

The Gap Guide: A Resource for Educators Working with Industry



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ABOUT THE AUTHOR

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ABOUT BATEC

The Boston Area Advanced Technological Education Connections (BATEC) is a National Science Foundation Regional Center for Information Technology working to transform education in order to develop the new IT professional for the 21st century. BATEC is focused on the following goals:

- Developing curriculum that is regionally connected, advanced in content and pedagogy and industry-linked;
- Providing professional development experiences for educators so they can deliver relevant, standards-based programs of instruction that model the reality of the workplace;
- Attracting and advancing a diverse population of technology students who can effectively meet the challenges of emerging technologies and changing economies;
- Connecting education, industry and community to promote mutually beneficial partnerships that support career development, lifelong learning and regional economic growth.

BATEC is a partnership that connects the University of Massachusetts Boston, Bunker Hill Community College, Middlesex Community College, Roxbury Community College, Northern Essex Community College, Bristol Community College, Quinsigamond Community College, TechBoston and K-12 districts of Cambridge, Chelsea, Everett, Medford, Newton, Northeast Metropolitan, Revere, Somerville, Watertown, And Winthrop In The Boston Rim; Bedford, Billerica, Chelmsford, Lowell, Greater Lawrence, Greater Lowell, Nashoba Valley, Shawsheen Valley And Whittier In The Merrimack Valley; Attleboro, Bristol County, Bristol-Plymouth, Dighton-Rehoboth, Diman, Durfee, Greater New Bedford, New Bedford, Old Colony, Somerset, And Taunton In Bristol County; and Worcester. These institutions have made a commitment to build capacity through recruitment and outreach for high school students and adult learners with a special focus on women and ethnic minorities. BATEC is laying a foundation to establish a solid outreach pathway with the support of many stakeholders including the Technology Industry, Workforce Development Centers, High School and College Educators, College Admissions, Financial Aid, Advising, and Career Services staff.

For more information about BATEC, please visit: <http://www.batec.org>.

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I. OVERVIEW

A. Purpose & Intended Audience

This guide is designed as a practical resource and planning tool for educators embarking on the development of a *Gap Analysis* and *Action Planning* event conducted with industry partners. A *Gap Analysis* is a discussion of a matrix that identifies matches and gaps between curriculum and what industry has identified as the knowledge, skills and abilities that workers need in order to be successful in a given profession. Often the biggest gap is in the area of employability, or foundation skills. Once a gap analysis has been completed, it is often a good idea to define specific ways to bridge identified gaps with an *Action Plan*. This guide features detailed information on how to structure, plan and measure the outcomes of such an event involving industry and education partners who jointly endeavor to invigorate curricular with valuable industry insight.

B. How to Use This Guide

While it is not necessary to read this guide in a linear way, it may be helpful to go directly to the specific resources, templates, and tools provided in each of the sections as identified in the Table of Contents. It should be noted that the guide is divided into six major sections as detailed below:

Section I: Overview provides background information about the goals of the Boston Area Advanced Technological Education Connections (BATEC), a National Science Foundation Regional Center for Information Technology.

Section II: Collaborating with Industry offers general tips and advice on how to best approach and work with industry partners.

Section III: Planning and Preparation presents practical guidance, tips, and planning tools used to organize a full day of activities between industry and education partners seeking to conduct a *Gap Analysis* and *Action Planning* event. Sample time-lines, checklists, agendas and a letter to industry can be found here.

Section IV: Gap Analysis and Action Planning contains examples and forms useful to both industry partners and educators. Sample scripts and associated templates used to conduct *Gap Analysis* and *Action Planning* activity can be found here.

Section V: Evaluation: Feedback and Follow up highlights data collection processes and procedures useful to the evaluation of program and activity

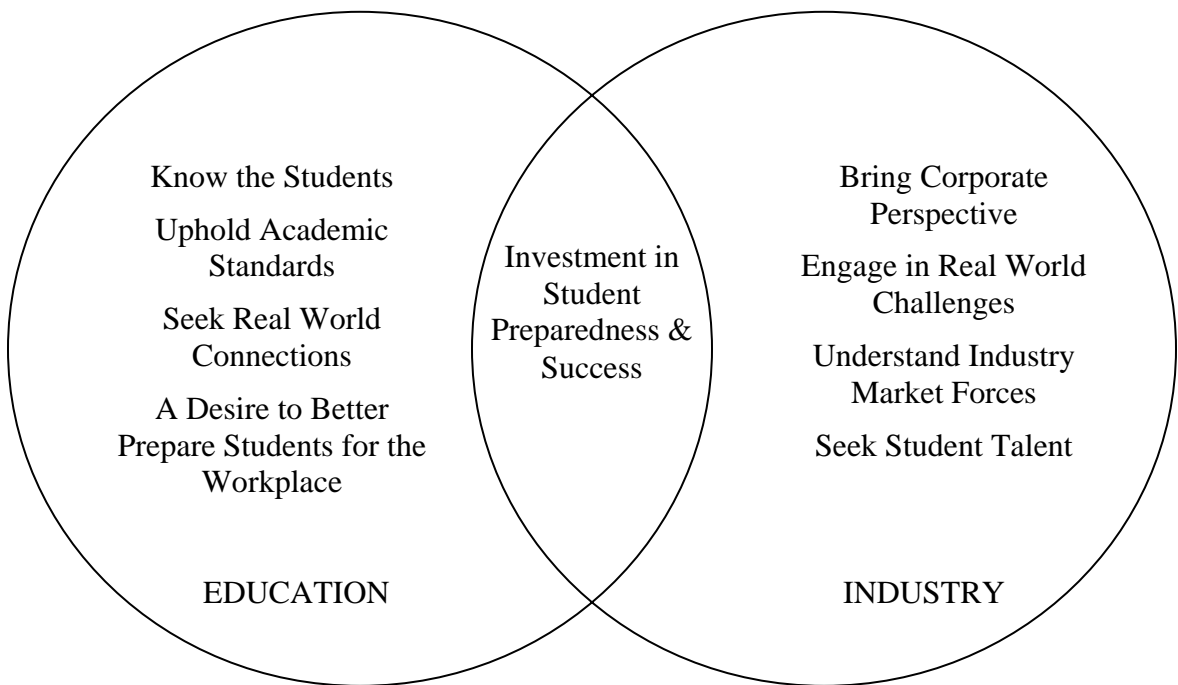
outcomes. *Sample Surveys* and a *Gap Analysis Report* area featured. Suggestions are offered for the dissemination of these reports to stakeholders.

Section VI: References and Resources provides additional, useful resources, including an *Event Day Review Sheet* and proven *Facilitation Techniques*.

II. COLLABORATING WITH INDUSTRY

A. Establishing Mutual Goals

An essential part of any collaborative activity and partnership is the establishment of a shared vision, mission, and mutual goals. Leading research into successful partnerships involving industry and education partners suggests that “prospective collaborators must recognize the existence of a community need or opportunity that calls for collective action (such as rising unemployment rates or the entrance of new businesses into the local economy).” (Spangler, 2002; Sundberg, 2002).



- Education & Industry Partners Can Work Together to:**
- * Establish Common Goals by Outlining Mutual Needs and Benefits (Win-Win)
 - * Develop a Process for Knowledge and Information Sharing
 - * Share Subject-Matter Knowledge, as well as Tools & Metrics
 - * Define Student Success in Both Arenas
 - * Understand Gaps & Work to Bridge Them
 - * Identity & Celebrate Success

B. Communication Strategies and Tools

It is commonly known that educators and industry professionals do not always speak the same language, even after mutual goals and means are established. From classroom to boardroom, differences in administrative styles, vernacular and jargon can inhibit productive conversations. It is important to note that such partnerships are relationships that take time and resources to sustain them. Here are a few tips for entering into the initial partnership phase:

Tips for Educators:

- Business meetings are usually focused around a specific agenda with a clearly identified topic and goal; do not organize meetings with industry professionals on an *ad hoc* basis. Plan ahead and stay focused.
- Business professionals do not have time to read long-winded emails or letters; keep communication short and direct. Bulleted lists are often best. It is a good idea to ask your industry partners for their preferred method(s) of communication.
- Conversations with business partners should be time bound; try to stick to agreed upon starting and ending times for meetings. Pre-plan timing of agenda items and try to adhere to those times as much as possible. If it looks like the participants are engaged in a topic, adjust times as needed. On the other hand, if there is a topic that is not generating conversation, re-introduce it or move on.
- Take advantage of the tools for the trade; industry professionals often have access to state-of-the art communication systems and devices that may reduce meeting time and space (MS SharePoint, WebEX, video conferencing, etc...).

Industry Partners Should Keep in Mind:

- Understand that change often happens at a much slower pace in academia; administrative red tape, decisions made by committee, and union issues are realities of academic work life.
- Educators may be circuitous in their conversation styles and requests; when in doubt, ask for clarity and next steps. Help them to understand your world of deadlines and continuous feedback. If appropriate, offer to co-chair a committee.
- Keep the lines of communication open and do not hesitate to follow-up with your partners in academia.
- Bring innovation to the table; educators are often not aware of current and emerging market forces and can always benefit from up-to-the-minute knowledge and information.
- View the partnership as an ongoing process of discovery; it does take time and the rewards are many for joint efforts!

Working Together:

- Acknowledge differences in administrative and communication styles; suggest ways to bridge differences over time.
- Share leadership roles on committees.
- Distribute action items and timelines.
- Evaluate results and impact, modifying plans as needed.
- Practice patience; it takes time to work out differences and come to agreement.

III. PLANNING & PREPARATION

A. Setting Goals and Outcomes

If this is your first go at conducting a *Gap Analysis* session with industry, you may wish to poll your partners about their interests and needs. This is where a series of open conversations, surveys, or focus groups can be beneficial. Do not assume that your industry and education partners are on the same page. Take these factors into consideration during the early planning phase of your event:

- **Set Joint Goals and Outcomes for the Event:**
 - What is the overall goal for the event?
 - What specific activities will you need to achieve the goals?
 - What expectations will you set for industry? For educators? For others?
 - What specific outcomes do you wish to achieve from the activity?
 - How will you know that the activity and event is successful?
 - What evidence or data do you need to gather by the end of the day?

- **Define the Target Audience:**
 - What common goals and interests will the audience members share?
 - Will there be a balance between industry representatives and educators in each session or room? Will individual differences bring synergy as well as counterpoint?
 - How many people will attend the activity and event in total? How many in smaller groups and breakout sessions? Is there an ideal number for collaboration and interaction?
 - Given their level of interest, will the session topics engage audience members? Are the topics appropriate to all or only a few?

- **Outreach and Follow up**
 - Given your target audience, how will you reach out and recruit participants to attend the event? Web, email, word-of-mouth, posters, brochures, etc...?
 - How will you disseminate and use the results from the activity and event?

B. Planning the Event

Hosting a successful *Gap Analysis* activity can take months to plan as there are many logistical details of an event to attend to. These may include finding an appropriate space, organizing an agenda, preparing and scheduling speakers, establishing a registration method, marketing the event to participants, booking hotel rooms for out-of-town speakers (if needed), catering plans, collecting gifts for speakers and/or participants, arranging AV equipment, arranging for pictures and video recordings of the event, creating nametags and/or tent cards for participants, confirming the final agenda and directions to the venue to participants and speakers, and confirming details with all other support personnel. Below is a list of event planning tasks in the time frame that BATEC followed during their first *Gap Analysis* and *Action Planning* event:

Time Before the Event	Task
1. 3-6 months	Find a venue
2. 3-6 months	Develop a working agenda
3. 3-6 months	Invite industry speakers (use working agenda)
4. 3 months	Begin marketing your event (continue until event day)
5. 3 months	Order specialized (logo) gifts or 'giveaways'
6. 3 months	Distribute session guidelines to industry speakers
7. 3 months	Recruit session facilitators
8. 2 months	Reserve hotel rooms for speakers
9. 1 month	Find a caterer
10. 1 month	Hire a photographer/videographer
11. 1 month	Confirm industry speaker participation and preparation
12. 1 month	Provide training materials to facilitators
13. 2 weeks	Compile all materials for dissemination to photocopy
14. 1 week	Call the caterer with a final guest count
15. 1 week	Create name tags and/or tent cards
16. 1 week	Send final confirmation email to participants and speakers
17. 1 week	Confirm all details about the event with support personnel
18. 1 week	Meet with facilitators to review final agenda
19. 1 week	Contact industry speakers to review final agenda

Finding a Venue

Once the goals and objectives for the event have been established, the next order of business is to find an appropriate space to hold your event. When looking for a space, several things need to be considered:

- What is the capacity of the space?
- Can you hold the venue for two separate dates? (One can serve as a back up weather-related date).
- Will participants be able to reach the venue easily?
- What are the catering services – in-house or outside?
- What are the AV capabilities and availability of technical assistance?
- Is parking available for participants? Is there a cost associated with it?
- Is there wireless access? Can participants access it?
- If the venue is located at an industry partner's facilities, are there any restrictions to participants; i.e., foreign nationals; Will participants from a competitive company be welcomed?
- What charges might be associated with the space?

C. Developing a Working Agenda

When these questions have been asked and a space is obtained, a “working agenda” should be drafted. It is called a working agenda because it will need to be shared with all partners and stakeholders involved in the planning process. The following is a sample working agenda BATEC used for their first annual Industry Summit, where over 80 participants worked together to complete *Gap Analysis* and *Action Planning* activity at Raytheon's Global Headquarters in Waltham, MA. **The agenda went through at least three revisions before it was finalized with all stakeholders.**

Agenda

Time	Activity	Speaker/Facilitator	Location
8:00 – 8:30	Continental Breakfast		Amphitheater (rear)
8:30 – 8:40	Welcome & Review of Day's Purpose & Agenda	Director/Convener	Amphitheater
8:40 – 9:00	Presentations: New Programs with Business	Various Educators	Amphitheater
9:00 – 9:45	Keynote/Call to Action	Industry Rep	Amphitheater
10:00 – 12:00	Discussion of Industry Trends and Gap Analysis: Industry & Educators Identify Skill Gaps	<i>Office Technologies</i> <i>Database</i> <i>Web Services</i> <i>Networking</i> <i>Programming</i> <i>Advisory Board</i> (All breakouts included educators and business representatives.)	Breakout Rooms
12:00 – 1:00	Lunch & Networking		Amphitheater
1:00 – 2:30	Action Planning: Educator small groups	Facilitators	Breakout Rooms
2:30 – 3:00	Report out to larger group	Curriculum Director	Amphitheater

D. Asking for Industry Participation

Industry partners should understand their level of commitment and engagement in the activities you have planned. As stated earlier, you'll need to garner their interest well in advance of the actual event. You will also need to prepare your industry partners to contribute at a high level as guest speakers and spokespeople for their company and industry. **Here's a sample industry "ask" letter.**

Dear Industry Representative:

We are seeking your assistance in an important event we are holding with industry and educational partners on **(date)**, at (location) in (city, state). On this day we would like to bring both industry and education partners to the table for a discussion of the knowledge, skills and abilities industry representatives are seeking in workers and what is currently being taught in academic classrooms. We call this activity a *Gap Analysis*, and we hope to secure your participation in this exciting day.

This collaborative event will allow participants dedicated time to talk about industry trends, analyze skill gaps, identify solutions and build action plans. Please consider participating **as an industry expert** during the morning sessions held **on (date), from (time) am – (time) pm**. We also invite you to stay for the afternoon to participate if your schedule allows. Breakfast and lunch will be provided. Directions, parking and additional details will be sent to you prior to the event.

We hope that you will lend your important perspective and voice to our discussions, and we will be happy to tell you more about how you can contribute to this endeavor. If you have any questions, please do not hesitate to call BATEC's Curriculum Director at XXX-XXXX.

Sincerely,

Joyce LaTulippe
BATEC Curriculum Director

E. Guidelines for Industry Participation

Once you have secured initial interest from industry partners, you may wish to provide them with more specific information and details about the day and what their role will be in it. Sending your industry partners the working agenda (see pp.16) is often a good idea. Scheduling a face-to-face meeting or telephone call is highly recommended, as this effort will go a long way in showing your industry partners how much you value their input. **Below, you'll find the detailed directives for industry participation in the Gap Analysis activity and discussion. These directives should be reviewed in person if possible.**

What to Bring to the Gap Analysis Discussion

- ***A current entry-level job description*** for candidates applying to your company within a specific IT area (if the description has information about knowledge and skills required, then it will be more useful to educators than something that is generalized or vague).
- ***A brief description of a typical problem/scenario the candidate may need to troubleshoot*** or otherwise solve while serving in the described position. This can be authentic or based on something real. The problem/scenario does not need to be more than a page in length.
- ***A description or idea of the kinds of positions and people you and/or your company may be looking for in the future*** – a few years from now. Consider the knowledge and skills you think will be needed and how these may differ from what you are seeking in a candidate today. This can be your best guess or something you have discussed “in-house” and does not need to be more than a page in length.

Session Logistics

You will be working with a small group of educators who teach courses within a specific IT content area (office technology specialist, databases, networking, programming, web development, etc...). Participating educators may come from local high schools, community or four-year colleges and universities. Your discussion will be an informal one, and it is intended to be informational to educators who are developing and refining their IT courses. A BATEC-trained Facilitator¹ will be assigned to manage the room. He/she will assist in handing out materials, taking notes and helping to push the discussion along. Discussions will be held on topics outlined below:

Entry-Level Job Discussion:

- *Informal discussion of a job description(s) you have provided for the small group. The focus will be on the specific knowledge and skills you would hope an entry-level person in the position would have.*

¹ Facilitation Techniques are on pp. 45.

- *Highlight the knowledge and skills you think are most important to the job and the employee's performance on the job.*
- *Address any questions the group may have about the job description, employee performance or industry trends.*

Problem/Scenario Discussion

- *Informally discuss a typical problem/scenario that an entry-level worker at your company may encounter on the job.*
- *Elaborate on the kinds of problems and situations a new hire would typically tackle. Highlight any specific skills required to solve the issue or problem at hand.*
- *Address any questions the group may have about the problem/scenario.*

End of Session Summary

- *BATEC-trained Facilitators² will clarify, cluster and highlight main points discussed as well as any outstanding questions and issues uncovered in the discussions. It is the Facilitator's responsibility to take notes during and after the discussions. Notes will be posted on a white board or flip chart for all participants to read and review.*

² Facilitation Techniques are on pp. 45.

IV. GAP ANALYSIS & ACTION PLANNING

The following sections of this guide offer sample scripts and templates to conduct a *Gap Analysis* as well as *Action Planning* sessions between industry and education partners. These scripts should be given to room Facilitators several weeks in advance of the event. The scripts can also be shared with guest speakers from industry.

A. Sample Session: Gap Analysis

Your Role as Facilitator...³

As an elected Facilitator, you are to:

- *Organize and manage room logistics (handouts, PowerPoints, etc...)*
- *Make introductions*
- *Explain the process*
- *Keep discussions positive and on topic*
- *Record discussions or elect someone to do so for you (flip chart or white board)*
- *Probe/Clarify/Paraphrase/Summarize/Advocate*
- *Ensure that outcomes are met for the session*
- *Follow up with attendees*

What You Will Do...

As a Facilitator for the Gap Analysis discussion and Action Planning activities, you have been assigned to a specific career cluster and room. You will assist the industry representatives and educators in working together to define the gaps between the knowledge and skills valued by industry and what is currently being taught in classrooms. You will also serve as the room facilitator. You are ultimately responsible for the completion of the **Gap Analysis** and **Action Planning** documentation⁴ as evidence of the individual and collective group process.*

Materials

- *Flip chart and colored pens*
- *Gap Analysis template in MS Word (handouts)*
- *Copy of entry-level job description (handouts or projected)*
- *Copy of scenario/problem (handouts or projected)*
- *Copy of Soft Skills/Employability Skills defined by the Department of Labor and NWCET (handouts)*
- *Copy of NWCET within your IT Career Cluster*

³ Facilitation Techniques are on pp. 45.

⁴ Gap Analysis Forms are on pp. 26.

- Copies of NWCET's Project and Task Management Skills (handout)
- Copies of NWCET's Problem-Solving/Troubleshooting Skills (handout)

It is important to note that not all group members/participants may be familiar with the materials provided by the Department of Labor or the NWCET. If you find it is helpful, you can review the structure and content of these resource materials with your group.

Sample Outline for Gap Analysis: 10:00 – 12:00

10:00 – 10:15: Introductions & Group Directions

- Have the facilitator go around the room and ask participants to provide a little information about where they work and/or what they teach.
- Identify a note keeper or scribe for the session. You may also record the session if you have AV access.
- Pass out a sign in sheet along with the *Gap Analysis* forms. Let participants know that this will be a working session. Tell participants that they will first hear from several industry representatives who will talk about interesting industry trends and the specific knowledge and skills that they are seeking in entry-level workers. Industry representatives will also provide specific examples of the kinds of problems entry-level workers may troubleshoot on the job.
- State the definition and purpose of a **Gap Analysis**:

A gap analysis is a discussion of a matrix that identifies matches and gaps between your curriculum (what you are teaching) and what industry has identified as the knowledge, skills and abilities workers need to be successful in a given profession. Often the biggest gap is in the area of employability, or foundation skills.

After you've determined which skills and knowledge your curriculum addresses and you've interviewed representative industries to learn which skills and knowledge they require, you need to identify the gaps and matches between the two skill sets. You need to develop a Gap Analysis. This is a critical step towards developing a skills-aligned curriculum.

10:15 – 10:45: Discussion of Industry Trends

- Have the facilitator ask each industry speaker to share their own education, training and any other background information about them that may be useful to others in the session. For example, it would be useful to know how they entered their chosen field.
- Allow each industry speakers time to discuss interesting trends they have noted at their place of employment.

- Have a person write down main points taken from the industry speakers on a flipchart. Make sure that your elected note taker or scribe is doing the same. Speakers may also wish to distribute handouts or brochures.

10:45 – 12:00: Gap Analysis

- Have the facilitator ask the group members to highlight the important points or “takeaways” of the talk they heard earlier. What was surprising? What issues or themes were repeated? What issues or items needed more clarification?
- Move the discussion to the specific job descriptions and problem scenarios that industry speakers have provided. These can be handed out in hard copies or projected for all to view. Allow the industry representatives to explain the job descriptions in as much detail as needed. Encourage questions from the group of educators.
- On the flip chart provided, write down any thoughts, ideas, words or phrases that seem to be commonly heard or understood. Note any special terminology used and try to clarify its usage. Note anything that needs more clarification from the industry representative(s). Cluster, summarize and paraphrase as you go. Check for group understanding and, if possible, try to build a consensus.
- Distribute the Department of Labor/SCANS Competencies (if this is not posted on the wall). Hand out the Department of Labor and NWCET Skill Standards for Project Management & Problem-solving. Make sure that everyone has a **Gap Analysis** template.
- Ask the members of the group to discuss what they teach, what they heard from the industry representative(s), and then identify the gaps between what they teach to students and what industry said. Each member should list the gaps on the **Gap Analysis** form provided before sharing their ideas and forms with the larger group.
- Share responses on the **Gap Analysis** forms.
- Ask members to work together to highlight the most important issues or items on their **Gap Analysis** forms. You may wish to use the flip chart.
- Collect the **Gap Analysis** forms from each member (you will later summarize responses from these in a brief report).

B. Sample Session: Action Planning

Sample Outline for Action Planning: 1:00 – 2:30

It is important to note that some of your industry representatives may not have time to attend this second session. Your detailed notes from the earlier session will be most useful.

1:00 – 1:15: Action Planning

- Elect a note keeper or scribe for the session. You may also record the session if you have AV access.
- Pass out a sign in sheet along with the *Action Planning* forms. Let participants know that this will be a working session.
- Briefly explain the merits and purpose of an **Action Plan** as it is an important second step in conducting a successful **Gap Analysis**:
 - *It provides direction and focus to the work with others;*
 - *It provides a framework to analyze strengths and weaknesses of initiatives, thereby suggesting the most powerful strategy to create change;*
 - *It outlines the best use of precious resources of time, money and people;*
 - *It provides an accountability mechanism and let's everyone know how their work contributes to the whole;*
 - *It helps those who are participating to understand how decisions are made and their role and impact.*

1:15 – 2:00: Chart it Out

- Using the flip chart or **Action Plan** forms, create a list of action items for the group members. You may wish to use the **SMART** technique to guide participants in filling out the chart with action items and tasks:
 - **Specific**
 - **Measurable**
 - **Achievable**
 - **Realistic**
 - **Time bound**
- Summarize initiatives and understandings from the group. Conduct a “part for whole” discussion: What do group members agree to do individually? What do they agree to do collectively?

2:00 – 2:30: Summarize and Follow Through

- Elect a group representative and speaker to present a brief summary of the action items members have agreed to pursue as a group. It may be necessary to rehearse this a bit!

- Let the group know that you will be contacting them with information from the session, and you will establish an on-line group (Yahoo!, Blogger, Google, MS SharePoint) to continue discussions.
- Collect the notes from the flip chart or board.
- Thank the group for agreeing to action the items on the chart, and for taking the time to work with each other and the industry representatives.

Gap Analysis Feedback

Facilitators should work in conjunction with a scribe or assistant to capture data and information during sessions such as a **Gap Analysis** or other activity conducted between industry and education partners. See pp. 35 for a **sample Gap Analysis Report** of BATEC's *Gap Analysis and Action Planning* Activities.

Information that will be useful in determining if the goals and outcomes of the session are complete may include:

- **General information on session attendees** (age, race and gender, etc...)
- **Occupation & Skills** (job title/role, educational background, professional affiliations, etc...)
- **Contact information** for session attendees (email is useful for follow up information and action planning)
- **Reason for attending the session:** What they hope to learn, do or achieve.
- **Session Summary:** What did the group discover together/What findings were significant, interesting, surprising?

Action Planning Feedback

Action Plans hold session attendees accountable for time and energy well spent. A detailed Action Plan contains the following:

- **Detailed actions and activities** that can be measured or observed.
- **Realistic timelines** that can be agreed upon, communicated and met by all involved.
- **Resources** (people) who are willing to carry out the actions and activities over time.
- **Results** that can be reported or observed by a specific time.

D. Action Planning Template

Topic	Action	Target / Measure	Timescale / Deadline	Responsibility	Actual result achieved / Date

V. EVALUATION: FEEDBACK AND FOLLOW UP

A. Gathering Survey Data

Conducting surveys and polls pre- and post workshops and events can go a long way in securing relevant and authentic feedback in relation to the utility and relative success of a *Gap Analysis* and *Action Planning* event. Educational consultants Dan Jaffee and Joyce LaTulippe have compiled some general tips for **Designing Great Surveys**:

- **Use a mix of question types.** You might love to ask open-ended questions, but how do you tally it all up? Use true-false, yes-no, multiple choice, or rating (e.g. on a scale of 1 to 5) items. It's good to use a mix of question types in order to get a well-rounded view of the issue(s) and responses. Both qualitative and quantitative results can be interesting and useful when used appropriately.
- **Seek interesting results.** Don't ask questions for which you think you can easily predict the answers. For example, on a participant survey of an event held at Microsoft, don't ask, "Did you enjoy the keynote by Bill Gates?" You know 99% will probably say yes. Try to get more specific details about which parts of the keynote were interesting or useful.
- **Get useful information.** Will each item yield information that can be useful in some way? Consider how useful the data collected can be to the goal, outcome, or purpose of your event. General questions elicit general information –which may or may not be useful.
- **Be careful about wording the items.** Consider these tips: (a) Use vocabulary that your target audience can understand, even if it's not *your* vocabulary (e.g. refer to technology by popular or technical names: an *MP3 player* versus an *iPod*). (b) Keep the language and syntax of your sentences simple and clear. (c) Word items as neutrally as possible, i.e. avoid leading items. Sometimes it's as simple as saying "Which is better, A or B?" (d) Sometimes the order of the items can be leading, because an earlier item plants an impression in the reader's mind.
- **Above all, field-test the survey,** even after you carefully design it. For example, give it to a small group or subset of your target audience and then discuss it with them, item by item. You'll identify items that are unclear, misleading, confusing or biased.
- **Consider using online tools.** If it makes sense for your target audience, [SurveySuite](#), [Survey Monkey](#) and other tools are available for free or at a nominal fee. Once data is entered into these Web-based forms, you can easily download and print the results in a tallied format or by individual

item and response. This can be a huge time saver over traditional paper and pencil.

B. Sample Survey: Gap Analysis

About You

1.1. Please identify your primary role and occupation:

- Educator
- Industry Professional
- Student
- Community or Government Member
- Other, please specify:

1.2. Please indicate your level of participation in the (date) event at (location):

- I attended the morning session only
- I attended the afternoon session only
- I attended both the morning and afternoon sessions (full day)
- I did not attend any of the sessions
- Not Applicable

1.3. How did you first hear about the event?

- Word-of-mouth (may include telephone)
- BATEC website
- Email
- An earlier BATEC event
- Not Sure
- Other, please specify:

Morning Sessions: Industry Trends & Gap Analysis

2.1. What is your overall experience of (name and title), the keynote speaker?
(check the response that best fits)

- The keynote provided useful information about workforce trends
- The keynote provided some useful information about workforce trends
- The keynote did not provide much useful information about workforce trends
- The keynote did not make any sense to me
- Not Applicable
- Other, please specify:

2.2. Please indicate the session you attended during the morning:

- Web Development and Services
- Office Technologies and IT Essentials
- Networking and Security
- Programming
- Database
- Advisory Board
- Not Applicable/Didn't Attend

2.3. If you did attend one of the morning sessions, please tell us about your overall satisfaction with the session in bringing industry and educational perspectives to the table for a gap analysis.

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied
- Not Applicable

2.4. Please tell us a little bit more about your overall experience of your chosen session:

Afternoon Sessions: Action Planning

3.1. Please indicate the session you attended during the afternoon:

- Web Development and Services
- Office Technologies and IT Essentials
- Networking and Security
- Programming
- Database
- Not Applicable/Didn't Attend

3.2. If you did attend one of the afternoon sessions, please tell us about your overall satisfaction with the session in planning action items aimed at bridging the skill gaps between education and industry:

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied
- Not Applicable

3.3. Please tell us a little bit more about your overall experience of your chosen session:

Your Suggestions

4.1. We appreciate your input! Feel free to suggest topics and/or a format for the next Industry event to be held at (location) on (date):

C. Disseminating Results

As stated earlier, it's imperative that partnerships are developed and nurtured over time. Continuity and communication are keystones to lasting relationships. For this reason, facilitated events, such as a *Gap Analysis* and *Action Planning* activities, should include follow up with all stakeholders involved. In addition to thanking all participants for their contributions, dissemination of information and outcomes from collaborative activities between industry and education partners can include mention of results in:

- **Newsletters** (electronic newsletters are cost effective)
- **Annual Reports** (Corporate & Philanthropic)
- **Websites**
- **Email**
- **Professional Papers** (Academic Journals & White Papers)
- **Local Newspapers**
- **Podcasts**
- **Blogs**

In this way, it is possible to maximize the benefits of the collaborative events while continuing to provide valuable information to partners. Please see the **Sample Summary** and **Sample Gap Analysis Reports** from a BATEC Industry Summit.

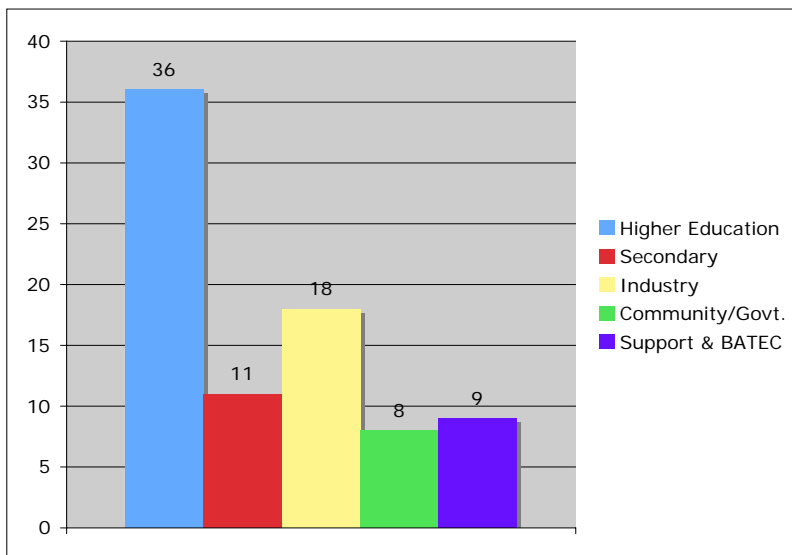
D. Sample Report

Report on the BATEC Industry Summit: Curriculum Connections, (date)

Overview

In furtherance of its goal to develop curricula that are regionally connected, advanced in content and pedagogy and industry-linked, BATEC held a Summit on (date) at (location) in (city, state). Eighty-two people attended the Summit. Participants represented over 15 educational institutions at levels ranging from secondary schools through four-year institutions. Twelve industry representatives shared their insights with the participants.

Keynote presentations from (name), (title), (company), and (name), (convening person), underscored the importance of bringing industry and education together to identify the gaps between the knowledge, skills and abilities that industry values in entry-level employees and the specific knowledge, skills and abilities students develop in classrooms.



Attendees

Findings

Led by BATEC-trained facilitators, participants broke into working groups of educators and industry representatives focused on a specific IT area: Office Specialists, Computer Networking and Security, Web Development and Services, and Programming and Software Development. The following represented a breakdown of findings reported by participants in each IT area.

Office Technologies

A total of 15 participants engaged in a process of defining the “Changing IT Landscape” and “skills” needed for office workers and administrators.

Participants represented the interests of industry (2); secondary schools (4); higher education (8); and community organizations (1).

Changing Marketplace

The group identified market forces that relate to the knowledge and skills of new office workers:

- Must be “Internet savvy”
- Must demonstrate a strong work ethic
- Should have an understanding of globalization, a second language is helpful
- Should have some previous industry experience
- Should have communication and presentation skills

Specific Technical Skills rated highly by the group:

1. database – SAP, Oracle, etc. (relational database –customer service)
2. soft skills – projects, teamwork
3. ethics – not abuse technology (IM, cell phone, iPod)

Gap Analysis

Educators then engaged in a process of examining what is taught in academic classrooms and what industry has indicated as an existing or growing need and/or demand. The following gaps were identified in curricula (in no particular order):

- **Relational database:** While technical skills are taught (Word, Excel, PowerPoint) and serve the needs of many entry-level workers, many schools do not cover relational database productivity tools.
- **Internet savvy:** Students need knowledge of how to best search for a job and how to best present themselves in a posted resume. Some educators are missing the important job search and resume posting elements.
- **Ethics:** Student use of cell phones and iPods is more than a public nuisance; Educators need to develop content to equip students with behaviors appropriate to the workplace.
- **Time management:** Students need training and skill in managing time (planning a project, determining and assessing goals, meeting deadlines).
- **Communication skills (verbal and nonverbal):** Educators need to train students to communicate effectively (read, write, speak, listen).

Computer Networking & Security

A total of 13 participants engaged in a process of defining the “Changing IT Landscape” and “skills” needed for networking and security workers. Participants represented the interests of industry (5); secondary schools (3); higher education (5).

Changing Marketplace

The group identified market forces that relate to the knowledge and skills of new employees in the area of Computer Networking & Security:

- Must understand the basis of connectivity
- Must be skilled at virtual collaboration with clients
- Must have an understanding of the global marketplace
- Must demonstrate soft skills
- Must have the ability to analyze complex problems
- Should have a strong work ethic and positive attitude

Gap Analysis

Educators then engaged in a process of examining what is taught in academic classrooms and what industry has indicated as an existing or growing need and/or demand. The following gaps were identified in curricula (in no particular order):

- **Authenticity** – Educators need to bring industry professionals to classrooms. Internships and student project fairs are also good.
- **Architectural Foundations** – Educators can no longer teach discreet technical skills at the expense of the larger picture.
- **Global Perspectives** – Educators need to design real problems/projects based on global issues.
- **Merging Disciplines** – Educators are not always aware of how new innovations fuel curricular changes, such as computer forensics and criminal justice.

Web Development and Services

An estimated total of 22 participants engaged in a process of defining the “Changing IT Landscape” and “skills” needed for web development service workers. Participants represented the interests of industry (4); secondary schools (8); higher education (9) and community organizations (1).

Changing Marketplace

The group identified market forces that relate to the knowledge and skills of new web workers:

- Must understand business process
- Must be well-versed in both technical and business process/procedures
- Must keep skills up-to-date (CSS, ASP, PHP, TANG-compliance, server-side scripting, etc...)
- Must demonstrate knowledge and skills in a professional portfolio
- Should work well with others and possess good communication skills

Gap Analysis

Educators then engaged in a process of examining what is taught in academic classrooms and what industry has indicated as an existing or growing need and/or demand. The following gaps were identified in curricula (in no particular order):

- **Portfolios & Capstone Projects** – Educators should teach more teamwork skills while asking students to develop a professional portfolio. Portfolios are the entryway into industry jobs.
- **Web Architecture & Design** – Educators should not forget to teach design aspects. These skills can make the difference between a good candidate and a great one.
- **Basic Skills** – Educators need to make sure that students are graduating with basic literacy and the ability to read, write, speak and listen.
- **Updated Skills** – Educators must keep their own skills relevant in order to teach students what is hot and what is not. Trends in Web evolve very quickly. Some hot skills and apps today: CMS, Serve-side scripting, Flash, Wireframes, 3 x 3 process, TANG-compliance, etc...

An estimated total of 22 participants engaged in a process of defining the “Changing IT Landscape” and “skills” needed for web development service workers. Participants represented the interests of industry (4); secondary schools (8); higher education (9) and community organizations (1).

Programming and Software Development

A total of 9 participants engaged in a process of defining the “Changing IT Landscape” and “skills” needed for programming and software development workers. Participants represented the interests of industry (2); secondary schools (2); higher education (5).

Changing Marketplace

The group identified market forces that relate to the knowledge and skills of new programming and software development workers:

- Must be a good problem solver with strong analytical skills
- Must be a good learner
- Must be a good team player
- Must demonstrate solid reading, writing and oral communication skills
- Should have a college degree
- Should like to take initiative

The following skills grid highlights areas of enduring value:

	Hard	Soft
Enduring	<ul style="list-style-type: none"> • Algorithms • Problem Solving • Concepts (DB, Networks, programming, ...) 	<ul style="list-style-type: none"> • Communication • Team work • Inter-personal
Non-Enduring	<ul style="list-style-type: none"> • Oracle • Cisco • Java 	

Gap Analysis

Educators then engaged in a process of examining what is taught in academic classrooms and what industry has indicated as an existing or growing need and/or demand. The following gaps were identified in curricula, as expressed by the table:

Non-Technical Skills	
Skill	Number of us that teach
Learn new things	0
Work on a team	9
Contribute to a team	5
Problem solving	9
Listening skills	3
Note taking	3
Time management	4
Accept criticism	2
Leadership	3
Make connections	2
Motivation	3
Presentation	9
Communication	8
Find what you need	8
Meyers-Briggs (know yourself/others)	1

- **Learn New Things** – Educators should take more risks in classrooms and ask students to take on challenges that allow them to “think outside the box.”
- **Team Building** – Educators need to direct more energy towards the development of students as good team workers.
- **Study Skills** (listening, note taking, time management) – Educators should not assume that all students know how to make the grade.

- **Intrapersonal & Interpersonal/Meyers-Briggs** – Educators should help students to develop a greater awareness of their own knowledge, attitudes and behavior.

Summary

Both industry and education professionals rated the session highly in evaluation surveys and noted common themes across IT content areas, such as the need for graduates and prospective employees to solve complex problems while communicating clearly and effectively in a team environment. Basic skills, those Foundational to NWCET, were cited as of highest value to employers.

The following statement characterizes the impact of the day on participants:

- Underscores relevance of BATEC Curriculum Enhancement Process and value of Skill Standards to both industry and education
- Maintains industry – education dialog to bring timely and relevant content to classrooms
- Raises awareness of IT marketplace needs and trends
- Fosters cross-collaboration between industry and education (secondary, community, 4-year)
- Refreshes technical and employability skills data

A follow-on session to the Industry Summit is scheduled for (date).

VI. REFERENCES AND RESOURCES

A. References

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B. Event Day Review Sheet

A final step in planning your event should be to gather everyone on your staff that is planning to help with the event to discuss everyone's role during the event day. This will also help you to draft the initial agenda. Several questions should be asked, including:

- Who is responsible for getting the speakers' materials, the participant materials, the name tags and the tent cards to the venue?
- Has someone contacted the caterer, photographer, videographer, AV assistant, venue manager, and speakers?
- Who is heading the registration table?
- What time will everyone arrive at the venue (it is strongly recommended that everyone helping during the day of the event arrive 30 to 45 minutes before the event begins – more often than not, a few people will arrive early.)

During this step, it might be helpful to draft a one-page event review sheet for all staff members who will be helping to run the event. The following is an example of a review sheet. This sheet should include room locations, names and phone numbers of facilities contacts, any specific room information, which staff member is assigned to a specific task and/or area, what AV equipment will be needed, what time catering arrive, name and contact information of caterer, and any specific information about the presenters. The last piece of information to include on this sheet is who to see if question arises.

Sample Event Day Review Sheet

Event: _____

Date: _____

Rooms:

We have 6 event rooms: Green, Blue, Red, Orange, Purple, Yellow. The Green room is only big enough for 10 people so we will use that as a coat room. We are also not currently using the Yellow room for anything. All other rooms should either have U-Shaped tables or board room set ups. **Space Contact: (name) will be at event, 617-XXX-XXXX. The receptionist, (name), will also be available for questions..** Help will arrive from facilities at 8:00, 10:30, 3:00 to help open/close room partitions in the Blue and Red rooms. We will need all available personnel to help at 10:30 to help remove perimeter chairs in order to create two session rooms.

Staff Assignments:

Staff Member A will help at the registration table

Staff Member B will take photos and aid in facilitating discussions in each session.

Staff Member C will help at the registration table, place signage, organize kitchen

Staff Member D will help with AV set ups in the morning and again at lunch.

Staff Member E will help at the registration table, place signage, organize kitchen, call event contacts if needed and take photos.

AV:

We will have projectors in the room. Each presenter is encouraged to bring their laptop, but we will be bringing 3 others as backups. White boards and easel stands will be present in each room. Staff Member A and Staff Member E will have all other supplies at the registration table and will disseminate to each room as the conference director directs.

Meals:

Meals will be served in the kitchen area near the function rooms. Breakfast will arrive at 7:45. Lunch will arrive at 11:30. Two special non-dairy vegetarian meals will be clearly marked. **Catering Contact: (name) 617-XXX-XXXX.**

Presenters:

Presenters will need to visit the receptionist to obtain wireless access, if needed. Presenters will be encouraged to use the easel pads when possible so that we can capture the day's progress and archive these materials.

Please see Staff Member E at the event if you have any questions!

C. Facilitation Techniques

The following materials relate to the training of educators and industry personnel engaged in planning sessions. Proven facilitation strategies are provided below.

The Role of the Facilitator

As an elected Facilitator, you are to:

- Organize and manage room logistics (handouts, PowerPoints, etc...)
- Make introductions
- Explain the process
- Keep discussions positive and on topic
- Record discussions or elect someone to do so for you (flip chart or white board)
- Probe/Clarify/Paraphrase/Summarize/Advocate
- Ensure that outcomes are met for the session
- Follow up with attendees

The following discussion suggestions are from The Seven Norms of Collaborative Work - developed by Laura Lipton and Bruce Welman

- Pausing:** Pausing before responding or asking a question allows time for thinking and enhances dialogue, discussion and decision making.
- Paraphrasing:** Using a paraphrase starter that is comfortable for you: “So...” or “As you are...” or “You’re thinking...” and following the starter with a paraphrase assists members of the group to hear and understand each other as they formulate ideas.
- Probing:** Using gentle, open-ended probes or inquires such as “Please say more...” or “I am curious about...” or “I’d like to hear more about...” or “Then, are you saying...” increases the clarity and precision of the group’s thinking.
- Putting ideas on the table:** Ideas are the heart of a meaningful dialogue. Label the intention of your comments. For example, you might say “Here is one idea...” or “One thought I have is...” or “Here is a possible approach...”
- Paying attention to self and others:** Meaningful dialogue is facilitated when each group member is conscious of self and others and is aware of not only *what* s/he is saying, but *how* it is said and how others are responding. This includes paying attention to learning styles when planning for, facilitating, and participating in group meetings. Responding to others in their own language forms is one manifestation of this norm.

- ❑ **Presuming positive presuppositions:** Assuming that others' intentions are positive promotes and facilitates meaningful dialogue and eliminates unintentional put-downs. Using positive presuppositions in your speech is one manifestation of this norm.
- ❑ **Pursuing a balance between advocacy and inquiry:** Pursuing and maintaining a balance between advocating a position and inquiring about one's own and others' positions assists the group in becoming a learning organization.

Laura Lipton and Bruce Wellman, who developed the **Seven Norms of Collaborative Work**, advise "allowing adequate time to explore assumptions, predictions, questions, and observations before offering explanations or solutions. In doing so, groups not only reach sounder conclusions but also build their capacity to inquire and learn together."

Probing/Inquiring

What do facilitator's do to demonstrate the norm of probing or inquiry?

- ❑ **Facilitator's ask questions to clarify communication, construct understanding and deepen meaning.**
- ❑ **They probe to elicit deleted information when they hear or read unspecified:**

Nouns and Pronouns	The students, parents, administrators, textbooks, they, the industry experts, people...	Which students, specifically?
Verbs	I want them to think, do, feel, propose, engage, study, learn...	Think, how, specifically?
Comparators	This group is better, larger, smarter, slower, more profound...	Than what or who?

- They probe to clarify values when they hear or read language which might possibly represent generalizations or distortions:

Rule Words	- We can't - We shouldn't -We must - We have to, ought to...	- What would happen if you did? - Who made up that rule? - What would happen if you didn't?
Universal Quantifiers	Everyone, all, no one, never, always...	- Everyone? - Can you think of someone who does not? -You mean everyone in Boston? In the Northeast? In Massachusetts?

Paraphrasing

Paraphrase: From the Greek: *para*, beyond + *pharazein*; to tell = to tell beyond.
Webster: A rewording of the thought or meaning expressed in something that one has been said or written.

An effective paraphrase expresses empathy by reflecting both the feeling and the content of the message.

- **Paraphrasing sends three messages:**
 - I am listening
 - I understand you (or am trying to)
 - I care
- **Acknowledging:**
 - Head nods
 - Fillers (uh – huh, ok, hmm...)
 - Echo
- **Three Paraphrasing Forms:**
 - **Acknowledge/Clarify** – a brief statement reflecting what was said in the listener's words
 - **Summarize/Organize** – a statement illuminating themes or containers
 - **Shift Focus** – a statement reframing ideas at a logical level different from the speaker's words

□ **Reflection Stems to Consider:**

- You're suggesting...
- You're thinking...
- You're wondering...
- So, for now, your most immediate goals are...
- There seems to be three themes here...
- So, on the one hand we want to start now, but on the other hand...
- So, you are valuing...
- What is being assumed here is...
- The intention seems to be...

Three Types of Paraphrases

Acknowledge/Clarify: A brief statement in the listener's own words	Summarize/Organize: A statement that offers themes or containers	Shift Conceptual Focus: A statement that focuses on a higher logical level
<p>You're concerned about _____.</p> <p>You would like to see _____.</p> <p>You're not sure about _____.</p>	<p>You seem to have two goals here: one is about _____ and the other is about _____.</p> <p>We seem to be struggling with three themes or issues: where to _____, how to _____, and who should _____.</p>	<p>So a _____ here is _____.</p> <p>-value</p> <p>-belief</p> <p>-goal</p> <p>-assumption</p> <p>-intention</p> <p>-concept</p>

Presuming Positive Intentions

Facilitative participants who presume positive intentions of others use positive presuppositions in their language:

□ **Positive Presuppositions Presume:**

- Capacity
- Positive intentionality
- Prior and ongoing thought

- **Questions:**
 - Are framed from spirit of inquiry
 - Seek multiple perspectives rather than single consensus
 - Show acceptance
 - Use a variety of introductory phrases, such as: As you...when you...while you...

Advocacy

- **Make your thinking and reasoning visible.**
- **Describe the focus of your advocacy.** “An issue that is important to me is...”
- **Describe your reasoning.** “I came to this conclusion because...”
- **Describe your feelings.** “I feel _____ about this.”
- **Distinguish data from interpretation.** “This is the data I have as objectively as I can state it. Now here is what I think the data means.”
- **Frame the wider context that surrounds the issue.** “Several groups would be affected by what I propose...”
- **Give concrete examples.** “To get a clearer picture, imagine that you are in school X...”
- **Test your assumptions and conclusions.**
- **Encourage others to explore your model, assumptions and data.** “What do you think about what I just said? Do you see any flaws in my reasoning? What can you add?”
- **Reveal where you are least clear.** “Here’s one area you might help me think through...”
- **Stay open and encourage others to provide different views.** “Don’t you see it differently?”
- **Search for distortions, deletions and generalizations.** “In what I’ve presented, do you believe I might have over-generalized or left out data or reported data incorrectly?”

Inquiry

- ❑ **Ask others to make their thinking visible.**
- ❑ **Use non-aggressive language and an approachable voice.** “Can you help me understand your thinking here?”
- ❑ **Use a pattern of pause, paraphrase, and probe or inquire.**
- ❑ **Use tentative language.** “What are some of...How might you...What are your hunches about...?”
- ❑ **Inquire for significance.** “How does this relate to your other concerns? Where does your reasoning go next?”
- ❑ **Explain your reasons for inquiring.** “I’m asking about your assumptions here because...”
- ❑ **Invite introspection:** “What questions do you have about your thinking?”

Assumptions

- ❑ **Compare your assumptions to theirs.**
- ❑ **Investigate other assumptions.** “Would you be willing for use to each list our assumptions, compare them, and explore if there might be other assumptions surrounding this issue?”
- ❑ **Check your understanding of what they have said by paraphrasing and probing.** “So, you are saying that...?”
- ❑ **Test what they say by asking for broader context or examples.** “How would your proposal affect...Is this similar to...? Can you describe a typical example?”
- ❑ **Reveal your listening process.** “I have been listening for themes. So far, I’ve heard two. Are there others?”