

Enter the Matrix: Integrated Evaluation in a Multifaceted Nutrition Education Program (NEP)

Moderator: Ann Marsteller, MBA, MS, RD, LDN, Program Manager, Bioscience and Biotechnology Department, Drexel University, Philadelphia, PA

Overview of the School District of Philadelphia's Nutrition Education Program (NEP)

Joan Nachmani, MS, CNS, SFNS, Project Director, Department of Health, Safety, Physical Education and Sports, School District of Philadelphia, Philadelphia, PA

Before we enter the matrix, I would like to give you a brief overview of what the Nutrition Education Program (NEP) offers to the school district students and other people in the district. The Nutrition Education Program is funded by the United States Department of Agriculture, through the Food Stamp Program. It provides nutrition and food education programs for food stamp-eligible adults, as well as their children. It is diverse and multitiered, and it is based at school and community sites. Our target audience includes children, teachers, parents, coaches, nurses, administration, and food service personnel. The goal of the program is to provide education that is consistent with the recent *Dietary Guidelines* and *MyPyramid*.

Who qualifies for NEP activities? The program is really exclusive to Food Stamp Program applicants and participants under the Food Stamp Act, to Food Stamp Program clients, or their children whose household incomes are at or below 185 percent of poverty. We qualify our schools on an individual basis with student populations of 50 percent or greater meeting eligibility for free or reduced-price meals in the School Meals Program.

I would like to go over a few statistics with you of the school district. For those of you that aren't familiar with the Philadelphia School District, we are the seventh largest district in the Nation by enrollment. Our total number of schools is 273 and, in qualifying our schools for eligible services from NEP programming, 158 of our schools are qualified for services in the elementary grade level, 40 middle schools, 21 high schools, and five special sites. These sites are, usually, magnet schools in the district.

So, our total number of NEP-eligible schools for this past fund year was 224 or 82 percent of our total schools in the district. Our outreach funds for last fund year totaled \$1,517,921. This does not just include children. As we said, our target audience includes adults, teachers, staff, and others, so we don't have that many students. Plus, our outreach may also be more than one intervention with the same population. The approximate enrollment as of last June was 217,000 children in our district, and the average daily attendance is about 190,000.

Another important thing to note is that our school meal participation on an average for breakfast is about 55,000 meals, and lunch is 120,000 meals. There is a lot of room for growth, and we try to implement and teach in our classrooms and in our programming the importance of eating breakfast to help increase participation rates in that area.

The school district's funding, to give you an idea of what we were looking at for this past fiscal year, was approximately \$1.6 million in programming. Next year, we have projected an increase to about \$10.8 million. This is due to the consolidation of community partners that have been working within the district providing services to our schools. They will now become part of our school district grant, and will be managed through the school district for services. We hope this will help to give equitable distribution to the schools and make sure that all NEP schools are serviced.

Our goals that are school-based for the NEP Project are simply to consume five to nine servings of fruits and vegetables daily; to use the *Food Guide Pyramid* or *Dietary Guidelines* to make healthy food choices; and to understand the importance of physical activity as part of the healthy lifestyle.

Our NEP Programs are broken out into elementary school, middle school, and high school programming. Some programs are exclusive to each of the different grade levels. I will go through the programs briefly just to give you an idea of some of the services we offer at each grade level.

In our elementary school, we have three assembly programs that we have been offering. National Theater for Children; Taddo the Magician; and Food Play Productions have all, basically, been providing live theater entertainment for our children. We also have nutrition education in the classroom, with single and series intervention programs, as well as after-school programming, and nutrition advisory councils.

The National Theater for Children has several different live theater presentations that they present in the schools. The first one that we piloted in the schools was called, "The Prince of the Pyramid." It strongly emphasizes the *Food Guide Pyramid*, as well as physical activity. Our outreach for the first year when we piloted the program was around 70,000 children in 174 elementary schools.

The next program that was offered to the children in assembly program format was sponsored again by the National Theater for Children and was titled "All is Well that Eats Well." This program basically focused on how to choose healthy snacks and the effects of fat in the body. Our outreach for our pilot year was around 29,000 students in 130 elementary schools.

All of these assembly programs provide followup activities for the teachers to do in their classroom to reinforce the goals and objectives of the NEP Program. The next program is called, "Taddo the Magician." Taddo is a registered dietitian and, I might add, a male,

and he is also a professional magician. He incorporates healthy eating concepts and good nutritious snack concepts with a live magic show. He brings animals, he pulls the rabbits out, he has birds, doves, and the kids are just totally engaged during his presentation while he gives the nutrition messages in a very creative and informative way. We worked with Taddo in developing followup activities, again, to provide a workbook to the teachers so they continue to reinforce the objectives that are presented during the show.

Food Play Productions, another theater company, was founded in 1982 by Barbara Storper who is also a registered dietitian. Many of you may have seen her programming in the past. It has spread its message to over 2 million school children, and it provides, again, a lot of program content; including healthy beverage and snack choices, the importance of eating breakfast, and being physically active. The nice thing about Food Play Productions is that it is very entertaining. There is a lot of juggling and balancing involved. When they talk about balancing your diet, they will be doing juggling and balancing in the show and it really captivates the children's attention. Her program also provides followup activities with a workbook format.

Another program that we have in the district is called, "Chew This." This program is developed with the collaboration of our Information Media Technology Division of the school district. The school district of Philadelphia, being so large, has its own cable TV station and they produce their own programming. So, we have worked with them for several years in producing interactive, animated, and educational nutrition television programs to be aired from kindergarten through grade five. It is shown in the classrooms to teach nutrition concepts. It is also broadcast on the television station for students and parents to enjoy together at home.

Each episode is aired several times throughout the month, and there are also additional downloadable followup lessons that are available on our website that you can then use as followup activities in the classroom. We encourage teachers to use these television shows during classroom time, as well as downloading activities afterwards to use somewhere to reinforce concepts. Its format is both animation as well as live actors. And, it is in segments, which also include some of the standards of the school curriculum--vocabulary, geography, reading skills, math skills--and can very easily be incorporated into our existing curriculum, which is very important for us when we produce something for the children.

We also have nutrition education in the classroom. We use hands-on activities, because this is what the children really, really enjoy. They like to see things when they walk into the classroom, to do programming. The first thing they usually ask is, "Did you bring us something to eat?" This is really the key to captivating their attention. We don't just give them samples, of course, without going through any sort of prior lessons, but we also let them be creative with some of the foods.

The idea of playing with your food is not such a bad thing because if they come up with something cute and creative, they like to then eat it afterwards. One of the lessons that we do is a veggie man. We use the concepts of 5-A-Day, and Dole materials, as enhancements

to the lesson in the classroom. The children get to design their own veggie man and then eat it leg-by-leg, or arm-by-arm.

The next thing that we do is use a lot of Team Nutrition materials in our classroom interventions. These are great, they have a lot of great handout materials, followup materials, and the curriculum is wonderful to use. It does have connections with the school food service programs as well, which helps to create a link between what is happening in the classroom, as well as what is happening in the school cafeteria.

We have a program for after school and, in our first year, our outreach was in 32 elementary after-school sites, with approximately 1,300 children reached. We provide an interactive series of nutrition sessions called, "The Dragon Detective Agency." Our collaboration with Drexel University has made this program a wonderful asset to offer after school. The lessons demonstrate the concepts of the *Food Guide Pyramid*, 5-A-Day, the importance of breakfast, physical activity, and healthy snacks and foods. We also have Inspector Fruitee who goes out and finds clues to healthier food choices.

Our middle school programs are limited to some assembly programs, as well as many of the other elementary programs that we scale up for middle school. Specific to middle school, we had the National Theater for Children also do a middle school game show format for the children called, "Wow! The Power of the Pyramid." Food Play produced a production for us called, "This is Your Life," and it focused on eating, exercise, and positive body image. Our outreach when we piloted this program the first year was in 10 middle schools with around 6,000 students.

Drexel's partnership has also created a healthy eating program for girls called, "Bodyworks." Our target audience is sixth graders. We try to get children who are at risk for becoming obese to participate in the program. We really are just focusing on weight maintenance so they can kind of grow into the extra body weight, and teach them how to make healthy food choices and, of course, incorporate physical activity a little bit more into their lifestyle.

There are weekly 1-hour meetings for about 12 weeks, and about 15 participants per site. So it is small groups, and it is very much one-on-one contacts. We also use the University of Pennsylvania to provide some counseling. They have an obesity clinic there that we consult with to have some psychological counseling so we can address issues of body image as well.

There was a "Power of the Pyramid Game Show." Middle school children have buzzers at hand, with one team on the right asking questions, and children on the left buzzing in with the correct answers for the game show.

In our high school programs, we have also piloted, "This is Your Life," the Food Play Production. We had reached 10 high schools with a population of around 6,000 students. We also have a high school program developed in partnership with Drexel University for sports, nutrition, and fitness. It focuses on the nutritional needs of athletes. Our outreach, in the first years, has been to about 28 high schools and around 6,700 athletes. At this

point, we train coaches of teams to, basically, be able to turn around and teach the children the skills and the information that they need to make better food choices for an active athletic life.

Another service that we offer from grades K through 12 is a health fair. Many schools call us and request health fairs, primarily in the spring. We are seeing a lot of schools looking for things to do. The weather is breaking in Philadelphia and they do a lot of these outside or indoor health fairs in gymnasiums, or outside in school yards.

We provide nutrition handouts, as well as nutrition expertise. We have educators on staff who are RDs that give nutrition information out to anybody that has questions. It is not just the school children that come to these health fairs; many times parents are invited to come with their children, teachers, administrators. So, we really have a nice group of people within the school community coming to see these health fairs. We also have wonderful displays and, sometimes, samplings. It draws them to the table.

We also have Nutrition Advisory Councils (NACs). These are groups that are sponsored by the School Nutrition Association. They have had a program in place for many, many years where they encourage schools to set up a staff of children, basically, a classroom. We select a classroom in a school and we see them on a bimonthly basis and do nutrition activities with them. We try to follow the format as closely as possible for what the School Nutrition Association would like us to do with this group. We have a group of super tasters and use them to taste potential new food items for the School Meals Program, and give us evaluations.

We had a link with School Food Service, and they are really the liaison between School Food Service and their peers. They sometimes do a lot of promotion for school meals and participation in school breakfast. This program certainly will educate them about the importance of good nutrition, and we use a lot of the Team Nutrition materials during program time.

We had a NAC group at Sharswood Elementary School. They did art projects, I will tell you about those. First, we had some hands-on activities at Sharswood. Their NAC group prepared a healthy snack, an apple butterfly, and produced a finished project. So, we try to use foods that are available, healthy, and really creative for them to do some art work with. In art, we also have an annual theme given to us from the School Nutrition Association to promote National School Lunch Week. That theme is then illustrated by the children and entered into an art contest. We were really fortunate last year—we had a first, second, and third place winner in the art contest. We also were the regional winners of the Nutrition of the Year NAC group.

This program is ongoing. We have been really fortunate in past years. Just about every year, we have won annually statewide as the NAC of the Year for the school district. We also have won, including with our partnership, in these past 4 years with Drexel University's Nutrition

Center. As I mentioned, we partnered with the Obesity Clinic to do some consulting work on setting up the weight management Body Works Program. Next year, I am pleased to say that we have six additional community partnerships within the City of Philadelphia.

This partnership is something that both NEP and the school district are encouraging us to develop. We have had partners out there that have not been part of our program in the past, but as I said in the beginning, will now be part of our program. We will certainly distribute services in a much needed way, so that every school that is eligible for services will receive them.

Some of the additional services that I didn't really go over in detail here, but are available in K through 12, include newsletters and followup lesson plans just about for every activity intervention we do in the school. We help assist in the School Health Councils. Our NAC group is an integral part of the School Health Councils because we feel that student representation is essential and these councils will be part of the wellness policy that is coming into effect starting in 2006. So, if you have your NAC groups, you can just attach them to your councils and have your student input that is so well needed in those council set-ups.

We do service home and school meetings, and parent workshops. We do teacher and nurse training on nutrition education. Our nurses, sometimes, are our biggest advocates in the schools for bringing our nutrition programs into the schools. We provide services in our summer camp programs, and we provide cafeteria nutrition information for them to do displays for the children to see when they come in for meals.

We also will be having three new programs next year, with the addition of our new community partners. We will have a school-based farmers' market that will be offered to schools. These are run by the teachers with the children teaching them business and agricultural skills. We will have a gardening program that will be part of the Urban Garden Initiative. This program will work in some cases with horticultural programs that exist in some of our schools. We also have a pregnant teen program. This program will target high school teens and teach them not only how they should eat better during pregnancy to make healthier food choices, but also how to feed their young children once they have their children.

If you would like any further information about our Nutrition Education Program, this was a very brief overview, so please log onto our website at www.drexel.edu/nutritioneducation. Our theme for our program is called, "Eat Right Now"; we are on the web and you can take a look at our "Chew This," downloadable followup activities. You can take a look at our links to other sites, as well as meet our educators on the site. Any other questions you may have, you can log in to ask the educator. We also have a lot of different information available at that website.

How To Use an Objective-Based Matrix To Guide the Evaluation Process

Shortie McKinney, PhD, RD, LDN, FADA, Director of the Nutrition Center and Professor of Nutrition, Department of Bioscience and Biotechnology, Drexel University, Philadelphia, PA

You can see from what Joan has presented that the program we have in the school district of Philadelphia is quite large, quite complex, multilayered, with lots of different things going on all the time.

So, evaluating a program of this type is a fairly complex process. We have had to develop some techniques to help us in terms of evaluating the process. So we are entering the matrix, we are keeping the theme and, hopefully, we will guide you through how you might want to use the matrix as well.

So, what is program evaluation? I am sure that most of you are quite aware that program evaluation is to determine whether or not you are meeting your goals and objectives, evaluate the steps in the process, and determine if there are particular places along the way that can be improved, and to document the outcomes. We are all interested in outcomes of our programs, so that is our eventual goal.

Ann Landers says, “Don’t accept your dog’s admiration as conclusive proof that you are wonderful.” Lots of times we get lots of accolades and people tell us that, “You are great, this is wonderful.” But that doesn’t necessarily mean things are going along the way we want them to. Sometimes we need some data to back that up.

The roles people might play in evaluation include the educator, someone who teaches lessons and collects evaluation data. At the top, we have the program director who simulates everything. Then, we have the educators and manager who collects the evaluation materials. We have the analyzer, who is putting it all together, analyzing it, summarizing it. And, we have a report writer and director. I am going to start at the beginning so that I have an idea of what roles you play in evaluation.

We will start from the lowest level, those who are data collectors. The educator or the person who is out in the field collecting evaluation data. How many of you are in that role? Manager. Data manager. Collecting information from others. Data analyzer. You now have a pile of forms and you have to assimilate it. How many are in that role? Report writer. Someone else has assimilated and tallied it, and now you have to figure out what it means. And program director, the person who might receive the report and now you have to figure out what to do about it and what does it all mean. Depending on your role, you are going to have a different perspective on what you seek out of program evaluations.

So, evaluation questions. What are we concerned about? Is the intervention reaching the intended audience? Sometimes we have nutrition education interventions out there, any type of nutrition education that is out there—is it reaching the audience that you intend for it to reach? Is it being implemented as intended? We may have great plans on paper, but they don't always end up being great plans in the field. Is the intervention effective? Does it do what we want it to do? Is it worth the money and the effort? It all comes down to money in some respects, so is it worth what we think that it is worth? These are all important questions, and your ways of answering them are different. They are not going to be answered by the same types of methods.

Have the goals and objectives been met? That is our overall goal that we are seeking in doing an evaluation. The outcome of the evaluation is knowing what is working and what needs to be changed. It really should be used as an input for decision-making, funding direction, how to get funding opportunities, personnel needs, more or less in different programs. As I say, a go or no-go. Is this something we want to continue doing?

The continuum of evaluations is quite broad and there are lots of different ways of collecting information and using it. Along the bottom of this continuum are the factors time and cost. If you have enough money and enough time to throw at any problem, you can do a great job. But that is, usually, not what we have. So if we go from one end of the continuum, low cost, we are more likely to have rather informal methods. They aren't going to be as expensive, but they also may not give us all the information that we want. If we go to the other side, we have a higher cost, very formal processes, and very complex processes. But, they may be much more expensive than we need.

So, how do we find the happy medium? As we all know, within our programs we never have enough funds to put to evaluation. And quite often, it is the last thing on our list of things to think about. Our goal for today is to help you think about it and, perhaps, have some different ideas about how to do evaluations because we all have to be able to demonstrate the effectiveness of our programs and what we do.

What are some assumptions that you may have about evaluations—other than that you really don't want to do it, and you avoid it. That is why a lot of people let three quarters of the year go by and say, oh, dear, we haven't thought about what we are going to do to evaluate our programs.

It is expensive. It doesn't have to be at all. Time consuming, it will take time, but it doesn't have to take as much time as you may think. Technical, somewhat. Academic, not necessarily. It should be something that anyone can use; it should really feed into your program. Punitive, we often think—"Well, if I give them this data, they are going to use it against me." Political, sometimes. It might be used against you. Useless, no. I really want you to think that evaluations can be cost-effective; they need to be thought of as an integrated part of your program. It should not be an afterthought.

It needs to be as accurate as possible, and that is one of the challenges we all have in evaluations. Engaging. We actually are proposing some techniques that are engaging. We really want our participants to be engaged in the process so it is not a tack-on. It actually can be an extension of the educational experience. It needs to be as practical as possible--helpful to the program in improving what they are doing so it is a useful process.

As we have seen, our project is very large. We have single lessons; we have series, where we are building upon multiple objectives; we have large events, as Joan described; we have health fairs; we have parent nights; we have the assembly programs. Our spectrum goes from K through 12 for our children. We include adults, from teachers and parents, lots of different adults are involved. The objectives vary by program because this is not a single program--it is not one event that you can do all the objectives for. Because it is such a large complicated program, we can't possibly evaluate every individual at every event. In fact, if you attempt to do that in a program of this size, the paper work will just kill you.

So it is a process. You have to figure out your strategy to manage the process. But it doesn't have to be this large of a program in order to be able to manage the process. Those of you that have tried to develop an integrated program, you know that it can become very complicated very fast.

This is to give you some idea of the evaluation process. Regarding the various programs Joan talked about for our fund year 2004, 1 year ago, there were approximately 14,000 documented evaluation items for the various programs that we use in terms of developing our report. We are in the process of finalizing our report for 2005.

So how do you manage the process? Certainly, it takes planning ahead of time and selecting your tools. We are going to talk about the tools and how you identify appropriate tools. Logistics is one of the biggest issues to determine. You have got to get your evaluation materials out in the field, and have got to get them back. One of the biggest problems is getting them back. You can get an awful lot of things out there, but you don't always get back what you want.

So you have to think through how this is going to work, how it is really going to happen, and how am I going to enter it and analyze it. Data entry and analysis is, and can be, a huge problem. We are going to offer some suggestions to help with that. Implement your plan, summarize your results, and report to FNS.

We developed our evaluation report from 2004 for our projects--anything and everything is documented in there. This is a long document and doing it was no small task. Our whole project is very, very large. But, we have documentation to back up what we are doing, and that is what we all need to have.

The Planning-Evaluation Cycle, with which we are all quite familiar, describes the movement between program planning and evaluation. On one side is the planning and the program

phase, where we all live. You define your objectives and develop your strategies. How are you going to implement your programs? What are your lessons going to be? How are you going to do the project and implement it?

This is really where most educators live all the time. But, the other side of the street is what we are talking about today, the evaluation phase. You still have to identify the objectives you are going to measure. You have to determine who, what, and when is going to measure it. You need your tools, collecting your data, analyzing and interpreting, and then reporting out. And, you have to be able to close the loop. So we are going to talk about how you close that loop and do that other mirror image. It is all the same kind of steps, but it is a different way of approaching it.

So now let's go and enter the matrix. How many of you are familiar with the "Matrix" movies anyway? Let's see how many--and some of you may be missing the whole thing here. I hope not. At least maybe we will intrigue you. So, let's think about how we use the matrix. We developed a matrix system to help guide us in our entire process. Our educational objectives form the foundation of everything we do. We all know that. So we start from our objectives.

We add our programs. You already do that. Then, we add our evaluation tools. Now here is the piece that may be new to you. How do you add your evaluation tools so that you know that it is feeding back to your objectives? You have to link your evaluation techniques to your objectives, because if you don't, you really aren't evaluating the outcomes of your programs. This link is not a really simple thing. You have to really think through the process.

I am going to show you some matrix examples, and we are going to go through a process here. We will talk about some techniques, and will do an activity with the next two speakers. Let me show you a couple of examples. These are simplistic views of a matrix. We are using an objective related to fruit, increasing the variety of fruits consumed. Here are the sub-objectives that we are using. I will be following through with this example I am showing you today. Of course, you know that there are many more objectives than fruits; this is simply one of the objectives.

Enter the Matrix: Integrated Evaluation in a Multifaceted NEP
Sample Objective Matrices

Program Matrix	Elementary School (ES)	Middle School (MS)	High School (HS)
<i>Increase the variety of fruits consumed</i>			
Children will be able to name a variety of fruits	√	√	
Children will believe it is important to eat a variety of fruits	√		
Children will learn the importance of eating a variety of fruits	√	√	√
Children will try a fruit unfamiliar to them	√	√	

Lesson Matrix	Name of Lesson or Activity
<i>Increase the variety of fruits consumed</i>	
Children will be able to name a variety of fruits	Inspector Fruitee (ES) Fruit Rocks (MS)
Children will believe it is important to eat a variety of fruits	Inspector Fruitee (ES)
Children will learn the importance of eating a variety of fruits	Inspector Fruitee (ES) Fruit Rocks (MS) Sports Nutrition (HS)
Children will try a fruit unfamiliar to them	Inspector Fruitee (ES)

Tool Matrix	Name of Evaluation Tool/Item #
<i>Increase the variety of fruits consumed</i>	
Children will be able to name a variety of fruits	Fruit & Health (ES) – Q#1 Pretest/Posttest (MS) – Q#4
Children will believe it is important to eat a variety of fruits	Log Book (ES) – Page 2 Score Sheet (ES) – Lesson 2
Children will learn the importance of eating a variety of fruits	Fruit & Health (ES) – Q#2 Pretest/Posttest (MS) – Q#3 Pretest/Posttest (HS) – Q#16
Children will try a fruit unfamiliar to them	Fruit & Health (ES) – Q#4

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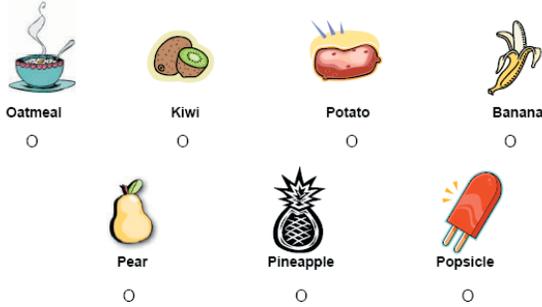
So we have our list of objectives. Now we have a program matrix. And this is a simple version again. DDA is our “Dragon Detective Agency.” and we have “Nutrition in the Classroom,” and the NAC groups are the third one. This is to show you that we don’t attempt to achieve every objective and every program. Here is where we are intending to achieve certain objectives. We know at the very beginning, this is what the objectives are and where we are achieving them. Our matrix is, actually, much larger than this because we have quite a few other programs. This is, again, a little clip of it.

Then we can add the lessons. If you have a series that has multiple lessons in a series, like our “Dragon Detective Agency,” we repeat that objective in more than one lesson because, as we know certainly with children, repeating the information helps them to learn. So, we show where the different lessons are, and that we are repeating that objective to reinforce the information so that we know what objectives are being met in the different lessons.

Then, the real tricky part comes in: Where do you figure out what the tools are? So we have done a lot of work to tie down specific instruments and tools to document and to use, in order to evaluate the outcome.

Fruit and Your Health!

1. Fill in the circles under ALL of the foods that are fruit.



2. Fill in the circles next to the answers showing ALL the healthy reasons to eat fruit.

- Fruit has fiber.
- Fruit has protein.
- Fruit helps me fight being sick.
- Fruit has vitamins.

3. One serving of fruit is the size of:

- a football.
- a baseball.
- a golf ball.

4. I tried a new fruit today.

- Yes
- No



Grades 3 – 5, v.1

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We have an evaluation tool called, “Fruit and Health.” We identify question one as linking with that objective. There is also a vegetable one, but just look at the fruit one.

So what is the challenge of data management? We have our tools and we have deployed them out in the field. How are we going to manage the data? One of the simple ways you can do it is having the educator on the front line tallying the information. The educator can sit there with these stacks of paper and tally it up, enter it in a spreadsheet, and then feed it up the chain into your summary information.

You can use web-based evaluations, and I know some of you do. The problem with web-based, or any computer-based, evaluation is you have to have computers for your participants to use to enter. There are also sometimes some

problems with people being able to use it. But, it is a possibility with certain audiences.

Handheld devices, like palm devices, are being used in some settings. Now we have a problem of expense and, certainly, for us with children, we wouldn't even attempt to go there unless we had some way of chaining them to their arms because they would lose them. But, it is a technique that can be used in some programs.

The technique that we are using very successfully is using Scan-Tron scannable forms. The fruit and health form is set-up as a scannable device. The little circles that appear below the fruit, the children have to fill in. We can then scan it and tally the information through our automated scanner. This requires special hardware—it is a fancy scanner—and software that reads the marks on the page, very similar to what you would have with a college-level scan form, except it is developed for use with different audiences. It can be developed for any particular purpose. It requires some expertise in setting it up, but it makes it much simpler to tally up our thousands and thousands of pieces of paper that we have that come back from our various programs.

Once we have assimilated that data, we now enter it back into a matrix. We use a matrix to report out our information. It helps us to keep track of where everything is coming from and

where it is going back to. Then, we move back into what anyone would do in developing the report, tables, and graphs. You now have your data to report out and interpret.

So, in terms of types of evaluation, a lot of what we are talking about is outcome evaluations. But, if you are really trying to document all of those questions about how to improve your program, you have other types of evaluations that need to be done as well.

Formative evaluation is important while implementation is in the early stages, to clarify and make changes. Process evaluations are important during your programs. This is where you can figure out what is not working. We really advocate a field assessment for all your sessions to find out what is happening on the day that that program is out there to see what is not working very well and what you need to change. There is summative evaluation, which is what we are talking about a lot.

Formative evaluation can be very developmental using focus groups and field testing. It is really a feasibility question: Is this working or not? When the cook tastes the soup, that is formative. When the guests taste the soup, that is summative. So it depends on where you are in the process.

In terms of process evaluation, we have our educators do side evaluations for every program they deliver so that we know what logistics issues they encounter on the ground, to see if people have different things they are seeking as their outcome.

Now, we are going to move on in terms of entering the matrix and ask how to use the matrix to show you how you might apply it in a couple of settings.

How To Select Appropriate Evaluation Tools That Correspond to Educational Objectives

Lauren Huminski, Nutrition Educator, Department of Bioscience and Biotechnology, Drexel University, Philadelphia, PA

We just heard a lot about the theoretical background about evaluation in working with your program. I want to step back and get everybody on the same page as far as looking at your objectives and knowing how you are going to measure them.

Okay, so what really is a good objective? Well, there are four key characteristics of your objectives that you want to look at. You want to make sure they are measurable, so you want to make sure that you are really looking at the objectives, the lessons that you are teaching, and make sure that you are able to measure it in some way.

You want to keep it simple. Yesterday, in a lot of the sessions we heard about keeping it simple. It is a lot easier to have one objective, and one lesson, rather than trying to hit

the participants with a lot of different things. It keeps it easier on you and easier on your audience.

You also want to keep it positive. Of course, for a lot of our NEP Programs, you want to stress positive influence on our participants and make sure that they are making changes towards healthier behaviors. We want to keep it focused on behavior, because the goal is not only to increase knowledge but, hopefully, to keep focused on behavior and have them make behavior changes.

Okay, so let's hear the pop quiz now. Let's look at an example. Example number one: "Children will not eat junk food for snacks." Okay, is it measurable? Is it simple? Is it positive? Is it focused on behavior?

Well, it is definitely a simple statement. We are only saying they are not going to eat junk food for snacks, and it is focused on behavior, because we are talking about what they are going to be eating. But, it is not really measurable. There is no qualifier in there; we are saying they are not going to eat junk food. Does that mean they are never going to eat junk food for snacks? There is no real qualifier as far as a way to measure it. It is also not positive. We really shouldn't be talking about not eating junk food; we should be focusing on the positive, increasing fruits and vegetables, and those kinds of things. So, it hits two of the four characteristics.

Okay, here is our next example: "Children will try a fruit unfamiliar to them." Take a second. Is it measurable? Simple? Positive? And, is it focused on behavior?

Well, this one, actually, hits the four characteristics that we talked about. It is measurable. We can ask the children if they had tasted the fruit, and then also observe them and see if they are going to try it. It is very simple, it is easy to observe, it keeps it simple for the kids. It is positive, because we are introducing new fruits and something unfamiliar, trying to teach about variety. It is also focused on behavior, because we are looking at something that they are going to do and, hopefully, incorporate into their everyday life.

I am going to give you the three simple steps about using a matrix, and using a matrix in your program. Step number one really focuses on the program matrix itself. This is the big picture. You are looking at the programs that you are offering, and looking at the basic goals and the things that you want to accomplish.

A lesson matrix takes it down a step further, and you are looking at the lessons that you are teaching, the activities that you are doing, and making sure that your objectives are really matching up with your lessons and what you are teaching.

The last one is the tool matrix. Because we talked about evaluation, it is important to choose the right tools to measure your objectives and make sure you are getting the point across to your audience. So we are going to look a little bit at a tool matrix.

How To Prepare an Objective-Based Matrix and Employ Appropriate Traditional, Experimental, or Automated Evaluation Tools

Karin R. Sargrad, MS, RD, LDN, CDE, Program Coordinator, Department of Bioscience and Biotechnology, Drexel University, Philadelphia, PA

If we look at step number one, the first thing you are going to do is ask yourself a couple of questions about your own program. First of all, in your program, what are the objectives that you are expected to meet. And then, secondly, within your program, what types of subprograms. For example, with our NEP, we have middle school, elementary, and high school. What kind of subprograms are in your FNS Program?

Once you have these pieces of information in mind, you are ready to develop a program matrix. You can follow along with this in the handout. The first page of the handout shows you the three different matrix examples.

So what we are going to do is go through these examples first, and then go through a blank matrix to give you an idea of how you might take these steps yourself.

If we take a look at the program matrix first, we are taking the example that Shortie already mentioned, the goal being to increase the variety of fruits consumed. So that is our overall goal in terms of fruit variety. Then, we have four objectives that are behavioral-based objectives. These were given to us by FNS to lead us through our program.

We have taken a look at where these objectives might best be addressed in the various subprograms that we have. Since our elementary program is quite large, and we do a lot of series work with these children, we are able to cover all four of these objectives in our elementary school programs. In our middle school program, we cover two of them and our high school program is a little bit smaller. At this point, we were only covering the one objective.

Keep in mind that you don't have to cover every objective in every program, but you should be thinking about your audience, thinking about your subprograms, and then mapping it out so that you have a clear understanding of where you are teaching the objectives. But keep in mind that where you teach the objective is also where you evaluate.

If we go on to step number two, what lessons or activities does my program offer? This second step in the second set of questions is designed to take you into the next type of matrix that you would develop. You would take again the same goal and the same set of objectives, and then think to yourself, or plan. If you were doing this evaluation task before your program started, you would actually be doing this step before you plan the lessons or activities to see where you have a lesson or activity that meets those objectives.

With our elementary school program, we actually have one lesson that covers many of these objectives, and that is “Inspector Fruitee.” During this lesson, the children become official taste testers and also learn about the importance of eating a variety of fruits in their diet. Then, we build on that lesson in our middle school program. A lesson called “Fruit Rocks” addresses some of those objectives. The high school program addresses one of those objectives. So you can see that you are building upon the various programs so that you are covering all objectives by the end of the program.

Step three is looking at the tool matrix. So you are getting into a more detailed and refined way of looking at your program and determining how your evaluation is going to take place.

As always, the first step you want to take is to ask yourself if there is a reliable tool out there that you can already use. Make sure that you have investigated that possibility before you develop tools. You want to ask yourself whether or not you want to use a paper test, like we have already mentioned with our fruit and health examples, or to use what we call experiential testing. We will be getting into that in a little bit, but I will give you some examples as we go along.

Thirdly, you want to ask yourself, what special issues you might need to consider when you are developing your test, including things like reading level, distractibility of the audience—particularly in, say, an after-school program—and the amount of time you have available during a lesson or activity to do your evaluation.

Let’s look at that in a little bit more detail, the types of evaluation tools available. As I said, paper evaluation tools are ones that we are all familiar with and kids are familiar with. They are quick, they are familiar to everybody, and they are anonymous. In other words, there is no subjectivity in using this type of test, particularly with the scannable instruments. They are a choice of what you can use, and I think we rely on these quite heavily because they are easy and familiar to us.

But, we have the option of using something that we call experiential evaluation tools. Experiential evaluation tools are ones in which we actually can engage the student in activity and the educator can observe or tally information that they are gathering while the students are engaged in the activity. In other words, you are teaching and the students are learning at the same time as the objectives are being evaluated. These tools are usually fun for the children, unobtrusive. In other words, the student doesn’t always know they are being evaluated, and they are woven right into the lesson content.

If we go back now to the idea of the tool matrix, which is what we are developing now—and it is, as you can see, a more complex idea of how to develop this matrix—you can see that we can then have a matrix where we put in the evaluation tools that we are using to evaluate each objective.

In our elementary program, if you take a look at that fruit and health tool that we use, we do use some paper evaluation tools. The questions that are listed there—questions one, two, and four—are used to evaluate certain objectives within the goal of increasing the variety of fruits consumed. Question number three actually evaluates a different goal in the program. When we look at those paper evaluations, the student fills in the circles, and they are scanned. That information then can easily be batched, stored electronically, and from those pieces of paper, we can start to make our report.

At this point, we can look and see where the gap is in looking at our objectives and whether or not we have evaluated all of them. We use some experiential tools in order to measure some of these objectives. The log book is one thing that we use, and I will take you through that a little bit.

As I mentioned, the experiential tools are ways to engage the student in activity at the same time that we are evaluating them. In this case, we have a log, or journal book, that the students receive at the beginning of a series program. We use it to measure behavioral intent. In this case, the children have tasted several different kinds of fruit and they are going to be letting us know whether, indeed, they did taste the fruit and whether or not they think that it is important for them to eat this fruit, as well as other fruits, looking at the variety of fruit objectives.

Another experiential tool that we use—again, it measures the same objective as the log book did, believing that it is important to eat a variety of fruits—is using a score sheet to tally some of the information gathered during the lesson. We use something called a voting board. It is another experiential evaluation tool to help the children engage in the lesson.

Using this particular tool, we are interacting with the children. The children become empowered to participate in this lesson because they are voicing their opinion about how they feel about fruits, in this case. The tools resonate with a classroom lesson, be it with math or language arts. In this case, they are building a bar graph, so it reinforces the math principles.

The educators then can tally the information that is gathered from the students and put it onto a score sheet that is manually entered into our database. This experience is very similar to the voting board. We call them the voting cards or sticks, where the children are rating whether they like or dislike the fruit or vegetable that was presented. They can do it a little bit more anonymously because they are holding it in front of them and they don't see the other person's choice.

We have evaluated the elementary program with paper evaluation tools, as well as experiential tools. And we have pretty well covered the objectives in this particular goal.

Now, Lauren will talk a little bit about the middle school and high school programs and how we evaluate those same goals.

MS. HUMINSKI: As shown above, the tool matrix is filled in with some of the tools that we use for elementary programs. This past year, we were evaluating our middle school and high school program, primarily using a pretest/posttest, a paper tool, a very traditional tool for this audience. We have been piloting some experiential tools for this audience as well, and I am going to discuss some of the examples that we have been using. Some of them include pop quizzes. We use some PowerPoint presentations with pop quizzes. We do a “Fast Food Fat Budgeting” game, “What Color is Your Plate?” and a “Portion Distortion” activity. I will go through some of these tools.

With our “Fast Food Fat Budgeting” game, the students go to different fast food restaurants that they would typically visit and they learn about not only the *Dietary Guidelines*, but about how many fat grams they should be consuming. So, they learn how to spend their fat dollars wisely. They are looking at healthier choices and they learn that there are healthy choices available at different fast food restaurants, and how they can make some better choices that way.

One of the other tools that we use is “What Color is Your Plate?” In this activity, they actually receive a plate and we have different food groups represented by different colored paper. So, they look at what they actually eat. They will look at a normal meal and ask, “What do I usually eat?” Then, they learn about increasing variety, choosing some different foods, and making sure they are getting foods from all different food groups.

Another example activity is our “Portion Distortion” activity. In this activity, the students can look at a typical portion size that they are consuming and get an idea if they are eating more than that in a normal sitting, less than that, about that, and they learn about what a normal portion size is. They see a lot of super-sized portions out in the real world, so they learn a little bit more about what a normal portion size is.

Now, Karin will walk you through an activity and, hopefully, you will have some time to do the sample matrix on your own.

MS. SARGRAD: Hopefully, you saw from what Lauren presented that there are many ways to incorporate evaluation into the actual activity. In some of the examples that she showed, the information that was gathered during that activity is gathered back up by the educator and worked into a score sheet so that we can keep track of how students are relating to portion size, for example, or the variety of foods that are on their plate.

Now, we will work with a blank matrix. We are going to go through just a practice. In this way, it might become a bit more real for you as something that you could take home as a tool to use in your own programs at a later date. Keep in mind that this is just a very simple part of the matrix. The entire matrix might take up many worksheets in Excel workbook.

Enter the Matrix: Integrated Evaluation in a Multifaceted NEP
Sample Objective Matrices

Program Matrix	Elementary School (ES)	Middle School (MS)	High School (HS)
Program Goal:			
Objective 1: Children will			
Objective 2: Children will			
Objective 3: Children will			
Objective 4: Children will			

Lesson Matrix	Name of Lesson or Activity
Program Goal:	
Objective 1: Children will	
Objective 2: Children will	
Objective 3: Children will	
Objective 4: Children will	

Tool Matrix	Name of Evaluation Tool/Item #
Program Goal:	
Objective 1: Children will	
Objective 2: Children will	
Objective 3: Children will	
Objective 4: Children will	

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So let's pretend for a moment. I am going to give you a little scenario, and you are going to then try to follow it through to completion. Let's pretend for a moment that you just received a lot of money from FNS to do a program--a new nutrition program in your schools, in your local district. You are asked to teach classes in all levels, so you need to do a program for elementary, middle school, and a high school. You are responsible for the planning of the evaluation before you start implementing this new program. Ideally, this is the optimum way to plan evaluation--to think of it before you have planned your lessons and activities.

So FNS has already provided you with the goals and the objectives that you need to reach. Your job is to decide where you are going to teach and evaluate these objectives, and determine which audience is going to receive the education and how you are going to measure whether or not these objectives are being met.

For sample purposes, we have already shown you how to go through the fruit goal of increasing variety of fruit in the diet. Now, we are going to move on to a vegetable sample, you can take a minute to think about how you would do this particular goal in your program. We have picked fruits and vegetables as the samples because they seem to be an overriding goal in almost all of our programs.

So, we are trying to find out how, indeed, we are going to make sure that we are covering all of these objectives in our program. What I would like you to think about in your programs, and say in your pretend program of a new school district program, is where you would think of teaching some of these objectives.

If we take our first objective, and move stepwise through that list in a logical progression, you would first look at the “Participant will be able to name a variety of vegetables.” Think about what audience is most appropriate for this goal. As you think about that, I am going to ask for a raise of hands, and you can fill in your matrix as we go along, with where you think this might happen. How many people would teach this in their elementary schools? How many people would teach it in a middle school? A few more. And then, how about in high school? So, a few would also teach it in high school.

Hopefully, you looked around the room a little bit as we did that voting procedure, because you can see that everybody has a little bit different opinion about where these objectives will be taught. And that is fine. It is important for you to think about your particular audience and the needs and issues that go along with your audience, to determine where those objectives would best be taught and, therefore, evaluated.

We can go through the rest of the matrix and, one-by-one, you would look at each objective that you have been given and decide where in your overall program you are going to be teaching and, therefore, evaluating those objectives.

If we move onto the lesson matrix, we can take a look at what kind of lesson you might be teaching in order to evaluate and teach these objectives. So, think about your own program, or the program you might design, and where you are going to be teaching that first objective.

You might have some examples in mind. I will give you an idea of where we teach a couple of them in our program. We have a lesson called, “Salsa Sleuth.” During this lesson, the children participate in a tasting activity, and try to decide what vegetables are in a particular salsa that has been made. They tell us whether or not they have tasted a new vegetable. So, in this case, the “Salsa Sleuth” lesson is teaching and also evaluating, trying a vegetable that is unfamiliar to them.

In another lesson that we do, called “Go for the Green”—this happens to be a middle school lesson—one of the activities is a veggie ball toss, where we have a plastic ball, like a beach ball, with lots of colors on it. They toss the ball back and forth; it is an icebreaker type of activity. Wherever their left thumb lands, it is going to be on a color, they have to shout out the name of a vegetable that matches that color. We go round and round the room, tossing the ball, shouting out vegetables that match the colors. In this way, you can evaluate that activity as well as teach something about vegetable variety. So, we place it in the objective of naming a variety of vegetables.

So you can see how that matrix could be completed by looking at all your different lessons, seeing if there is a gap in some of those objectives where you are not actually teaching those objectives somewhere, and then filling it in with a new lesson or activity.

The third step is the tool matrix. We have some examples of our vegetable tools (go to www.drexel.edu/nutritioneducation to see the vegetable tools) and would like you to look at them to see where you might fit them into this tool matrix. These are the tools that we have come up with. Of course, yours would look different—or not. You could use these three different tools. One is the vegetable paper evaluation called “Vegetable and Your Health”; the second tool is an experiential tool called the “Salsa Voting Game”; and the third tool is also an experiential tool called the “Salsa Tasting Party.”

So, we have these three tools. We are trying to decide where the objectives listed on the matrix are being measured. Take a minute to think about that and write some of them down. We will take a look at where we have placed these tools in the tool matrix. For “Being able to name a variety of vegetables,” we have looked at the tool number one, which is our paper tool. Question number one on “Vegetables and Your Health” seems to match that objective.

“Believing it is important to eat a variety of vegetables”—we have used tool number two to help learn the importance of eating a variety of vegetables. Again, we have gone back to the paper tool. “Trying a vegetable that is unfamiliar to them”—we have measured it through two different tools, a paper tool, and an experiential tool. Hopefully, you are getting the gist of how this process would be done.

Once you have completed all three tools, you are ready to compile your data and to report. Just to give you an example of how we do this, we take that data and put it into tables. These tables are coming right off a score sheet, a log book, or the Scan-Tron forms. We get numbers and tallies of how children in this case answered the question, “Did I try a new fruit today?” Some said yes, some said no—the table doesn’t always show the picture of what you want to say, so we then put them into graphic representations.

In the back of our annual report, we have all the data, using all the different tables that we have compiled. We put the data into text in the narrative section of the report. We pick out highlights and show graphic representations of how the children did on various tools that we have used. In this way, you can see that we have now completed the cycle that we showed earlier—the planning took place: we went through planning the programs, planning the evaluation, collecting the data, analyzing and interpreting, and we have written a report. At this point, as well as turning it in to FNS, you are also going to want to take a look at that more closely and determine where you want to change your program.

For example, we saw some results last year that children were learning how to name vegetables and they were tasting the vegetables, but they really didn’t know why it was important for them to eat those vegetables. This year we have revamped some of our materials so that we are concentrating more on those reasons behind eating vegetables and

why it is important to eat a variety of vegetables. So, you can see that the cycle of evaluation and planning continues.

We want to acknowledge the people that were involved in this program, and our funding body. I am going to turn this over now to Shortie, to present some conclusions.

DR. MCKINNEY: This has been like a little snapshot for you of how we approach the evaluation process. It really is a very small glimpse of a much more complicated process.

You can do evaluations lots of different ways, but this is an approach that we found works for us and allows us to be able to tap into all of the different kinds of things that we are doing and document our efforts so that we know what is working and what isn't, what needs to be improved, and what we really want to expand.