one audience at a time

Environmental outreach initiatives can only be truly successful if they change those characteristics of individuals or groups that are contributing to an environmental management problem. If your goal is to change human behaviors, you need to develop an understanding of the qualities and characteristics of the individuals and communities with which you work, and how those characteristics might impact the situation. This is known as the *social or human dimension* of environmental management.

When you study the role of people in your situation, focus on behaviors in reference to a *particular* place, time, and community. This may include investigating relevant influences from each of four, broad, interrelating categories: sociocultural, economic, political, and historical. At first glance this may sound overwhelming; it is, however, somewhat simplified in practice by focusing on one or more *target* audiences for an outreach initiative.

Encouraging a change in behavior requires emphasizing a *specific behavior* to be accomplished by a *specific audience*. A *target audience* is a *segment* of the population with potential to effect the desired change; a segment that is likely to be affected by the change; or both. The value of targeting an audience lies in: 1) identifying the particular benefits of and barriers to the preferred, as well as the competing behaviors, for the specific audience; and 2) optimizing the message and method to accomplish the educational objective (Stevens & Andrews, 2006).

As you consider a behavior change initiative, work with a team of experts and audience representatives to:

- Implement a planning process
- Consider a strategy for change (decide if your goal is short-term vs. long-term change)
- Collect and analyze information about the target audience
- Choose one or more techniques with the potential to be effective with the target audience
- Monitor and evaluate the intervention

II. Why do people change their behavior?

A. Understanding people's intention to act and resulting behaviors

People have been trying to figure out how to change each other's behavior probably since "the dawn of time". Documented approaches that began to gain wide acceptability developed with the growth of psychotherapy. In recent decades, research about how to improve communication about health recommendations has driven theory development and testing. This section builds on this extensive history to describe the basic theoretical elements and to show how they connect to the work of educators (Figure 1). How to apply these theories is addressed in sections III and IV.

At the end of this resource, there are several tables providing additional detail. *Table I. Changing Behavior – Theories* (p. 19) provides a brief description of the theories listed in Figure 1. *Table II. Changing Behavior – Techniques* (p. 25) provides a brief summary of well-accepted approaches to changing behavior.



B. Behavior change theory

Behavior change theory suggests that there are three significant factors to consider when investigating the *likelihood* that a person will perform a behavior (intention to perform):

1. A person's beliefs about a behavior (attitudes)
2. A person's belief about what others believe about that behavior (social norms)
3. A person's belief about his or her own ability to perform a behavior (behavioral control)

These beliefs, when accompanied by the practical reality of a person's situation — such as their past behavior, the surrounding demographics and culture, their personality, their individual characteristics, their skills, and the context — determine the person's intention to change their behavior. In this model, known as the Theory of Planned Behavior, a person's *intention* to perform a behavior is thought to be more likely to predict a person's behavior than any other element. Figure 2 illustrates the basic elements of a behavior change model.

In the Theory of Behavior Change, "attitudes" refers to a person's beliefs about and attitude toward a **specific behavior**. For example, what does the person believe about contaminated drinking water, what do they believe about the likelihood of spilled pesticides leaching into groundwater, and what are their attitudes about contaminating drinking water with pesticides?

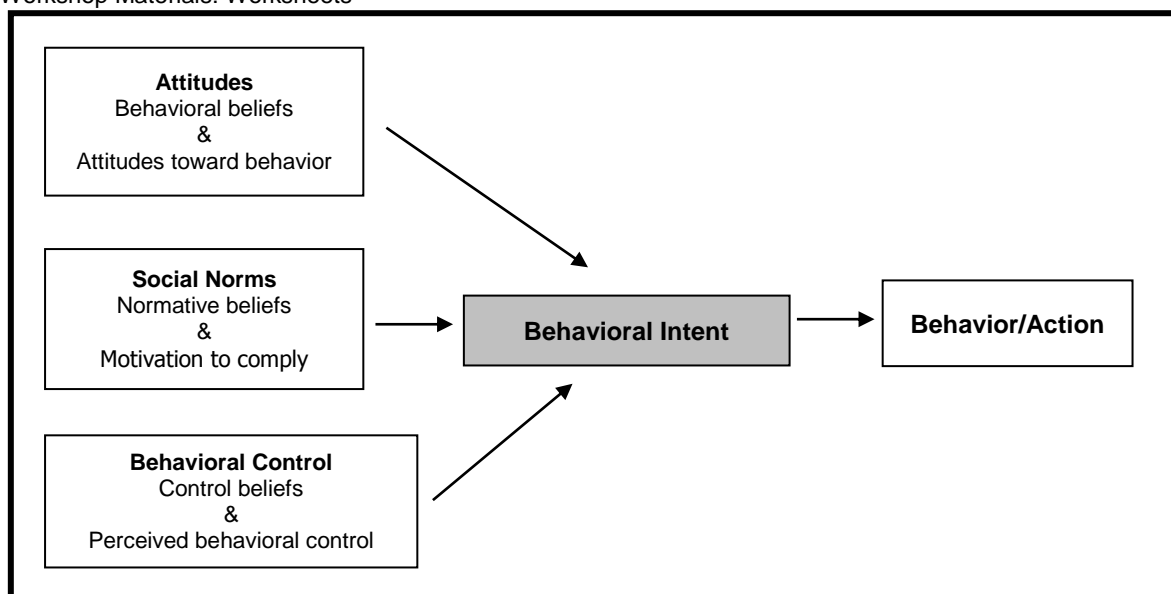
Accepted beliefs (norms) about a behavior, and beliefs about how much pressure the individual will experience from others to comply with a certain behavioral expectation, are known as beliefs about *social norms*. For example, what does the person think that their neighbor believes about contaminated drinking water, and do they believe that their neighbor would approve or disapprove or even notice if their careless behavior resulted in pesticides leaching into groundwater near a well?

Control beliefs and *perceived ability to control* refers to a person's belief about whether their behavior will make a difference and whether they have the skills to apply a behavior. For example, does the person think it's possible to avoid contaminating groundwater with pesticides, and do they think that they have the skills or resources to keep the pesticides from contaminating the groundwater near a well?

(Ajzen & Fishbein, 2005).

Figure 1. Behavior change: Theories and techniques	
Behavior Change Theories (Details in Table I, p. 19)	Techniques for Changing Behavior (Details in Table II, p. 25)
<i>An integrative model of behavior</i>	<i>Community/group organization and development</i>
<i>Cognitive dissonance theory</i>	<i>Education as a transformational activity</i>
<i>Diffusion of innovation</i>	<i>Social marketing</i>
<i>Social cognitive theory</i>	<i>Transformational education</i>
<i>Stages of change theory</i>	
<i>Theory of reasoned action</i>	
<i>Theory of planned behavior</i>	
<i>Value-Belief-Norm theory</i>	

Figure 2. Theory of planned behavior (Ajzen & Fishbein, 2005)



An Integrative Model of Behavior

To summarize theories helpful for communicators and educators, Fishbein & Cappella expanded on the Theory of Planned Behavior to incorporate additional information known to be important in changing behavior and called their revised model the *Integrative Model of Behavior* (2006, p. S2). In this model the authors emphasize that, “Any given behavior is most likely to occur if one has a strong intention to perform the behavior, has the necessary skills and abilities required to perform the behavior, and there are no environmental or other constraints to prevent behavioral performance”.

The Integrative Model incorporates a reminder of the dynamic quality of a person’s behavior. The model identifies background influences — such as past behavior, culture, personality, emotion, and past exposure to an idea — as significant to the formation of a person’s beliefs about a behavior, beliefs about the beliefs of others, and beliefs about their ability to perform the behavior. It also recognizes that environmental factors, the person’s skills, and the person’s abilities affect whether the person’s intention to act is transformed into action.

Figure 11 (p. 17) provides a diagram of the integrated model illustrating these points and adding descriptive details from contributing behavior change theories.

Applying the theories and models

An educator could learn a lot about the likelihood of a person performing a behavior by applying these theories in questions to targeted individuals, such as those questions outlined in Figure 3. And is the current behavior *habitual* or a conscious choice? And where does the behavior fall in the cycle of a person’s life? The answer to these questions provides more clues about how hard it might be for an individual to change his or her behavior.

Figure 3. Use behavior change theories to determine the likelihood of change

Ask questions like these to figure out the likelihood of a person performing a behavior:

- Does the person have *the intention* to perform the behavior?
 - What does the individual believe about the specific behavior?

Figure 3. Use behavior change theories to determine the likelihood of change

- What does the individual believe about his or her ability to perform the behavior?
 - What do other people believe about the behavior? And do they perform it?
 - What does the individual think that other people think?
 - Does the person have the necessary skills and abilities required to perform the behavior?
 - Are there any environmental factors or constraints that support or discourage performing the behavior?
-

A hierarchy of behaviors

When considering behavior possibilities and causes, it is helpful to remember that a person's current behavior may be purposeful, or it may be habitual and less easily changed. Educators can begin their analysis by identifying where the recommended behavior is likely to fit in a hierarchy (Figure 4). Educators are most likely to focus on changing *learned behaviors*. Of these, efforts to change habits and routines (termed *post-conscious behavior* in Figure 4) are likely to involve different techniques than those designed to suggest or modify a new behavior (*conscious behavior*). Helping individuals to develop new habits or routines may take more effort than a focus on changing a single behavior, but that extra effort could have long-term or sustainable effects on environmental management.

Timing

Timing in a person's life is another important component of behavior change (Shaw, forthcoming). Where is the individual in a continuum of change, for example? Is the person imagining the new behavior but not yet ready to take action? Are they preparing for the new action? Do they need support to keep doing the right thing? Or have they already tried the recommended behavior, but stopped performing it? Another quality that might prove to be important in targeting approaches for an outreach initiative is to decide whether the person is an early adopter or laggard or someone in between when it comes to adopting an innovation (Rogers, 2003).

Understanding the likelihood that an individual will change requires some understanding of each of these elements.

Figure 4. A hierarchy of behaviors (Heimlich & Ardoin, 2008)

- Reflexive behaviors (Example: pulling your hand away from a hot object)
- Intuitive behaviors (Example: catching a falling child)
- **Learned behaviors**
 - Conscious behaviors (Example: deciding to go to a movie suggested by a friend even though you don't think you will enjoy it)
 - Post-conscious behaviors
 - Patterns and routines (Example: taking a shower before breakfast)
 - Sequences of habits (Example: steps involved in driving a car)

Beliefs about control and power

Another important element underlying a person's intention or actual change in behavior is a person's belief in his or herself, and in his or her ability to do something. *Self-efficacy* is the conviction that one can successfully execute the required behavior. *Self-efficacy beliefs* refer to a person's judgment of his or her own capabilities to organize and execute a course of action required to attain a designated performance. For instance, am I capable of calibrating my fertilizer spreader correctly? Can I accomplish all the steps necessary to collect a soil sample for testing?

According to *Social Cognitive Theory*, a person is not like a machine, responding automatically to a specific input. People have the capability to symbolize, self-regulate, and self-reflect (Bandura, 1986 and 1997). A person is able to react flexibly to a dynamic environment and able to apply internal values and goals to any particular situation (Figure 5).

Self-efficacy beliefs influence choices that people make, how much effort people will expend on an activity, how long they will persevere when confronting obstacles, and how resilient they will be in the face of adverse situations. Recognizing these qualities enables the educator to create initiatives that build self-confidence among individuals in the target audience. For example, a person might be willing to perform the new behavior, but not be confident that he or she can perform it. In this case, the educator can provide opportunities to try out the new idea. A hands-on demonstration at the local hardware store of how to calibrate a spreader, for example, might build homeowners' confidence in mastering that skill.

Figure 5. Self-efficacy components (Bandura, 1986 & 1997)

When thinking about their lives, people can:

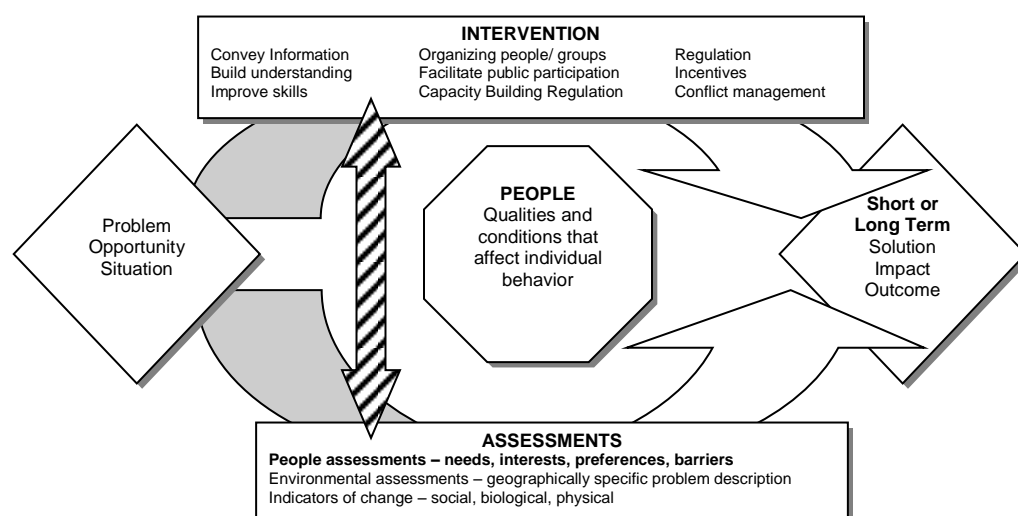
- Symbolize
 - Extract meaning from their environment
 - Plan a course of action
 - Anticipate likely consequences of actions
 - Set goals and challenges for themselves

Figure 5. Self-efficacy components (Bandura, 1986 & 1997)

- Self-regulate
- Self-reflect

III. Using social assessment techniques to identify target outreach behaviors

To determine which factors may influence an audience's behavior choice and to identify details about how the specific factor is likely to affect the individual's willingness to change requires use of one or more *assessment techniques*. As illustrated in Figure 6, assessments can also help to clarify understanding about the particular environmental situation and help to determine what indicators to use to measure change. Educators use information resulting from these assessments to select one or more interventions that are most likely to lead to desired short and/or long-term outcomes.

Figure 6. Connecting the situation with the people

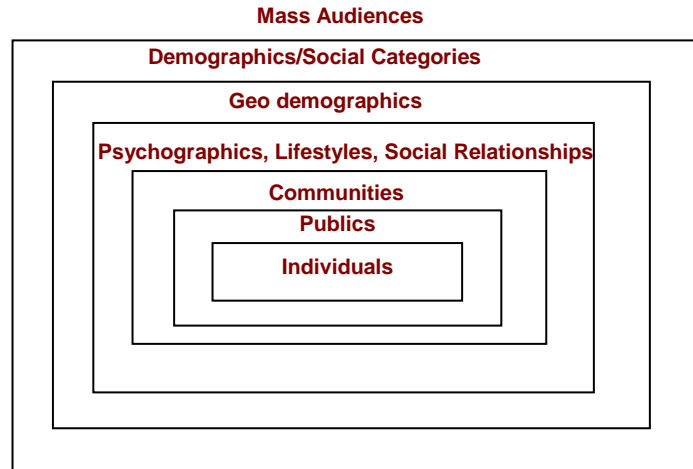
Social assessment tools – such as background studies, surveys, observations, interviews, and focus groups – help educators to identify the characteristics of individuals, a community, or a community of interest most closely related to problem-causing behaviors.

A. Selecting a target audience

The first step is to identify an audience *segment* most important for needed changes. Segmenting a market by specific audiences is considered an essential technique in the process of promoting, selling, and distributing a product or service. Segmenting audiences for the promotion of targeted behaviors is also central to development of social marketing strategies (McKenzie-Mohr & Smith, 1999; Wilbur, 2006). Segmentation enables you to focus on people at different levels in their relationships to the environmental concern – as an individual, as part of a community, as living in a specific geographical area.

To segment an audience, divide the population into groups whose members are more like each other than members of other segments. You might segment the audience according to demographics, values and lifestyles, zip codes, geographic regions, or behavior, as illustrated in Figure 7 (Grunig, 1989).

Figure 7. Segmenting an audience



Once you've selected your target audience, you can employ assessment techniques to learn about the audience or to further refine the targeted segment. Figure 8 provides an example of outcomes you might identify through an assessment process. Table III (p. 31) provides more detailed examples of how theory can help you identify significant questions. To select and apply a social assessment tool, educators must decide what kinds of information they need to know and must involve the target audience in deciding which characteristics are important.

Selecting a target audience also helps educators select outreach strategies and content that is specific to that audience. Studies of teaching and of human learning, development, and motivation show that ways of thinking and learning vary among individuals, and also with variations in the context of the learning situation. (American Psychological Association, 1997; Falk & Dierking, 2002; Holsman, 2001; Horton & Hutchinson, 1997; Knox, 1993; Merriam & Caffarella, 1999; Sgroi & Cavaliere, 1992).

The Changing Public Behavior project provides summaries and links to social assessment tools and Web sites to help the educator select a social assessment method most appropriate for the situation. (UW ERC, 2008a)

Figure 8. Sample outcomes using social assessment results

Working with a team, educators can use social assessment results to:	Lake nutrient management example <i>Assessing the environmental situation and the target audience – lake property owners – could lead to the following sample findings</i>
Define the problem in specific terms:	Nutrients in the lake affect water clarity
Understand the <i>critical factors</i> that affect the likelihood that an individual will adopt an environmentally significant behavior:	“Dirty” water is not appealing to lake property owners
Identify <i>behavior goals</i> that the targeted audience can achieve:	Property owners can plant and maintain effective riparian buffer strips
Select outreach techniques most relevant for facilitating behavior change by a particular audience.	Offer neighborhood demonstrations for how to reduce soil runoff into the lake by maintaining plant barriers
	Work with local nurseries to promote purchase of riparian-friendly species
Determine <i>how to measure</i> whether the individual achieved the behavior goal:	Call property owners, one month after event to learn more about their planting plans
	Conduct a neighborhood water-edge parade of gardens, one year later

IV. Choosing what to assess

To put these theories into action, the educator must work with the members of the targeted population and identify relevant *behavior*, *normative* (social norms), and *control* (self-efficacy) **beliefs**; and then strive to understand these beliefs from the perspective of the population for whom interventions are being developed (Fishbein & Cappella, 2006)(As described in Figures 2 and 12).

It is also important to understand that belief variables are not equally important in determining the likelihood of behavior adoption. One type of belief, such as *self-efficacy*, might have a stronger influence for one type of problem and a weaker influence for another. For example, Fishbein and Capella (2006) compare factors influencing adults to get a colonoscopy vs. factors influencing them to get regular exercise as an illustration of how elements of the behavior change model are likely to vary in their significance.

Whatever type of assessment technique you choose, you will need to decide exactly what to assess. You want to know more about the target audience, but which factors are likely to be most significant? Ideally, the educator will obtain measures of the variables in the *Integrative Model of Behavior* (Figure 11, p. 17) as they **relate to a specific behavior** for both the individual, and for the population:

- Background influences
- Behavior beliefs and attitudes
- Normative beliefs and norms
- Control beliefs and self-efficacy
- Environmental factors or constraints
- Skills and abilities

But to simplify the decision about what to assess, start by comparing “doers” and “non-doers” (Booth, 1995; summarized in UW ERC, 2007). What specific factors make one adopt a practice and the other not? Identify skills and performance deficits. Do people refrain from a practice because they don’t know how to do it, or don’t believe that they can perform the behavior, or because of other factors, such as access to appropriate technology or lack of awareness of positive consequences? Then, identify the specific beliefs that discriminate between *those who do* and *those who do not* perform the behavior (or intend to perform the behavior), considering behavior beliefs, normative beliefs, and control beliefs.

A. Indicators of change

The choice of what to assess is also affected by the need to show that an outreach initiative has an impact on the environmental management concern. This can be tricky. The environmental system may not show a change in biological, chemical, or physical measures for a long time after the intervention. The outreach initiative may have been successful, but not achieved the scale of change needed; or years of application are required before a change can be observed; or the improvement is not evident due to change in climate patterns, land uses, or other physical change. For these reasons, when educators want to document outreach impacts, they may need to develop “indicators of change” that are based on our ability to *predict* human behaviors.

Indicators of change can measure **a change** in the individual’s a) intention to perform a behavior; or b) belief that he or she can perform the behavior. Since the *intention to perform a behavior*, rather than an attitude toward the behavior, is closer in people’s minds to the actual behavioral performance, “this implies that we should be able to predict specific behaviors with considerable accuracy from intentions to engage in the behaviors under consideration” (Ajzen & Fishbein, 2005; emphasis added). (See Figures 2 and 11.)

Self-efficacy beliefs – such as a person’s belief about the ease of performance of a specific behavior and his or her beliefs about barriers and benefits – can also serve as predictors when they are measured in terms of the *behavior in question*, including the precise nature of required skills and requisite sub skills. But remember, performance of the actual behavior is not only governed by behavioral intentions, but also by the person’s background, environmental factors or constraints, and a person’s skills and abilities as illustrated in Figure 11 (p. 17).

Measuring behavioral *intentions* or changes in *self-efficacy beliefs* before and after an outreach intervention will let educators know what to expect. If the behavior change initiative was well connected to behaviors known to influence the environmental problem, then the educator will be able to demonstrate *movement toward* addressing a specified environmental problem. Table III (p. 31) provides sample questions for investigating a person’s intention to build a rain garden. A rain garden is a home garden that soaks up rain water from a roof, driveway or lawn. For the rain garden, Table III examples show how to investigate each of the major behavior elements known to contribute to a person’s intention: behavior, normative, and control beliefs (Shaw and UW URPL, 2007).

Developing Social Indicators for NPS Management (Prokopy et al., 2008) is a resource describing how to use pre-event surveys to identify potential indicators and to use post-event surveys to determine change in indicator values.

V. Creating change

Social assessment applications can help the educator learn more about the audience of interest. But then the rubber hits the road – you have to figure out which quality or qualities to emphasize in an outreach initiative. Fishbein and Capella (2006) provide a simple chart that you might find helpful in designing an outreach initiative (Figure 9). A focus on self-efficacy skills and habits is likely to be the most productive in terms of reaching your goals. But depending on the situation, it may be necessary to focus more on the context or constraints related to the problem. It’s important, however, to be clear about your behavior change goal (Figure 10).

Figure 9. Creating change (modified from Fishbein & Capella, 2006)

Behavior	Intention to perform	Intervention to influence behavior	
		Not performing	Performing
Recommended behavior	No	Change outcome, normative, and/or self-efficacy beliefs	Encourage positive intention
	Yes	Improve skills Reduce or help overcome barriers to performance	No intervention, or Maintain positive intention

Figure 10. Steps to selecting a behavior change goal

1. Describe the *preferred environmental practice* that could have an impact on the environmental problem. Integrate advice from experts, stakeholders, and key informants.
2. Outline *single behaviors* required to implement the environmental practice.
 - a. An ideal behavior is a single, observable action that experts consider people need to perform in order to reduce or help resolve a specific environmental problem.
3. Assess potential for adoption of single behaviors and potential for adoption of the environmental practice.
 - a. Does the behavior or practice meet an audience need or address an interest? (Background influence)
 - b. Does it have an impact on the problem? (Behavior beliefs)
 - c. Does it provide users with an observable consequence? (Behavior and Control beliefs)
 - d. Is it similar to what the user does already? (Normative and Control beliefs)
 - e. Is it simple for the user to do? (Control beliefs, skills, and abilities)
 - f. Is it low cost in \$, time and energy for the user? (Environmental factors or constraints)

A. Applying education and communication techniques

Design an outreach initiative based on an assessment that the behavior you have selected has a realistic potential of being adopted by the target audience. Once you have selected the behavior that the target audience is able and likely to adopt, you can choose from a gamut of outreach techniques that, when applied to address specific audience qualities, are likely to be successful. Educators need to consider, in part, whether they want a short-term outcome or want to build capacity for long-term change.

There are many approaches shown to be effective in creating change (details in Table II, p. 25):

- Community/group organization and development
- Education as transformation
- Social marketing
- Transformational education

Of these, social marketing is more geared to *short term change* while community organization integrates outreach initiatives with capacity-building in the effort to create a *sustainable change*. Another fact sheet in the Changing Public Behavior series, *Step 7 – Select Intervention Techniques*, (UW ERC, 2008b) provides further advice for how to make this decision.

Behavior change studies indicate that the following techniques are most likely to be effective in promoting a specific behavior:

- Ask for a commitment (Normative belief)
- Provide a specific prompt, near behavior (Normative belief)
- Communicate the norm (Normative belief)
- Remove barriers (Control belief and environmental factors)
- Provide information (Environmental factors)
- Increase skills (Skills and abilities)
- Engage the audience in a problem-solving activity (Control beliefs)

Educators can focus on building skills that help people *practice*: making choices; considering how much effort they might be willing to expend on an activity; how to persevere when confronting obstacles; and how to access help in order to be resilient in the face of adverse situations (Bandura, 1986 & 1997).

Educators can also influence self-efficacy beliefs by providing:

- A mastery experience
- Modeling (vicarious experience)
- Social persuasion that cultivates a person's beliefs in their capabilities while at the same time ensuring that the goal is attainable.

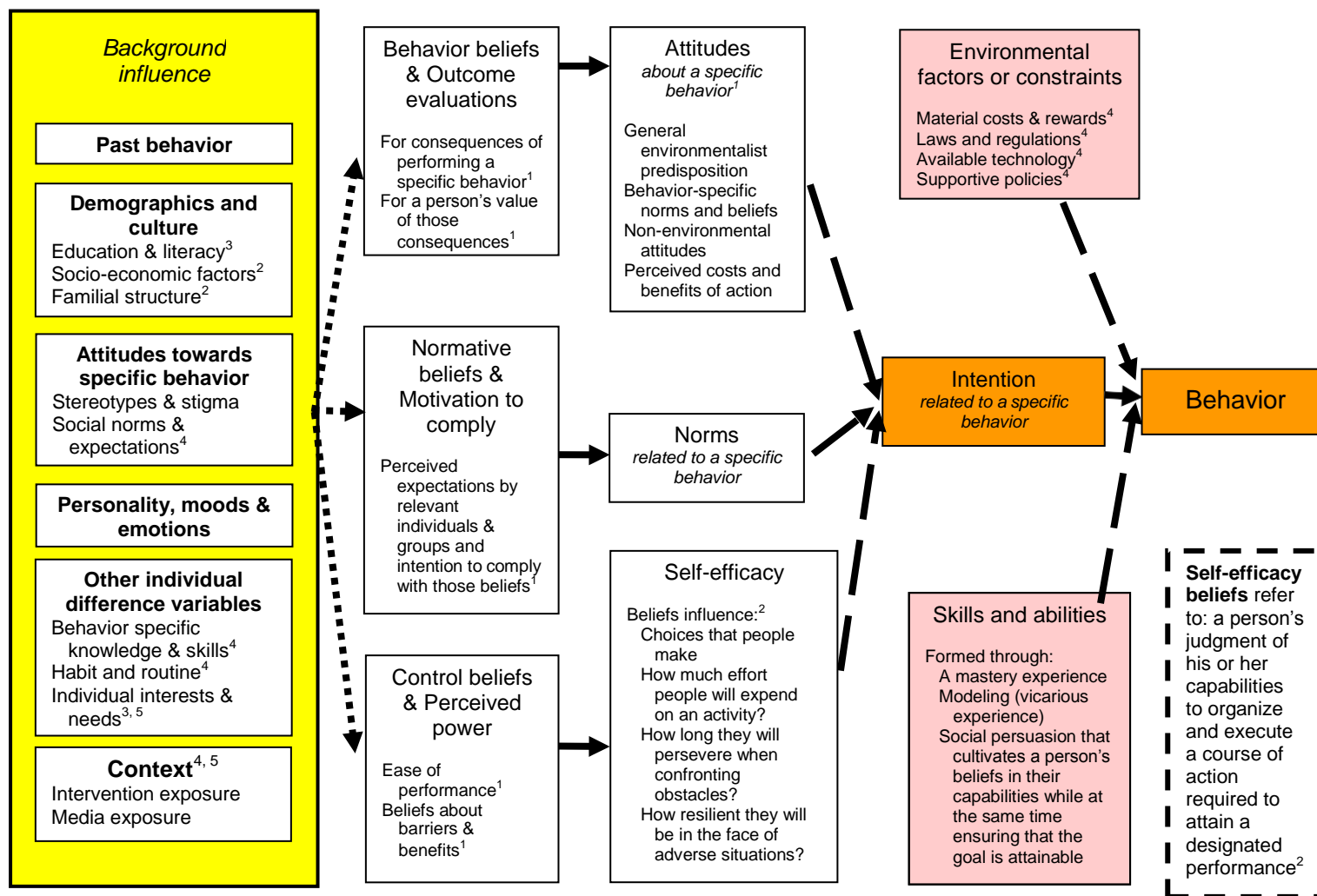
B. Putting it all together

The following principles capture advice for educators focused on changing behavior (Gardner & Stern, 1996):

- Use multiple intervention types to address factors limiting behavior – because limiting factors:
 - Are numerous (technology, attitudes, knowledge, money, convenience, trust)
 - Vary with actor and situation, and over time
 - Affect each other (interactive principle)
- Understand the situation from the actor's perspective
- When limiting factors are psychological, apply understanding of human choice processes
- Address conditions beyond the individual that constrain pro-environmental choice
- Set realistic expectations about outcomes
- Continually monitor responses and adjust programs accordingly
- Stay with the bounds of the actors' tolerance for intervention
- Use participatory methods of decision making

APPENDIX

Figure 10. An Integrative Model of Behavior



(Adapted from Fishbein & Cappella, 2006)

1. Ajzen & Fishbein, 2005; 2. Source: A. Bandura, 1986 and 1997 from a summary provided by F. Pajares, Emory University, <http://des.emory.edu/mfp/eff.htm>; 3. Booth; 4. Stern et al, 1999; 5. Rogers, 2003

Table I. Changing Behavior – Applicable Theories

Theory	Key components
<p>Diffusion of innovation</p> <p>Source: Rogers, E. M. (2003). Diffusion of innovations (5th ed.). New York: Free Press.)</p>	<p>Adopters of any new innovation or idea can be categorized as innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%). Willingness and ability to adopt an innovation depends on adopter awareness, interest, evaluation, trial, and adoption. People could fall into different categories for different innovations</p> <p>Caveats: Individuals often adapt technology to their own needs, so the innovation may actually change in nature from the early adopters to the majority of users. Disruptive technologies (e.g. a new technology) may radically change the diffusion patterns for established technology. Reinforcing patterns (e.g. standardization) may lock certain technologies in place.</p> <p>Recent developments in this theory: <i>The Tipping Point: How Little Things Can Make a Big Difference</i> by Malcolm Gladwell (2000)</p> <p><i>The Influentials: One American in Ten Tells the Other Nine How to Vote, Where to Eat, and What to Buy</i> by Jon Berry and Ed Keller (2003)</p> <p>According to Berry and Kelly research, influentials are:</p> <ul style="list-style-type: none"> ○ People who are experienced in life. ○ People who are more likely to be well educated ○ People with an active orientation toward life. They attend meetings, write to politicians, serve on committees and as officers of an organization, write and talk about their opinions, participate in groups trying to influence public policy ○ People who are connected. They have ties to a larger number of groups than average. ○ People with impact or who have influence. Others look to them for advice and opinion. ○ People with active minds. They like to learn through people and experiences. ○ People who are trendsetters. They are interested in, experiment with, and use new techniques, tools, and brands.

Theory	Key components
<p>Theory of reasoned action</p> <p>Source: Ajzen & Fishbein, 1980</p>	<p>Components include: behavioral intention, attitude towards the behavior; and subjective norms. If a person <i>intends</i> to do a behavior they are likely to do it, depending on: the person's beliefs about the consequences of performing the behavior and the person's value of those consequences; the person's perception of expectations by relevant individuals or groups and their intention to comply with these expectations.</p> <p>The Theory of Reasoned Action links attitudes about a specific behavior with the implementation of the behavior. It focuses on intentions toward specific a behavior, and it can be applied to predict behaviors. Behavioral <i>intention</i> can not be the exclusive determinant of behavior, however, where an individual's control over the behavior is incomplete. Self-efficacy (the conviction that one can successfully execute the required behavior) is the most important precondition for behavioral change, since it determines the initiation of coping behavior.</p>
<p>Social cognitive theory and self-efficacy</p> <p>Source: A. Bandura, 1986 and 1997 From summary provided by F. Pajares, Emory University, http://des.emory.edu/mfp/eff.htm</p>	<p>People are viewed as self-organizing, proactive, self-reflecting and self-regulating rather than as reactive organisms shaped and shepherded by environmental forces or driven by concealed inner impulses. Human functioning is viewed as the product of a dynamic interplay of personal, behavioral, and environmental influences. Factors (economic conditions, socioeconomic status, and familial structures) do not affect human behavior directly. They affect it to the degree that they influence people's aspirations, self-efficacy beliefs, personal standards, emotional states, and other self-regulatory influences. How people interpret the results of their own behavior informs and alters their environment and personal factors, which, in turn, informs and alters subsequent behavior.</p> <p>Self-efficacy beliefs refer to: people's judgments of their capabilities to organize and execute a course of action required to attain a designated performance. A person's level of motivation, emotional states, and actions are based more on what they believe [about a specific behavior] than on what is objectively true. People need to believe that their actions can produce the outcomes they desire</p>
<p>Theory of planned behavior</p> <p>Source: Ajzen & Fishbein, 2005</p>	<p>The Theory of Planned Behavior focuses on <i>intentions</i> toward a <i>specific</i> behavior. It links attitudes about a <i>specific</i> behavior and the implementation of the behavior. Three types of beliefs are thought to govern behavioral intentions.</p> <ul style="list-style-type: none"> • Behavioral beliefs (consequence of behavior) And attitude about self-performance of the behavior • Normative beliefs (valuing the behavior) And perception about social pressures to perform • Control beliefs (ease of performance) And beliefs about barriers and benefits <ul style="list-style-type: none"> ◦ <i>Perceived behavioral control</i> refers to a person's estimation that a given behavior will lead to certain outcomes. <p>Self-efficacy (the conviction that one can successfully execute the required behavior) is the most important precondition for behavioral change, since it determines the initiation of coping behavior. Self-efficacy beliefs can be applied to predict behaviors.</p>
<p>Value-Belief-Norm theory</p> <p>Source: Stern, P., T. Dietz, T. Abel, G. Guagnana, L. Kalof. 1999. A Value–</p>	<p>VBN is a theory of support for a social movement, as applied to the environmental movement. It outlines behavioral indicators of nonactivist environmentalism and addresses the likelihood of behaviors for:</p> <ul style="list-style-type: none"> • Environmental citizenship actions (group activity) • Policy support and acceptance <p>VBN Influencing factors:</p> <p>Attitudinal factors</p> <ul style="list-style-type: none"> • General environmentalist predisposition

Theory	Key components
<p>Belief–Norm Theory of Support for Social Movements: The Case of Environmentalism. Human Ecology Review, Vol. 6, No. 2.</p>	<ul style="list-style-type: none"> • Personal-sphere behaviors that agree with movement principles • Activism <p>VBN theory, examples</p> <ul style="list-style-type: none"> • I feel a sense of personal obligation to take action to stop the disposal of toxic substances in the air, water and soil. • I avoid buying products from a company that I know may be harming the environment. • I am willing to pay much higher prices in order to protect the environment. • I have voted for a candidate in an election at least in part because he or she was in favor of strong environmental protection. <p>Studies indicate that the more difficult, time-consuming, or expensive the behavior, the weaker its dependence on attitudinal factors. In addition, the more important a behavior is in terms of its environmental impact, the less it depends on attitudinal variables, including environmental concern.</p> <p>Individuals who accept a movement's basic values and who believe that valued objects are threatened and that their actions can help restore those values, experience an obligation (personal norm) for pro-movement action that creates a predisposition to provide support, depending on the individual's capabilities and constraints. VBN theory demonstrates a strong association of personal norms with pro-environmental behavior, when social-psychological effects on acceptance of personal norms are considered.</p> <p>Behaviors toward the environment are determined by multiple variables, sometimes in interaction. Often the nature of the interaction can be described in terms of barriers or conditions limiting to behavior change. Behavior causal factors include attitudinal, contextual, and personable capability factors.</p> <ul style="list-style-type: none"> • Behavior-specific norms and beliefs • Non-environmental attitudes • Perceived costs and benefits of action <p>Contextual factors</p> <ul style="list-style-type: none"> • Material costs and rewards • Laws and regulations • Available technology • Social norms and expectations • Supportive policies • Advertising <p>Personal capabilities</p> <ul style="list-style-type: none"> • Literacy • Social status • Financial resources • Behavior-specific knowledge and skills • Habit and routine

Theory	Key components
<p>An integrative model of behavior</p> <p><i>Source:</i> Fishbein & Cappella, 2006</p>	<p>The integrative model brings together a number of theoretical perspectives to suggest that only a limited number of variables must be considered in predicting and understanding any given behavior. According to this model, a behavior is most likely to occur if:</p> <ul style="list-style-type: none"> • A person has a strong intention to perform the behavior • A person has the necessary skills and abilities • There are no constraints preventing behavioral performance <p><i>Intention</i> is determined by:</p> <ul style="list-style-type: none"> • Attitude toward performing the behavior • Perceived norms concerning performance of the behavior • Self-efficacy with respect to performing the behavior • Relative importance of these depends upon both the behavior and the population <p>Attitudes, perceived norms, and self-efficacy are a function of underlying <i>beliefs about</i>:</p> <ul style="list-style-type: none"> • The outcomes of performing the behavior • The normative prohibitions and/or behaviors of specific relevant individuals or groups • The specific barriers to (or facilitators of) behavioral performance

Table II. Changing Behavior – Applicable Techniques

Technique	Definition	Key components
<p>Community/group organization and development</p> <p>Sources: G. Wise (1998) Andrews, Stevesn & Wise (2002) Flora (2006) Jones & Silva (1991)</p>	<p>Community development is both process and product. It includes problem solving, community building, and systems interaction. An integrated approach assesses the problem, goes on to build community capacity, and importantly, addresses the problem.</p> <p><i>Community</i> refers to the focus of the interest at question. It implies more than merely a physical place, although it can, and often does include a geographic element. It may reference a discrete collection of persons about which a common interest is shared. It often is made up of diverse perspectives surrounding a common issue.</p> <p>Community development efforts build “the capacity of people to work collectively in addressing their common interests” (Maser, 1997). Efforts often depend on principles of successful strategic planning and visioning, <i>Community Visioning/Strategic Planning Programs: State of the Art</i> (Walzer, et al, 1995), including:</p> <ol style="list-style-type: none"> (1) Having a <i>clear vision</i> of what one can and wants to accomplish (2) <i>Accurately assessing the strengths and limitations</i> of the community (3) <i>Creating goals and objectives</i> which will result in achieving the vision (4) Establishing a set of <i>strategies and action plans</i> for accomplishing community goals and objectives (5) Exhibiting <i>perseverance and follow-up</i> on all details and over time (6) <i>Continually evaluate and take corrective action</i> when programs 	<ul style="list-style-type: none"> • Problem-solving to generate action; • Community building to establish broad ownership for that action; • Systems interaction to give necessary direction to the action. • A balance in developing different types of capital, including natural, cultural, human, social, political, financial, and built capital. Capitals are resources invested to create new resources over a long time horizon. • A community-based approach to identifying opportunities, problems and potential solutions emphasizing building local skills and supporting voluntary actions as an element of the education design. <ul style="list-style-type: none"> ○ Community –Based Environmental Education: <ul style="list-style-type: none"> • is locally based • works with a coalition or group • takes action based on information • practices quality education with broader groups

Technique	Definition	Key components
<p>Education as transformation</p> <p><i>Sources:</i> Andrews Bloom Cantrell</p>	<p>Education relies on the existence of a body of knowledge which is not only transferred to the individual, but is instrumental in transforming the individual. The individual has to actively receive the knowledge and know how to use it.</p>	<p>A continuum of choices:</p> <p>Content ↔ process</p> <ul style="list-style-type: none"> ○ Prompts (e.g. point of purchase information) ○ Participatory action research <p>Learning theory suggests that a process emphasis is more effective than a content emphasis in the long term, but sometimes content is what's missing.</p> <p>Expert centered ↔ learner centered</p> <ul style="list-style-type: none"> ○ Expert produced display at an event ○ Audience developed service project <p>Will the outreach intervention be controlled by a leader or managed by participants? Either is appropriate depending on what you need to do, but a learner-centered/ participant-managed approach is more likely to lead to a sustainable change.</p> <p>Empowering the learner</p> <ul style="list-style-type: none"> ○ Product label information ○ Peer to peer communication <p>Does it matter if your audience participates in a process and if so at what level – consultative, collaborative, or full responsibility? The more engaged your audience is, the more likely the activity will lead to a sustainable result.</p>
<p>Social marketing</p> <p><i>Sources:</i> D. McKenzie-Mohr & W. Smith, 1999 EPA, 2003 Wilbur, 2006) B. Shaw, 2008, verbal communication</p>	<p>Social marketing is the use of marketing principles and techniques to influence a target audience to voluntarily accept, reject, modify, or abandon a behavior for the benefit of individuals, groups, or society as a whole.</p> <p>Product, price, place, and promotion are important marketing concepts critical in social marketing campaigns.</p> <ol style="list-style-type: none"> 1. Product—The product is what you are marketing. In social marketing the product is the behavior or set of behaviors you want your audience(s) to adopt and sustain. 2. Price—How much will it cost a person in money, time, or convenience, to take on or stop a certain behavior? 3. Place—Place can include the channels through which the products or programs are available, or the places where the behavior change can occur. The greater access people have to 	<ol style="list-style-type: none"> 1. Select specific behavior you want people to apply. 2. Identify perceived barriers and benefits of engaging in both the current and preferred behavior. <ul style="list-style-type: none"> • Compare “doers” and “non-doers.” <ul style="list-style-type: none"> ○ What specific factors make one adopt a practice and the other not? • Identify skills and performance deficits. <ul style="list-style-type: none"> ○ Do people refrain from a practice because they don't know how to do it or because of other factors, such as access to appropriate technology or lack of awareness of positive consequences? 3. Develop creative strategies to overcome barriers and enhance the benefits of the preferred behavior using a

Technique	Definition	Key components
	<p>the new behavior and the easier it is to do, the more chance you have of persuading people to change.</p> <p>4. Promotion—Promotion is how and where you communicate to your audience about the product (behavior), price and place. Promotional channels can range from face to face contact to big budget advertising. In social marketing promotion is usually a mix of several community based approaches and the best mass media for your audience and your budget.</p> <p>Social marketing consists of several basic components, including:</p> <ul style="list-style-type: none"> • The exchange – In commercial marketing, exchange could be described in terms of the purchase. The goal of the exchange is that both parties will walk away satisfied. In social marketing terms, behaviors are usually the exchange currency. • Positioning – Presenting your product in the best possible way compared to the competition • Focusing on behaviors – Keep the action or behavior you want simple and singular • Understanding the target audience – The more your audience has in common with one another, the more on target you can be with your message • Creating and delivering messages that will prompt people to change certain behaviors – Social marketing campaigns deliver messages that are strategically created and positioned to give people a compelling reason to adopt a new behavior, mind-set, or lifestyle. In order to overcome the barriers to action it is necessary to understand what the barriers are and why they exist. Researching and understanding the audience is the lynchpin that holds together a social marketing campaign. • Forming strategic partnerships with community resources – In marketing terms, the message plus the support of community resources equal the product 	<p>set of tools designed to modify behavior.</p> <ul style="list-style-type: none"> • Address skills and performance deficits <ul style="list-style-type: none"> ○ Develop strategies which provide skill information or teach necessary skills. ○ Identify strategies that reduce barriers and increase positive consequences. • Implement behavior change strategies <ul style="list-style-type: none"> ○ Commitment ○ Prompts ○ Communicate norms ○ Quality communication techniques ○ Incentives ○ Remove external barriers <p>4. Pilot test the strategy with a small segment of the community</p> <p>5. Implement and evaluate the impact of the program</p> <ul style="list-style-type: none"> • Conduct quantitative research <ul style="list-style-type: none"> ○ Study results of education program with a sample of the target audience. Determine applicability of study sample to larger audience. Fine tune recommendations.

Technique	Definition	Key components
Transformational education <i>Source:</i> J. Mezirow	Building leadership around issue content in the community context. Combines information dissemination, content transmission (by an expert), and facilitation to create leadership. Mastering content knowledge and building group leadership capacity occur simultaneously.	The role of the educator is to: <ul style="list-style-type: none"> • Help the learner focus on and examine the assumptions that underlie their beliefs, feelings and actions • Assess the consequences of these assumptions • Identify and explore alternative sets of assumptions • Test the validity of assumptions through effective participation in reflective dialog.

Table III. Examples of questions to ask when investigating a person's intention to install a rain garden (Shaw, and UW URPL 2008)

Types of beliefs	Example 1	Example 2
Behavior beliefs & outcome evaluations	<p>How would I be affected by building a rain garden</p> <p>Measure: 1=Most negative, 6=Most positive</p> <p>For me to personally build a rain garden on my property in the next two years would be:</p> <p>Very unpleasant-Very enjoyable</p> <p>Very expensive-Very affordable</p> <p>Very difficult-Very easy</p> <p>Very time consuming-Not time consuming</p>	<p>How my property will be affected by a rain garden</p> <p>Measure: 1=Definitely decrease; 6=Definitely increase</p> <p>If I build a rain garden in my yard, my property value will:</p> <p>Measure: 1=Not important to me; 6=Very important to me</p> <p>The appearance of my property is:</p> <p>Preventing standing water that could breed mosquitoes in my yard is:</p> <p>Preventing water in my basement is:</p> <p>Increasing my property value is:</p> <p>Having a yard that is mostly lawn is:</p> <p>Having a garden is:</p> <p>Measure: 1=Very unlikely; 2=Very likely</p> <p>Building a rain garden on my property would improve the appearance of my property.</p> <p>If I build a rain garden, it will increase the amount of wildlife I attract to my yard.</p> <p>Measure: 1=Very undesirable; 6=Very desirable</p> <p>Increasing the wildlife habitat in my yard would be:</p> <p>Measure: 1=Definitely no; 6=Definitely yes</p> <p>Building a rain garden in my yard would create standing water that could attract mosquitoes.</p> <p>Building a rain garden in my yard would make it more likely that I'd get water in my basement.</p>

Types of beliefs	Example 1	Example 2
Normative beliefs & motivation to comply	<p>Anticipated opinions of others</p> <p>Measure: 1=<i>Strongly disapprove</i>; 6=<i>Strongly approve</i></p> <p>If I build a rain garden in my yard, my neighbors would:</p> <p>If I build a rain garden in my yard, my family would:</p> <p>If I build a rain garden in my yard, my friends would:</p>	<p>Anticipated opinions of others</p> <p>Measure: 1=<i>Not important to me</i>; 6=<i>Very important to me</i></p> <p>What my neighbors recommend is:</p> <p>What my family recommends is:</p> <p>What my friends recommend is:</p>
Control beliefs and perceived power	<p>My capacity to build a rain garden</p> <p>Measure: 1=<i>Definitely No</i>, 6=<i>Definitely Yes</i></p> <p>I have, or could easily acquire, the knowledge needed to build a rain garden.</p> <p>I have the physical ability to build a rain garden.</p> <p>I have the financial means to build a rain garden.</p>	<p>Likelihood of building a rain garden</p> <p>Measure: 1=<i>Very unlikely</i>; 6=<i>Very likely</i></p> <p>I would help my neighbors build a rain garden in the next two years if they asked for my help as part of a larger community event.</p> <p>I (or somebody in my household) will build a rain garden on my property in the next two years if I received cost-sharing assistance.</p> <p>I (or somebody in my household) will build a rain garden on my property in the next two years if I am given detailed instructions how to do so.</p> <p>I (or somebody in my household) will build a rain garden on my property in the next two years if some of my friends and neighbors also build one.</p> <p>I (or somebody in my household) will build a rain garden on my property in the next two years if some of my friends and neighbors helped me.</p> <p>I (or somebody in my household) will build a rain garden on my property in the next two years.</p> <p>I (or somebody in my household) will hire someone to build a rain garden on my property in the next two years.</p>

Community-based research and outreach – *Ethics considerations*

When facilitating an outreach initiative, educators and researchers are encouraged to apply an ethical approach to assessing and promoting solutions. This fact sheet suggests ethical principles that are more likely to lead to sustainable results.

Collecting information

Information about a targeted audience accompanied by data about social, economic, and environmental factors can help refine an outreach approach. Conducting these community assessments in an ethical way requires selecting assessment tools and procedures that provide accuracy and utility; and requires applying them with sensitivity and respect. Will the research findings be valid to all involved stakeholders? Will findings and recommendations be timely, constructive, and informative towards the issues at hand? Will the study be designed in a way that protects the rights of participants to respect, anonymity, and confidentiality?

When conducting research or collecting data in preparation for an outreach event within a particular community, an ethical approach suggests that you:

1. Clarify your personal and institutional motives and interests in a manner that is open, accessible, and relevant to the members of the community of interest.
2. Obtain informed consent (written or verbal) from all potential research participants prior to each stage of the research process, and that you assure prospective participants of anonymity and/or confidentiality related to any information they provide.
3. Clarify motives and obtain informed consent with respect to:

- The specific tools or combinations of tools being used
- The kinds of data being obtained and recorded by various means
- The ways in which the data will potentially be used

Assess your skills

To assure that you are applying an ethical approach when collecting information, consider whether you can:

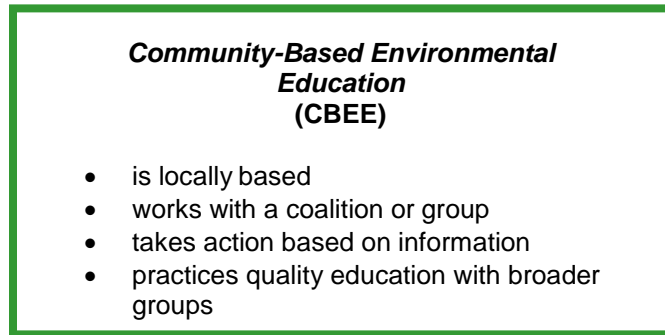
- *Accurately* identify ethical considerations relevant to the particular type of social assessment process being applied.
- *Take responsibility to clearly and accurately* convey personal motives and interests as well as the motives and interests of the sponsoring organization when gathering information from an individual.
- *Demonstrate in speech and manner* a respect for the individual's right to privacy *at all times* throughout the information-gathering process.

A community-based approach

Ethical considerations apply not only to particular data gathering activities, but to the situation as a whole. A community-based approach to identifying opportunities, problems, and potential solutions provides the educator with a way to integrate ethical considerations into the process. Community-based environmental education (CBEE) emphasizes selecting the education strategy in a way that also builds local skills and supports voluntary actions. In CBEE, practitioners work in collaboration with the community to choose an outreach strategy; to consider how and when the strategy could be used; and to guide whether the strategy is applied alone or in combination with others (Figure 1). The intent is

Sample Workshop Materials: Worksheets to build the skills of citizens to gather, analyze, and apply information for the purpose of making environmental management decisions (Andrews et al., 2002). Successful application of the model contributes to the *environmental policy capacity* of the community; that is, the community's ability to engage in collective action that secures environmental public goods and services (Press & Balch, 2002).

Figure 1.



To ensure that education activities will support long-term and/or structural change, CBEE considers questions such as those listed below (Andrews et al., 2002). There are no correct answers to these questions, but the process of answering them helps to ensure an ethical approach to outreach interventions.

- Are the goals of the activity determined by a bottom-up process or a top-down process?
- Is the intervention targeted narrowly to a specific audience or broadly to whole populations?
- Is the *locus of control* generated by individuals or community groups, or by marketing agents? (Locus of control is a term that refers to the source of personal empowerment. Does the person's sense of power to act come from within or from the group, or is the person affected by an external agent?)
- Is the interest group actively involved in creating information and targeting research, or is the interest group a passive consumer of information?
- Does the intervention build sustainability for its impacts by engaging people at different levels of responsibility within the community (such as property owners, political leaders, and the agency that has jurisdiction)?

References

Andrews, E., Stevens, M., & Wise, G. (2002). A model of community-based environmental education. In T. Dietz & P. Stern (Eds.), *New Tools for Environmental Protection: Education, Information, and Voluntary Measures* (Chapter 10, pp. 161-182). Washington, DC: National Academy Press, http://www.nap.edu/catalog.php?record_id=10401. Provides further details involved in applying the CBEE model.

Press, D., & Balch, A. (2002). Community environmental policy capacity and effective environmental protection. In T. Dietz & P. Stern (Eds.), *New Tools for Environmental Protection: Education, Information, and Voluntary Measures* (Chapter 11, pp. 183-200). Washington, DC: National Academy Press, http://www.nap.edu/catalog.php?record_id=10401
New Tools for Environmental Protection is published by the National Research Council Division of Behavior and Social Sciences and Education: Committee on the Human Dimensions of Global Change.

For more information about the Changing Public Behavior National Facilitation Project go to our Website:
<http://fyi.uwex.edu/wateroutreach/changing-public-behavior/>

The *Changing Public Behavior Project* and resources are based upon work supported by the Cooperative State Research, Education, and Extension Service (CSREES), U.S. Department of Agriculture, under Agreement No. 2006-51130-03749

Education Practices Checklist

Use the *Education Practices Checklist* to assess your education approach and resources in advance of pilot testing your outreach initiative. The *Checklist* organizes Best Education Practices according to typical learning situations. The purpose of the checklist is to help you to identify areas of strength and to identify gaps in your technique, in order to more effectively support learners and to achieve desired learning objectives.

Recommendations are organized for:

- Web-based education
- Learning module design and group instruction
- Education for individuals
- Education for communities (communities of interest or geographical communities)
- Education for groups beyond the community
- Free-choice learning (learning that occurs when the individual selects the opportunity and resources)



Concepts outlined in the checklist are based on what we call *Essential BEPs*, developed for the Water Outreach project. Learning and best education practices identified through this effort, highlight education principles related to environmental management, but are broadly applicable.

SOME TIPS TO GET YOU STARTED

For every learning situation, design the learning experience —

- To maximize the goal of the selected outreach or education effort (Monroe, Andrews & Biedenweg, 2007):
 - **Convey information** – One-way transmission of information in order to provide missing information, to increase access to “how to do it” instructions, or to build awareness about a specific topic among learners
 - **Build understanding** – A two-way transmission of information that aims to engage audiences in developing their own mental models to understand a concept. Understanding implies multiple thinking skills such as remembering, recognizing, interpreting, summarizing, and explaining (Anderson & Krathwohl, 2001).
 - **Practice and apply skills** – Learners apply or implement a skill, and organize and critique information.
 - **Create and implement sustainable actions** – Strategies that transform the learner, the issue, the educator, and perhaps the organization. These processes allow the educator and learner to work together to define both goals and/or methods of the intervention. More than activities that promote understanding or skill building, these strategies build capacity for effective citizenship in a complex world.
- To assure that learning takes place (Anderson and Krathwohl, 2001)
 - For meaningful learning to take place the student must be able to: remember, understand, apply, analyze, evaluate, and create. Tasks are broadly defined as:
 - **Knowledge** – the development of intellectual skills, such as recall of data, comprehension, application, analysis, synthesis and evaluation
 - **Attitudes** – considering the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and ways of thinking
 - **Skills** – practicing physical movement, coordination, and use of motor-skill areas

FOR WEB-BASED EDUCATION

The learning module:	Your module
<ul style="list-style-type: none"> Addresses a specific topic that is narrow in scope 	
<ul style="list-style-type: none"> Follows a logical hierarchy of skill and knowledge development 	
<ul style="list-style-type: none"> Moves from knowledge transmission to learner-controlled systems 	
<ul style="list-style-type: none"> Is self-directed and self-contained (students can progress through the material on their own and all materials are readily accessible as part of the course) 	
<ul style="list-style-type: none"> Has clear and concise directions on how to complete the module 	
<ul style="list-style-type: none"> Chunks the content into manageable “bites” 	
<ul style="list-style-type: none"> Provides a complete demonstration of the concept 	
<ul style="list-style-type: none"> Provides detailed and consistent feedback for practice opportunities 	
<ul style="list-style-type: none"> Makes appropriate use of a variety of media 	

FOR LEARNING MODULE DESIGN and GROUP INSTRUCTION

The learning experience:	Your module
<ul style="list-style-type: none"> Is based on and shaped by some form of needs assessment and use of a planning model (such as the logic model) 	
<ul style="list-style-type: none"> Is designed to focus on a targeted audience and is built on an understanding of audience skills and interests 	
<ul style="list-style-type: none"> Content and delivery is determined in cooperation with the target audience and stakeholders 	
<ul style="list-style-type: none"> Is relevant to and accessible by people with diverse backgrounds and influences 	
<ul style="list-style-type: none"> Presents accurate and balanced information, incorporating many different perspectives 	
<ul style="list-style-type: none"> Incorporates methods for assessing the value of the experience 	
<ul style="list-style-type: none"> Is facilitated by quality instructors who have been trained in effective teaching methods and are supported by the program sponsor 	
<ul style="list-style-type: none"> Uses creative approaches 	
<ul style="list-style-type: none"> Values lifelong learning 	

FOR THE INDIVIDUAL	
The learning experience:	Your module
<ul style="list-style-type: none"> Has a clear purpose with tightly focused outcomes and objectives 	
<ul style="list-style-type: none"> Is learner centered, and consequently: <ul style="list-style-type: none"> Assesses the learner in order to set appropriately high and challenging standards. Relates to the individual's level of physical, intellectual, emotional, and social development. Can be adapted to individual differences in learning strategies and approaches. Relates to personal interests and provides for personal choice and control. Encourages the learner to set meaningful learning goals and to take personal responsibility for their own learning. Promotes active engagement and real world problem solving. Enables the learner to link new knowledge to their existing knowledge in meaningful ways. Builds thinking and reasoning skills – analysis, synthesis, evaluation, and problem solving – that learners can use to construct and apply their knowledge. 	
<ul style="list-style-type: none"> Presents a new behavior or skill by: <ul style="list-style-type: none"> Demonstrating its similarity to a current behavior or skill Relating the new behavior to current social practices Demonstrating ease of adoption in terms of time, effort and money. Provides a <i>nurturing context</i> for learning, with attention to: cultural or group background and influences, the physical environment, and the use of tools or practices appropriate to learner skills and abilities. Allows a learner to interact and collaborate with others on instructional tasks. Provides opportunities for extended effort and practice. Builds on positive emotions, curiosity, enjoyment, and interest. 	

FOR THE COMMUNITY (communities of interest or geographical communities)

The learning experience:	Your module
<ul style="list-style-type: none"> Evolves from work with a coalition or group 	
<ul style="list-style-type: none"> Supports a person who takes responsibility for managing or leading the process, and relies on quality group planning and facilitation techniques 	
<ul style="list-style-type: none"> Relates to long-term community vision and goals 	
<ul style="list-style-type: none"> Takes into consideration the community as a whole, including: socio-political, economic, historical, and cultural influences 	
<ul style="list-style-type: none"> Builds on locally existing skills and resources 	
<ul style="list-style-type: none"> Is flexible in response to both process and conditions 	
<ul style="list-style-type: none"> Generates and makes use of data about the local condition 	
<ul style="list-style-type: none"> Provides training to increase skills needed to accomplish goals identified by the group 	
<ul style="list-style-type: none"> Takes place close to the location where people practice a behavior of concern 	
<ul style="list-style-type: none"> Builds effectiveness through linkages to other communities, partners, and resources 	
<ul style="list-style-type: none"> Reaches people in multiple ways 	
<ul style="list-style-type: none"> Provides participants with feedback about the results of their actions 	

FOR BEYOND THE COMMUNITY

The learning experience:	Your module
<ul style="list-style-type: none"> Builds value for education as part of policy development and implementation 	
<ul style="list-style-type: none"> Builds skills for flexibility and responsiveness to environmental issues and for facilitating community engagement 	
<ul style="list-style-type: none"> Concerning a particular topic – consolidates the <u>learning goals</u> for all levels of responsibility (individual, neighborhood, local government, state agency, federal agency), but adapts the <u>teaching methods</u> for each audience 	
<ul style="list-style-type: none"> Matches the target audience to the scale of the problem, e.g. training about a locally significant topic, vs training about how information about several related topics informs policy development 	
<ul style="list-style-type: none"> Offers avenues for participation which are competent, fair, and enhance involvement for all levels of responsibility 	

FOR FREE-CHOICE LEARNING

Describes the elements that contribute to and influence the interactions and experiences that people have when engaging in activities that they select themselves; such as when visiting a museum or zoo, reading, or satisfying their curiosity in other ways. These points are also incorporated in other sections of the assessment checklist, but are repeated here for emphasis and because much individual learning about natural resources takes place outside of an organized initiative.



The learning experience:	Your module
Personal Context Factors <ul style="list-style-type: none"> • <i>Motivation and expectations</i> – Fulfills the learner's expectations. • <i>Interest</i> – Provides objects and experiences that relate to the learner's prior experiences. (Motivates the person to pay attention, persist in a task, and satisfy their curiosity.) • <i>Prior knowledge and experience</i> – Makes the learning seem familiar and accessible. • <i>Choice and control</i> – Gives learners a choice over what, how, when and with whom they learn, so that learners feel in control of their own learning. 	
Sociocultural Context <ul style="list-style-type: none"> • <i>Within group sociocultural mediation</i> – Recognizes that humans learn and make meaning as part of social groups. The learning experience: <ul style="list-style-type: none"> ◦ Accesses group histories and communities of learners ◦ Builds social bonds by facilitating communication about shared experiences and knowledge. • <i>Facilitated mediation by others</i> – Recognizes people perceived to be knowledgeable within the culture. • <i>Culture</i> – Presents learning within a familiar cultural setting. 	
Physical Context <ul style="list-style-type: none"> • <i>Advance preparation</i> – Provides advance organizers and orientation for the experience. • <i>Setting</i> – Provides a comfortable setting including attention to the ambiance and feel of the place or situation. • <i>Design</i> – Capitalizes on objects in the real world (using a familiar object rather than a design to draw attention or emphasize a point). • <i>Subsequent reinforcing events and experiences</i> – Provides enabling contexts that occur in other places; weeks, months and often years later. 	



References

Essential Best Education Practices were primarily derived from the following resources. Some references summarize major ideas from multiple authors. We attempt to update any links on the National Extension Water Outreach Education website, <http://fyi.uwex.edu/wateroutreach/>

Water Outreach Web site resources:

Adult Education Principles, <http://fyi.uwex.edu/wateroutreach/water-outreach-education/what-are-beps/knowledge-area-beps-2/knowledge-area-beps-adult-education-principles/>

Youth Education Principles, <http://fyi.uwex.edu/wateroutreach/water-outreach-education/what-are-beps/knowledge-area-beps-2/knowledge-area-beps-youth-education-principles/>

Essential Best Education Practices, <http://fyi.uwex.edu/wateroutreach/water-outreach-education/what-are-beps/essential-beps/>

American Distance Education Consortium. ADEC Principles for Distance Teaching and Learning. Available at http://www.adec.edu/admin/papers/distance-teaching_principles.html

American Psychological Association Board of Educational Affairs. Learner-Centered Psychological Principles, as described at <http://www.apa.org/ed/lcp2/lcp14.html>

Anderson, L. W., & Krathwohl, D. R. 2001. A taxonomy for learning, teaching, and assessing. A revision of Bloom's taxonomy of educational objectives. New York: Longman.

Andrews, E., M. Smith, and G. Wise. 2002. The Community Based Environmental Education model (CBEE) documented in "A Model of Community-Based Environmental Education". Chapter 10 in *New Tools for Environmental Protection: Education, Information, and Voluntary Measures*. National Research Council Division of Behavior and Social Sciences and Education: Committee on the Committee on the Human Dimensions of Global Change, Thomas Dietz and Paul C. Stern, editors. National Academy Press.

Falk, J. and L. Dierking. 2002. Lessons without limit: how free-choice learning is transforming education. Walnut Creek, CA: AltaMira Press.

Fedler, A. 2001. Defining Best Practices in Boating, Fishing, and Stewardship Education. Report to the Recreational Boating and Fishing Foundation, Alexandria, VA. Available at www.rbff.org/educational/

Holsman, R. 2001. What Works . . . Documenting standard practices for aquatic resource education. A report to the U.S. Fish and Wildlife Service – Region 5, Federal Aid. Summarizes environmental education, outdoor education and fisheries education studies from over 130 authors.

Horton, R. L. and S. Hutchinson. 1997. The Learning Cycle (student-centered inquiry education developed from Piaget's learning theory and an extension of John Dewey's philosophy of education), as described in *Nurturing Scientific Literacy among Youth through Experientially Based Curriculum Materials*. Center for 4-H Youth Development, College of Food, Agricultural and Environmental Sciences. Columbus: The Ohio State University.

Monroe, M., E. Andrews, & K. Biedenweg. 2007. A Framework for Environmental Education Strategies. Applied Environmental Education and Communication, VOL 6, ISS 3–4.

Scott, W. and J. Fien. 1999. An evaluation of the contributions of educational programmes to conservation within the WWW network: Final Report. Unpublished report to the Worldwide fund for Nature, Gland, Switzerland.

Simmons, B. et al. 2000. Environmental education principles as described in *Guidelines for the Initial Preparation of Environmental Educators*. The North American Association for Environmental Education. Washington, D.C.

University of Tennessee, Office of Information Technology, Educational Technology Collaborative. Instructional Module components and evaluation. See example at <http://edtech.tennessee.edu/%7Eset4/default.html>

Planning models, such as the Logic Model, available from a variety of sources. This advice is based on a version used by the University of Wisconsin Cooperative Extension.

Guidelines for Selecting a Social Assessment Tool

A growing awareness of the connections between human behaviors and environmental degradation, especially non-point source pollution, tells us that there are nearly always social dimensions to environmental problems. If the behaviors of a particular group or neighborhood can be shown to contribute to or solve a particular environmental problem, then it follows that there is a social dimension to that problem.

Social assessment tools are techniques that social scientists and educators apply to learn more about the social dimensions of a particular community. The purpose in employing social assessment tools is to identify the characteristics of a community most closely related to its problem-causing behaviors. These social science tools can be used to learn more about the following broad characteristics of a community of interest:

- Attitudes, perceptions, and beliefs
- Economic conditions and trends
- Structure, organization, and how local decision-making processes work
- The use and means of accessing certain natural resources
- An overall sense of place both today and in the past
- Governmental structure



Photo courtesy of Robert Korth, UWEX

There are a variety of social assessment tools that can help you learn more about the communities with which you work. But which tools are helpful for what circumstances? The Changing Public Behavior Educator Self-Study Module, <http://fyi.uwex.edu/wateroutreach/changing-public-behavior/self-study-module/>, offers guidelines for selecting and using one of the following tools:

- | | |
|-------------------------------------------|---------------------------------|
| • Background Research | • Observations |
| • Census Data Research | • Participatory Action Research |
| • Delphi Method | • Facilitated Public Meetings |
| • Focus Groups | • Rapid Appraisal |
| • Informal Interviews with Key Informants | • Surveys |

There are many social marketing and social science principles and theories for changing public behavior. The tools described below are those we thought natural resource professionals would find the easiest to apply successfully.

Background Research

Reviews existing information about the social, economic, demographic, and historical aspects of a community that has been gathered by other individuals and/or agencies. Information can be found in either written or online form through local or regional institutions such as town halls, libraries, museums, and historical societies. (McDermaid & Barnstable, 2001)

Skills Recommended for Effective Use

Any experience in conducting library and/or internet research, and interpreting secondary data are helpful in effectively completing background research about a particular community.

Advantages of Using

- + Uses existing information that is mostly free to access. Web-based materials and search engines in particular are readily available.
- + Contributes towards documenting history and change within a community.
- + Many types of useful information can be obtained in this way.

Disadvantages of Using

- Information obtained may be incomplete, out-dated, inconclusive, and/or inaccurate.
- May be time consuming if information is hard to find and/or access



Tools and Resource(s) for Learning More

McDermaid, Karyn K. and Daniel C. Barnstable. 2001. *Step-by-Step Guide to Conducting a Social Profile for Watershed Planning*. Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign. pp.13-19: <http://www.watershedplanning.uiuc.edu/WatershedGuide.pdf>

NOAA Coastal Services Center and the National Marine Protected Area Center. Social Science for Marine Protected Areas Web site and PDF file. http://www.csc.noaa.gov/mpass/tools_secondarydata.html and <http://www.csc.noaa.gov/mpass/mpass.pdf>

University of Wisconsin Extension. Target Audience Research Database. <http://fyi.uwex.edu/wateroutreach/changing-public-behavior/target-audience-research/>

U.S. EPA Community, Culture, and the Environment: A Guide to Understanding a Sense of Place, 2002, (EPA 842-B-01-003), Office of Water, Washington, D.C. http://www.epa.gov/air/care/library/community_culture.pdf pg. 266

Census Data Research

Involves accessing existing demographic and economic data about a particular block, tract, mail code, county or state collected periodically by governments. This includes basic statistical information about race, gender, age, education, household, marriage, citizenship, length of residency, and employment patterns within the community. (McDermaid & Barnstable, 2001)

Skills Recommended for Effective Use

Any experience in accessing and interpreting census data (quantitative/statistical) is useful in conducting census data research.

Advantages of Using

- + Uses existing information that can be obtained for free either at public libraries or via the internet.
- + Contributes towards documenting history and change within a community.
- + Many types of useful information can be obtained in this way.

Disadvantages of Using

- Current census data may be outdated as it is only gathered once every ten years.
- It may also be incomplete, inconclusive, and/or inaccurate.
- Census data only counts residents who are documented, legal US citizens at the time of gathering information.



Tools and Resource(s) for Learning More

American FactFinder is a portal to Census Bureau data including the Decennial Census, the Economic Census, the American Community Survey, and the Population Estimates Program: <http://factfinder.census.gov>

To see all surveys conducted by the U.S. Census Bureau go to: <http://www.census.gov/main/www/surveys.html>

Agricultural Censuses—

- Query the Census of Agriculture:1987,1992,1997 at Cornell University: <http://agcensus.mannlib.cornell.edu>
- 1997, 2002, and 2007 Census of Agriculture: <http://www.agcensus.usda.gov/>

For more links to pre-existing information: <http://fyi.uwex.edu/wateroutreach/changing-public-behavior/self-study-module/619-2/iv-methodologies-and-technologies/iv-linking-to-pre-existing-information/>

Focus Groups

Focus groups are managed discussions on particular topics (as determined by a moderator) among a small group of people who have some characteristics in common as members of the community of interest or a subgroup within the larger community. Focus groups allow community participants to actively express their opinions on particular issues and in doing so promote community engagement and participation. Focus groups can be useful in building rapport and understanding between researchers and members of the community as well as building consensus within a group or providing insight into conflicting opinions and viewpoints. (Butler, Dephelps, & Hewell, 1995; NOAA Coastal Services Center)

Skills Recommended for Effective Use

Good facilitation and organization skills are required to organize and conduct an effective focus group event. The use of a skilled, moderator is sometimes recommended and can help to reduce biases that might arise as a result of a researcher's often unintended "alliance" with a particular faction of the community of interest.

Advantages of Using

- + Provide an in-depth understanding of individual/group experiences and perceptions on certain issues.
- + Good for cross-checking information obtained from other methods.
- + Flexible, produces a lot of information, and generally requires little time or financial resources.

- + Participatory in nature and helps build rapport between members of the community and the researcher/moderator.

Disadvantages of Using

- Can be time-consuming and expensive.
- May require the assistance of a skilled moderator.
- Only a small number (6-12) of individuals can be involved at any one time.
- Opinions expressed might be disruptive to relations in small communities or organizations.
- Some groups' cultural styles may not be suited to focus groups, which tend to be very frank and focused in nature.
- Opinions expressed in focus groups may not correspond to actual behaviors in everyday contexts.



Tools and Resource(s) for Learning More

Butler, Lorna M., Colette Dephelps, and Robert E. Hewell. Focus Groups: A Tool for Understanding Community Perceptions and Experiences. WREP128, Partnerships in Education and Research. <http://cru.cahe.wsu.edu/CEPublications/wrep0128/wrep0128.htm>

NOAA Coastal Services Center and the National Marine Protected Area Center. Social Science for Marine Protected Areas Web site and PDF file. http://www.csc.noaa.gov/mpass/tools_focusgroups.html and <http://www.csc.noaa.gov/mpass/mpass.pdf>

Taylor-Powell, Ellen. (2002) Program Development and Evaluation, Focus Group Interviews, Quick Tips #5, University of Wisconsin-Extension, Madison, WI. <http://www.uwex.edu/ces/pdande/resources/pdf/Tipsheet5.pdf>

Thompson, Molly & Elaine Andrews. (2000). USGS Focus Group Manual. Increasing Effectiveness of Regional Earth Science Education with Help from a Focus Group. University of Wisconsin - Environmental Resources Center. <http://www.uwex.edu/erc/usgs1.html>

Wilbur, Jack. 2006. Getting Your Feet Wet with Social Marketing. A Social Marketing Guide for Watershed Programs. Utah Department of Agriculture and Food, Salt Lake City, Utah, pp. 46-49. <http://ag.utah.gov/conservation/GettingYourFeetWet1.pdf>

Informal Interviews with Key-Informants

One-on-one dialogues with individual community members who are able to provide detailed insider's information and opinions about certain topics. While resembling a natural dialogue, the interview is mostly a one-way conversation in which informants do the talking and the researcher listens, taking notes by hand and/or using a recording device (with permission). (NOAA Coastal Services Center)

Skills Recommended for Effective Use

Good listening and note-taking skills are helpful in conducting informal interviews with key-informants.

Advantages of Using

- + An inexpensive and convenient method of obtaining detailed and useful information about individual's experiences and perceptions in a relatively short amount of time.
- + Helps in establishing rapport with individual community members.

Disadvantages of Using

- Can be time-consuming to interview large numbers of individuals.
- Can also be time-consuming and/or expensive to transcribe recordings of interviews, if required.



Tools and Resource(s) for Learning More

NOAA Coastal Services Center and the National Marine Protected Area Center. Social Science for Marine Protected Areas Web site and PDF file. http://www.csc.noaa.gov/mpass/tools_focusgroups.html and <http://www.csc.noaa.gov/mpass/mpass.pdf>

University of Illinois Extension Service-Office of Program Planning and Assessment. Needs Assessment Techniques: Using Key Informant Interviews. http://ppa.aces.uiuc.edu/pdf_files/Informant1.PDF (key-informants)

Taylor-Powell, Ellen and Linda Camino. (2006) Program Development and Evaluation, Probing Questions in Interviews, Quick Tips #34, University of Wisconsin-Extension, Madison, WI.
<http://www.uwex.edu/ces/pdande/resources/pdf/Tipsheet34.pdf>

Observations

An information-gathering technique based on the researcher's personal observations and recordings of everyday social activities and behaviors within a particular community. This method sometimes requires the researcher to actively participate in the activity being observed. Participant-observation allows for the gathering of information about a community from more of an "insider's" perspective. (NOAA Coastal Services Center)

Skills Recommended for Effective Use

Minimal expertise is required to conduct basic observation-oriented research. More systematic observations-oriented research, however, may require a researcher with heightened observational skills as well as good descriptive writing (note taking) abilities.

Advantages of Using

- + A potentially unobtrusive method of learning more about a community's behaviors and characteristics in different settings.
- + The actual behaviors of community members as they occur in everyday contexts can be observed and compared/contrasted to their perceptions as expressed via interviews and/or focus groups.

Disadvantages of Using

- Time consuming.
- Not all behaviors of community members can be observed.
- It is possible to misinterpret the reasons or motivations for why people act in certain ways.
- The presence of the researcher may influence the behaviors of community members.



Tools and Resource(s) for Learning More

NOAA Coastal Services Center and the National Marine Protected Area Center. Social Science for Marine Protected Areas Web site and PDF file. http://www.csc.noaa.gov/mpass/tools_focusgroups.html and <http://www.csc.noaa.gov/mpass/mpass.pdf>

Rapid Appraisal

Rapid appraisal entails a timely and intensive approach towards learning about the characteristics of a particular community. It generally involves both outside experts and insider community members as direct collaborators in the research process and emphasizes the collection of qualitative as opposed to quantitative data. Rapid appraisal relies on researcher control (observing, writing, analyzing) but engages community members through a variety of techniques such as social mapping, asset mapping, and visual methods. Examples include Informal Agricultural Survey, Exploratory, Survey, Sondeo, Agro-ecosystem Analysis, and Rapid Agro-ecosystem Zoning (Mukherjee, 2003). (Butler, 1995; NOAA Coastal Services Center)

Conducting a rapid appraisal may require expert assistance for design, data collection, and analysis depending on the complexity and level of analysis desired. When available, however, rapid appraisals can be conducted entirely with the help and active participation of outside experts and members from the community of interest.

Advantages of Using

- + Generates insights and information rarely obtained in a formal survey in a relatively short time period (Generally requires between one to six weeks time).
- + Can be cost efficient, timely, locally relevant, accurate in “telling it like it is” and useful in responding to people’s perceptions and concerns.
- + Effective in addressing outsider biases in assessing communities.
- + Encourages community participation in identifying problems as well as the planning, implementation, monitoring, and evaluations of a particular program.

Disadvantages of Using

- The principal challenge for rapid appraisals is to achieve accuracy and reliability in findings given limited time factors.
- A clear understanding of the problem(s) is also required prior to conducting a SONDEO if it is to be done in an efficient and effective manner that generates relevant information.
- Provides a good “sense” of a particular situation, however, with limited ability to generalize beyond the community members directly involved and interviewed in the research process.



Tools and Resource(s) for Learning More

Butler, Lorna M. *The "Sondeo" A Rapid Reconnaissance Approach for Situational Assessment*. WREP127, Partnership in Education and Research.
<http://cru.cahe.wsu.edu/CEPublications/wrep0127/wrep0127.html>

NOAA Coastal Services Center and the National Marine Protected Area Center. Social Science for Marine Protected Areas Web site and PDF file. http://www.csc.noaa.gov/mpass/tools_focusgroups.html and <http://www.csc.noaa.gov/mpass/mpass.pdf>

U.S. EPA. (2002). *Community, Culture, and the Environment: A Guide to Understanding a Sense of Place*, (EPA 842-B-01-003), Office of Water, Washington, D.C. (The Tool Kit, pp. 41-211; Defining Community, pp. 56-57). Available online in PDF format at: http://www.epa.gov/air/care/library/community_culture.pdf

Surveys

Surveys are lists of questions deemed relevant to a particular research aim that are administered to members of a community of interest via either mail, telephone, the internet, e-mail, or a combination of all four. Surveys administered via the internet and/or e-mail, however, tend to be the least expensive to employ. There are a large

number of companies that provide software for developing, administering, and evaluating surveys entirely online. (Andranovich & Howell; Taylor-Powell, Ellen. 2002)

Skills Recommended for Effective Use

The greatest challenges in conducting surveys involve 1) asking the right questions and 2) getting community members to invest their time and energy into thoughtfully completing and returning the survey(s). One effective way of generating useful and relevant questions, as well as building community buy-in entails sharing the results of an initial survey with members of the community through 1) pre-existing local communication networks, 2) the staging of public meetings, and/or 3) holding more specific focus group(s). Feedback gained in the contexts of a public meeting or focus group can be used in turn to develop more appropriate and relevant questions in additional surveys as required. Last, technical assistance from an individual skilled in designing, conducting, and analyzing surveys is often recommended.

Advantages of Using

- + Can provide a certain degree of understanding of individual/group experiences and perceptions within a community.
- + Useful for moderate to large populations and for collecting representative data.
- + Has widespread credibility among professional agencies and organizations.
- + A large number of companies now provide software and support for developing, administering, and evaluating surveys entirely online.

Disadvantages of Using

- Moderately time-consuming and expensive.
- It can be difficult to figure out the most effective and relevant questions to include in a survey.
- It can also be difficult to motivate community members to complete surveys.
- Technical assistance may be required.
- Surveys are sometimes perceived of as impersonal and tedious on the part of community members.



Tools and Resource(s) for Learning More

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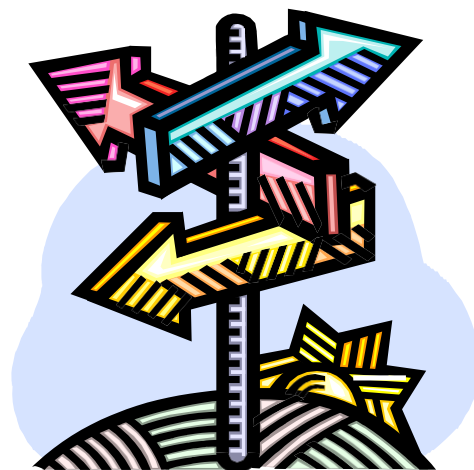
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Selecting Intervention Techniques: A Continuum of Choices

A choice of outreach technique is made midway in the process of planning an outreach initiative. It comes after you've selected a specific behavior goal, and before you implement the outreach initiative. Once you've selected one or more techniques, it's a good idea to pilot test them with a smaller group of your intended audience. After you implement the outreach initiative, you monitor results, evaluate outcomes, and modify your outreach plan as needed.

Short or Long-Term Change

Deciding whether to focus on a short-term, specific-behavior change or something more permanent requires that you consider *how people learn and change* as you think about what you want to do. There is no one right answer, but a continuum of choices. Outreach or education techniques can be grouped according to where they fit in a continuum of how people learn and change (Figure 1)¹.



The continuum in Figure 1 diagrams a contrast between a *content* emphasis and a *process* emphasis. Learning theory suggests that a *process* emphasis is more effective than a *content* emphasis in the long term, but sometimes content is what's missing. Another way to look at the continuum is to decide who will be in charge. Will the outreach intervention or its sub-activities be *controlled by a leader* or *managed by participants*? Either is appropriate depending on what you need to do, but a learner-centered/ participant-managed approach is more likely to lead to a sustainable change.

Who's in charge?

To build motivation and skills among your audience, you can also select an intervention technique by considering how it contributes to *stages of empowerment*. Does it matter if your audience participates in a process and if so at what level – consultative, collaborative, or full responsibility? The more engaged your audience is, the more likely the activity will lead to a sustainable result. Each level of empowerment can address one or more purposes as suggested by the subtopics in the continuum in Figure 1.

Using the continuum for planning

Keep in mind that the significance of each category in the continuum is somewhat flexible. The choice of content could be determined by a participant-managed group, for example. Or the leader in a leader-centered approach could be one of the participants. Before selecting one or more techniques, clarify your outreach goal in terms of its potential impact on your target audience and related individuals. Then use the continuum to check your selection of one or more outreach techniques to consider how they will help achieve your proposed short and long term goals.

The continuum should be used only to help inform the selection of an outreach technique. Information about the audience combined with expert and participant advice serve as the primary foundation for outreach planning.

¹ Adapted from several resources including: the National Extension Water Outreach Web site, Background: Outreach techniques for facilitating individual change, <http://fyi.uwex.edu/wateroutreach/changing-public-behavior/changing-public-behavior-basics/background-outreach-techniques-for-facilitating-individual-change/>; Arnstein, S. R. 1969. A Ladder of Citizen Participation. JAIP 35:4, pp 216-224; Gonsalves, J., T. Becker, A. Braun, D. Campilan, H. De Chavez, E. Fajber, M. Kipiriri, J. Rivaca-Caminade & R. Vernooy (eds). 2005. Participatory Research and Development for Sustainable Agriculture and Natural Resource Management: A Sourcebook. Volume 1: Understanding Participatory Research and Development. International Potato Center-Users' Perspectives With Agricultural Research and Development, Laguna, Philippines and International Development Research Centre, Ottawa, Canada; Monroe, M., E. Andrews, K. Biedenweg. 2007? (approved for publication). *A Framework for Environmental Education Strategies*. Applied Environmental Education and Communication.

Figure 1. From informing to transforming: An outreach continuum