

Summative Evaluation Report

(Study 3 of 3)

Educator engagement with and reflections on the *In Defense of Food* curriculum

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Knight Williams Inc.

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Table of Contents

Introduction	3
Method	4
Sample information	4
Findings	5
Question 1: How did educators use and assess the <i>In Defense of Food</i> curriculum?	6
1.1 Educators' use of the curriculum	6
1.2 Educators' assessment of the curriculum's impact on their students.....	9
1.3 Additional educator ratings of the curriculum's impact on students	11
Question 2: Where did educators use or plan to use the <i>In Defense of Food</i> curriculum, and what was their past or future use of the curriculum among underserved youth?	13
2.1 Settings in which educators have used or plan to use the curriculum.....	13
2.2 Use of the curriculum among underserved youth	14
Question 3: How valuable did educators find the <i>In Defense of Food</i> curriculum?	16
3.1 Educator feedback regarding the value of the curriculum.....	16
3.2 What educators liked about the curriculum	16
3.3 What educators did not like about the curriculum	19
3.4 Whether educators find the curriculum valuable for use in the classroom, easy to use, and would recommend to others.....	21
Summary of findings	22
Final remarks	24
Appendix 1: The Getting Started page of the <i>In Defense of Food</i> curriculum	26

Introduction

As part of the National Science Foundation (NSF) funding for the *In Defense of Food* project directed by Kikim Media, the independent evaluation firm Knight Williams Inc.¹ conducted a summative evaluation of the project's key deliverables, which included: a PBS television broadcast program, an outreach effort, and an educational curriculum. This report (Study 3 of 3) considers the *In Defense of Food* curriculum and, in particular, educators' reactions to the curriculum in terms of perceived appeal, ease of implementation, and learning value. Feedback was gathered from educators who were surveyed about their use and assessment of the materials.

The curriculum was available through the film's [PBS website](#), as well as [PBS Learning Media](#) and [Change Food](#). Visitors to the PBS website who expressed an interest in the curriculum were taken to a new page, hosted by the project team, where they could provide their contact information, shown in the screenshot to the right. New contacts were added to a FileMaker Pro database maintained by Kikim Media, which also contained contact information and correspondence with the project's partner organizations and supporters. In all, the database contained contact information for 973 groups or individuals who expressed an interest in the curriculum.



Screenshot from the project's data collection page, <https://n344.fmphost.com/fmi/webd#IDOF>, accessed from <http://www.pbs.org/food/features/in-defense-of-food-defend-food/>

After expressing an interest in the curriculum and sharing their contact information, PBS web visitors were sent an email with a bit.ly link to the curriculum, shown in the image to the right. The curriculum's bit.ly link was also shared by [Change Food](#), meaning that those downloads were accounted for in bit.ly's final tally. According to the project team, over the course of the evaluation period from December 2015 through November 2016, the curriculum was downloaded from Kikim Media's bit.ly link 1,315 times (and the one-page description of the curriculum was downloaded 757 times). As noted above, the curriculum was also available through [PBS Learning Media](#), where downloads were not tracked by Kikim Media's bit.ly link and were, thus, unknown.

We're delighted to know that you are interested in our lesson plans for middle-school aged students. Your use of these materials can make a lasting difference in the lives of your students.

You can download a one-page description of the curriculum here: <http://bit.ly/idofcurriculumpage>.

Or you can download the full curriculum here: <http://bit.ly/idofcurriculum>. It provides detailed instructions about how to use the lesson plans, but if you have any questions we would be happy to help you. Just email us at eatfood@kikim.com.

We'll follow up with you shortly to see if there is anything further we can do to help.

Thanks again for your interest. We look forward to working with you.

We wish you the best of luck with your efforts and would love to hear how you do at eatfood@kikim.com.

All the best,

The In Defense of Food team

Screenshot from an email sent by Kikim Media to web visitors who provided contact information and expressed interest in the curriculum

¹ Knight Williams Inc. specializes in the research, development, and evaluation of media-based health and informal science education programs.

Method

Recruitment strategy

A total of 31 educators were recruited to participate in an online survey about their use, opinion, and assessment of the curriculum. This group of 31 was directly approached because the educators previously either: (1) contacted Kikim Media for information about the educational materials or (2) indicated to the team that they used or planned to use the materials in an educational setting. Recruitment occurred through direct email. To ease the burden of the evaluation request, educators were provided with an honorarium of \$15 for fully completing the evaluation within the allocated two-week timeframe.

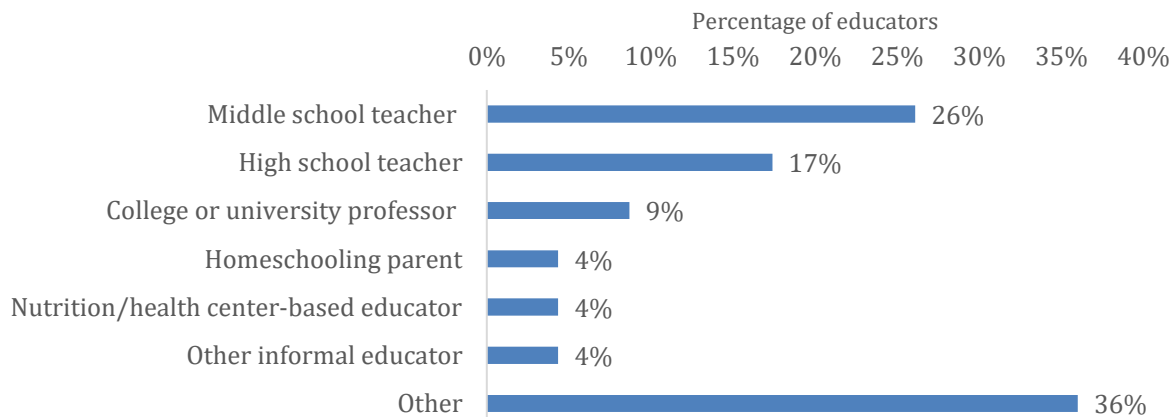
Analysis

Basic summary counts and descriptive statistics were performed on the quantitative data generated from the evaluation. Content analyses were performed on the qualitative data generated in the open-ended questions. The analysis was both deductive, drawing on the objectives of the project, and inductive, looking for overall themes, keywords, and key phrases. All analyses were conducted by two independent coders. Any differences that emerged in coding were resolved with the assistance of a third coder.

Sample information

About three-quarters (74%) of the 31 recruited educators completed the evaluation in the allotted time frame. These 23 educators were from 17 different states, including: CA (3), NY (2), OR (2), PA (2), GA (2), WI (2) AR (1), ID (1), IL (1), IN (1), KS (1), MA (1), ME (1), MI (1), MT (1), NE (1), and NH (1). As shown in the chart below, one-quarter (26%) of these educators were middle school teachers, while under one-sixth (17%) were high school teachers. Smaller groups of educators were college or university professors (9%), homeschooling parents (4%), nutrition/health center based educators (4%), or informal educators (4%).

Educators' current or most recent role in education (N=23)



The largest group of educators, just over one-third (36%), described themselves in other educator roles, including:

- *Director of curriculum, instruction, and assessment for a regional k-12 school district*
- *Adult basic education teacher at a men's state correctional institution.*
- *College Admission Office*
- *Consultant*
- *Foodcorps Service Member, educator that comes into classes, afterschool programs etc.*
- *I retired in June and will substitute this year for a maternity leave.*
- *I'm an elementary ESL teacher.*
- *Land Grant Extension Agent*
- *Personal chef who likes to educate about food. (Was previously a secondary teacher.)*
- *College Extension Educator*

Findings

Study 3 presents the findings relating to the educators' feedback, exploring the following three questions:

Question 1: How did educators use and assess the In Defense of Food curriculum?

Question 2: Where did educators use or plan to use the In Defense of Food curriculum, and what was their past or future use of the curriculum among underserved youth?

Question 3: How valuable did educators find the In Defense of Food curriculum?

Question 1: How did educators use and assess the *In Defense of Food* curriculum?

Educators were first asked whether they had used or planned to use the curriculum. Those who reported they had were then asked to describe how they used the curriculum, whether they evaluated the impacts of the curriculum on their students, and to describe any impacts they observed. These educators were further asked to rate their perceptions of the curriculum's impact according to the overall curriculum goals outlined by the *In Defense of Food* project team. Those who had used the curriculum but had not evaluated its use were asked to consider, from their perspective, what their students benefited or gained from their use of the curriculum.

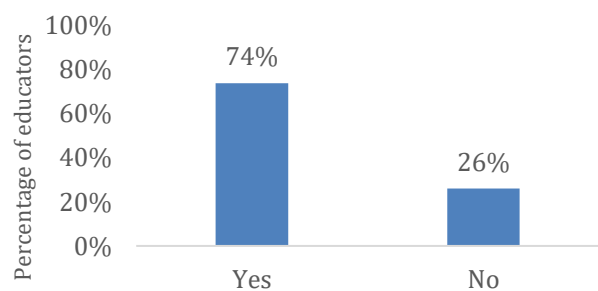
1.1 Educators' use of the curriculum

As shown in the chart to the right, of the 23 educators who responded to the survey request, just about three-quarters (74%) indicated they had already used the *In Defense of Food* curriculum, while about one-quarter (26%) had yet to do so.

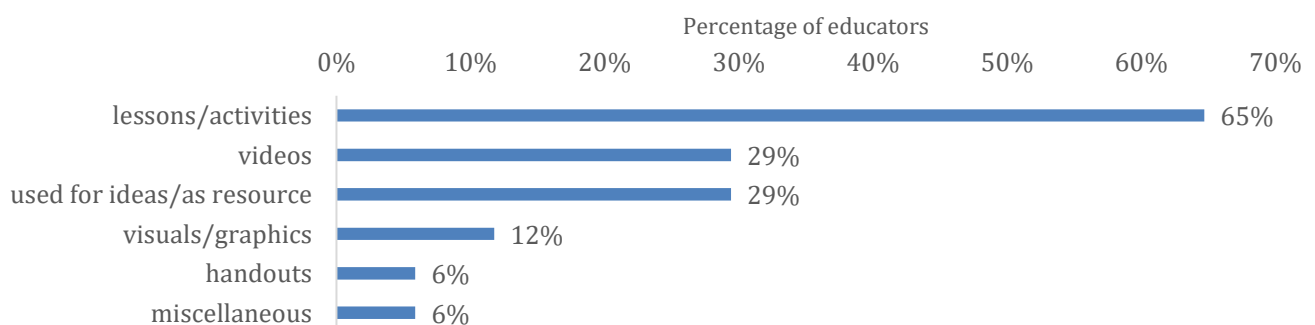
Elements educators used

The 17 educators who indicated use of the curriculum were then asked to describe the elements they had used to date. As shown in the chart below, more than two-thirds of the educators pointed to using one or more of the lessons/activities (65%). More than one-quarter each described using the videos (29%) or indicated they used the curriculum for ideas or inspiration or as a reference or resource for another activity (29%). Smaller groups pointed to the curriculum's visuals/graphics (12%), handouts (6%), or miscellaneous elements (6%).

Whether educators used the *In Defense of Food* curriculum (N=23)



Elements of the *In Defense of Food* curriculum that educators used (n=17)



A sampling of educators' comments about the elements they used follows below:

Lessons/activities (65%)

- *IDOF Bingo, Food like substances lesson (Soda Trees and Chemical cuisine)*
- *"I am a curriculum director so I have shared the curriculum with my health and nutrition/culinary teachers in the district.*
- *They have used relevant units.*
- *In addition, I have shared the curriculum with my middle school principal as a potential topic during his school's seminar/enrichment blocks."*
- *I used almost every lesson available except for those that dealt with internet use. I work in a state correctional institution so we are limited in that respect. I also had to skip activities that required bringing in food items for the same reason listed above.*
- *I used the guide as a resource in developing a reading guide for a Roman Catholic girls' high school in Omaha, Nebraska. The school is a client of my company (an environmental sustainability consulting company).*
- *In my Applied Nutrition for Healthy Living college course, I used the curriculum to help the students apply what they learned from the film to what we are discussing and learning in the course.*
- *I have used many of the activities, not all, but many.*
- *Food Sort, Tasting Seeds, Explore Food Package Ingredient Lists, Onion Ball, Claim Game, Fun Fruit, Watched most of the clips. I did this with my high school students who were taking Foods and Nutrition classes (almost all grades 8-12) as well as with the course I taught at the university for future teachers.*
- *I have used the videos as well as the handouts/activities for the lessons. We used the curriculum as a way to build background knowledge to write letters to our principal campaigning for healthier lunch options.*
- *"Making the Chocolate Chip cookie". I also used the activity where students had to read labels to determine what the food was.*
- *I used the first unit and began the second to teach middle school ESL students.*
- *We have used the first three lessons. Our periods are 42 minutes long, so it took a week to get through two lessons. We used the food sort activity, the leaves and roots, and the ingredient shopping. We also used the seed tasting and are using the idea of Food vs Food and centering the lessons around food rules. We took out the Cookie Bake Race. The kids liked it, but we didn't feel we could justify the time vs the learning.*

Videos (29%)

- *I used the video clips, and the colorful portions of the curriculum. The color was eye catching, visually simple, and informative for my students.*
- *I used the short video clips and made guiding questions.*
- *Food Sort, Tasting Seeds, Explore Food Package Ingredient Lists, Onion Ball, Claim Game, Fun Fruit, Watched most of the clips. I did this with my high school students who were taking Foods and Nutrition classes (almost all grades 8-12) as well as with the course I taught at the university for future teachers.*
- *I have used the videos as well as the handouts/activities for the lessons. We used the curriculum as a way to build background knowledge to write letters to our principal campaigning for healthier lunch options.*
- *I used the In Defense of Food video as a full-length showing in my high school class, ages 15-18, and created a hand-out from the materials in this curriculum for students to follow along as they watched to get the key ideas from the presentation...*

Used for ideas/as resource (29%)

- *My daughter wrote a 4th Grade persuasive paper on "Kids in the U.S. should eat more vegetables every day." She used the curriculum as a reference source for cutting-edge information to support her claim.*
- *I used the guide as a resource in developing a reading guide for a Roman Catholic girls' high school in Omaha, Nebraska. The school is a client of my company (an environmental sustainability consulting company).*
- *I used the short video clips and made guiding questions.*
- *I used the guide for ideas when I held a Lunch and Learn at my office*
- *I used the In Defense of Food video as a full-length showing in my high school class, ages 15-18, and created a hand-out from the materials in this curriculum for students to follow along as they watched to get the key ideas from the presentation. I knew it would take a lot of prep time to go through the whole curriculum and adapt it from middle-school level content to high school level content and did not have time to do that during the school year. I teach at least 4 different classes each day each term. I planned to look more carefully at the curriculum when I was not teaching.*

Visuals/graphics (12%)

- *I used the video clips, and the colorful portions of the the curriculum. The color was eye catching, visually simple, and informative for my students.*
- *I used the visuals that showed the amount of sugar found in certain foods and drinks.*

Handouts (6%)

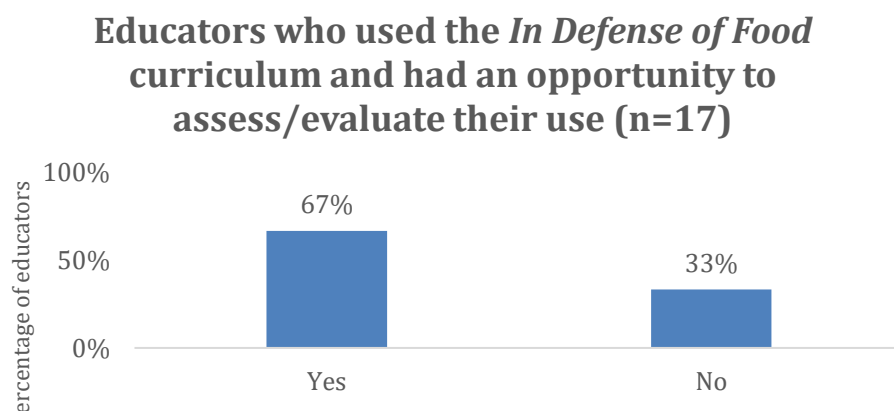
- *I have used the videos as well as the handouts/activities for the lessons. We used the curriculum as a way to build background knowledge to write letters to our principal campaigning for healthier lunch options.*

The handful of educators who hadn't yet used the curriculum explained that they intended to or still planned to use or adapt the curriculum, as illustrated in their responses below:

- *I teach high school level health and have viewed the activities however I have not used it.*
- *I have not used the curriculum as it stands. I have not had the opportunity to use it in a school. I have used part of the information in a program I was doing for an adult audience.*
- *I come into middle school classes to teach hands-on nutrition lessons. I am adapting the curriculum for a 45 minute sessions.*
- *I have plans to possibly use this program at the local Boys & Girls Clubs but have not been able to volunteer yet as I'm waiting for my background check to be completed.*
- *I had planned on trying to use it for a class, but didn't have the time to organize it.*

1.2 Educators' assessment of the curriculum's impact on their students

The educators who indicated they had used the curriculum were further asked if they had an opportunity to assess/evaluate how their use of the curriculum impacted their students' knowledge, beliefs, or attitudes. As shown in the chart below, more than two-thirds (67%) reported they had.



What educators who evaluated the curriculum observed about their students

The educators who had an opportunity to evaluate the curriculum were further asked to explain what their assessment/evaluation found in terms of what the youth learned or gained from their use of the curriculum in an educational setting. Most often these educators explained that they found their students did one or more of the following as a result of their experience with the curriculum: researched more info about nutrition/healthy eating; made healthier food choices; cooked healthier meals; analyzed food and advertising techniques in more critical ways; and talked to family members or others about their experience with the curriculum. A sampling of their observations follow below:

- *My daughter and I first watched the PBS documentary during lunch. She was initially resistant to viewing it because she thought she would be bored by the content. I insisted. We watched and she was utterly spellbound! She began reading labels, watching caloric intake, and even began to modify her choice of drinks. Soon afterward, she was tasked with writing a persuasive paper and she quickly selected "Kids in the U.S. should eat more vegetables every day." After writing the paper and studying the IDoF Curriculum as a reference source (as well as other library and online sources), she decided to start learning how to cook healthy entrees and snacks. She has been using a kid-friendly cookbook which we initially found at the library and now own called, "Delicious Vegetarian Main Dishes".*
- *Anecdotal observations made by the teacher throughout the lessons and the post-lesson discussions about food and the stigma of healthy versus junk foods*
- *I delivered this information last year and my students are still connecting with me about facts, figures, and food choices this year!*
- *There was a quiz at the end that focused on the food rules.*
- *Students had written discussion questions and an exam that covered the material from the film*
- *My high school students conducted further research on the benefits of healthy diets. They wrote short research essays based on these results. They also had to incorporate at least one direct quotation from IN DEFENSE OF FOOD. The results were amazing. Most, if not all, of my students gained valuable insights into healthy eating from this experience.*

- *I found that they were able to evaluate their food choices and decide about how they wanted to change their habits.*
- *My final cumulative project found that students understood that food made from scratch was overall healthier for them.*
- *With everyone I taught, I found it interesting how little people really know about their food and that the activities we did opened their eyes to what packaged food and convenience food really is all about. I found that they now knew more.*
- *But only in a simple handout and discussion.*
- *I felt my students were more aware of chemicals in the foods (phuds) they ate and of how advertisers tried to appeal to them.*
- *The students have been discussing food differently in class. They talk about Phuds as a part of normal conversation. They are talking about it with their families, and we've gotten several emails about parents. A few parents asked the kids to stop telling them to eat healthier! Most of our parents are emailing in with positive feedback. The students are responding in their conversation and attitudes. Usually, they ask to make cookies in every cooking lesson. When we finally let them make oatmeal cookies at the end of the quarter, they were thrilled and treated it as a really special treat. This is a 180 turn from how middle schoolers think.*

What educators who didn't evaluate the curriculum observed about their students

The educators who didn't have an opportunity to evaluate the curriculum were further asked to consider, from their perspective, what their students benefited or gained from their use of the curriculum. Most often these educators explained that they didn't have enough to go on to make a determination or that they observed their students showing increased awareness about nutritional issues, and in one case better food choices and consumption of whole foods. Their responses included:

- *I will know more on this after I look at student data.*
- *I do know that the grade 8-12 students have demonstrated an awareness of health and environmental impact.*
- *I simply provided a list of reflection questions; I did not get to see how they were used.*
- *The staff from the Divisional meeting could not believe everything that was in a pop tart.*
- *My fellow employees raved about it. It was the longest session we did over the summer and several people have put these practices into use in their lives!*
- *Students became more aware of the food they ate and the decisions they made. They especially engaged in the conversation around cost since 100% of my students receive free lunch.*
- *Better food choices and eating more whole foods.*

1.3 Additional educator ratings of the curriculum's impact on students

The educators who used the *In Defense of Food* curriculum with their students were asked to indicate how much they agreed or disagreed with a series of statements about the curriculum, using a scale from 1.0 (*strongly disagree*) to 7.0 (*strongly agree*), with 4.0 being neutral. As shown in the table below, though there were differences of opinion, overall, the educators *strongly agreed* (median rating 7.0 each) that their students learned something new from the curriculum, that their students expressed an increased interest in the topics in the curriculum, and that they would be more likely to study food/nutrition science with their students in the future. They generally *agreed* (median rating 6.0 each) that their students' knowledge of food/nutrition science concepts and research procedures increased, that their ability to analyze how food/nutrition science has changed our food system increased, and that they expressed an interest in pursuing more information about the topics in the curriculum.

Median educator ratings of the impact of the <i>In Defense of Food</i> curriculum on students (n=17)							
After being exposed to some or all of the curriculum modules....	Strongly disagree 1.0	Disagree 2.0	Somewhat disagree 3.0	Neutral 4.0	Somewhat agree 5.0	Agree 6.0	Strongly agree 7.0
My students learned something new from the curriculum.	7.0 (IQR=1)						
My students' knowledge of food/nutrition science concepts and research procedures increased.	6.0 (IQR=1)						
My students' ability to analyze how food/nutrition science has changed our food system increased.	6.0 (IQR=0)						
My students expressed an increased interest in the topics in the curriculum.	7.0 (IQR=1)						
My students expressed an interest in pursuing more information about the topics in the curriculum.	6.0 (IQR=2)						
I will be more likely to study food/nutrition science with my students in the future.	7.0 (IQR=1)						

When invited to explain their ratings, the educators praised various aspects of the curriculum or elaborated on their experience implementing it, or the impacts they observed on their students, as shown in the examples below and on the next page:

- *This IDoF documentary and curriculum have changed the language and frequency of our discussions regarding food choices and nutrition. IDoF also has enlightened my daughter's ability to search for and interpret nutritional information on her own.*
- *My students learned about a whole new world about food via this curriculum. We continue to practice what was learned in our weekly classroom cooking program!*

- *Most of my students were not knowledgeable on the topic of food origins but I did have one that had previously worked for one of the major chicken producers and another who managed various restaurants. They were all very fascinated about the information presented.*
- *All were interested in knowing more. I just wasn't sure what depth they wanted to go. Some seemed just interested in how things taste and not the science behind it all.*
- *Even though students were interested in the topics presented, it's difficult to pry the hot Cheetos from their hands!*
- *The students felt the topic was interesting. They were interested in learning more about eating healthy. They still like a lot of the food that is easily accessible.*
- *I teach food and nutrition units in 3 different classes I teach (Food and Fitness, Health Lifestyles, and Teen Health). This has always been an important part of my curriculum but I really like the simplicity of the guidelines in *In Defense of Food* and this new curriculum helps make it visual.*
- *I loved the opportunity to share a passion of mine with my students. My job has since changed and my ability to use the curriculum has as well. Previously I taught in hour-long classes with middle school students. Now, I teach 30 minutes ESL blocks with elementary school students grades 1-5 (separately). I would love a curriculum more suited to elementary school students that has a language development focus!*
- *We didn't get far enough into the nutritionism portion of the lessons. Our time with them is very limited, but we will continue to draw from the curriculum for the second year of the course.*

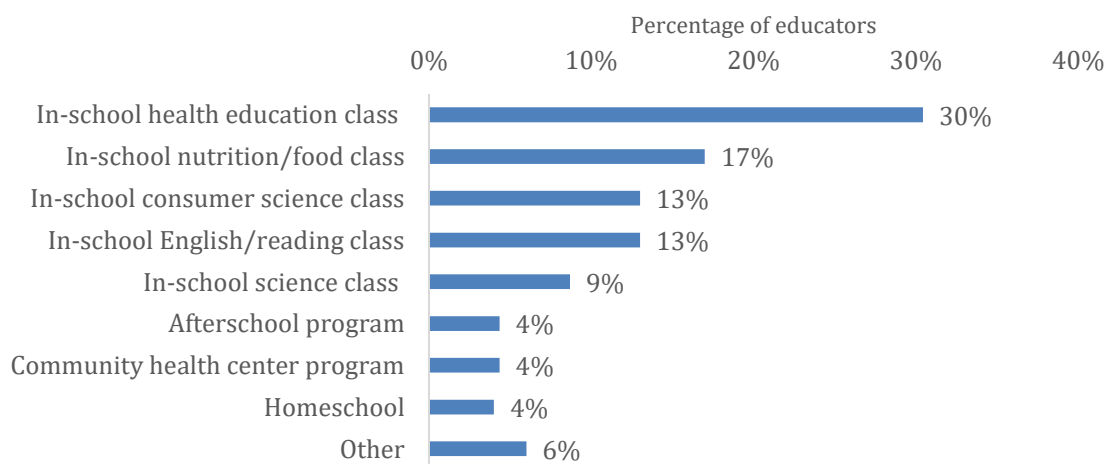
Question 2: Where did educators use or plan to use the *In Defense of Food* curriculum, and what was their past or future use of the curriculum among underserved youth?

Educators who used or planned to use the curriculum were asked to identify the settings in which they did or would implement the curriculum, and to describe their past or future use of the curriculum with underserved audiences.

2.1 Settings in which educators have used or plan to use the curriculum

The educators were asked to report the settings in which they used or planned to use the *In Defense of Food* curriculum, choosing from among the options listed in the chart below, and an Other option. The largest group, not quite one-third (30%), pointed to in-school health education classes, followed by in-school food/nutrition classes (17%), in-school consumer science classes (13%), and in school English/reading classes (13%). Smaller groups of educators pointed to in-school science classes (9%), afterschool programs (4%), community health center programs (4%), homeschooling (4%), and Other settings (6%).

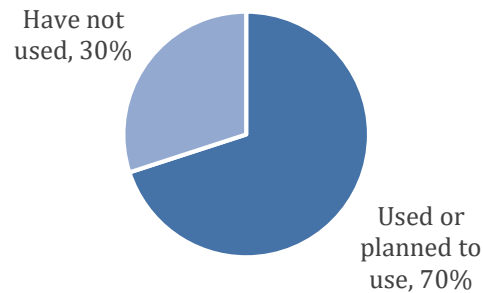
Settings where educators used or planned to use the *In Defense of Food* curriculum (N=23)



2.2 Use of the curriculum among underserved youth

Educators were informed that one of the *In Defense of Food* project's goals was to facilitate use of the *In Defense of Food* resources among traditionally underserved or disadvantaged youth. They were then asked to describe if and how their use (or future use) of the *In Defense of Food* curriculum helped (or would help) meet this goal. As shown in the chart to the right, nearly three-quarters (70%) of the educators who shared a response described their use (or expected use) of the curriculum with underserved youth, and/or in some cases adults. At the same time, just under one-third (30%) indicated they had not used the curriculum with underserved audiences. Examples of their comments in each case follow below:

Educators' use or expected use of the curriculum with underserved audiences (n=23)



Examples of how curriculum was used with underserved youth and/or adults (70%)

- *In agricultural science courses I serve a rural, economically disadvantaged student population who have lost their connection with growing food. I have worked to integrate a school garden on campus over the last few years and this is a good conversation piece to tie those two concepts together where students are challenged to think of food more consciously and how to provide for themselves a bit more in the process through gardening.*
- *I loved the part of the movie that focused on gardening and creating greens space in the city areas. Community gardens.*
- *My students are still talking about what they learned from last year. To me, that speaks volumes! My hope is that they are indeed carrying this knowledge with them and are creating positive lifelong food and eating habits.*
- *The inmates actually brought in a list of what they're able to order from commissary and wanted to know which choices were healthy. We did the same with the menu, which was much more difficult.*
- *Many of my students are underserved or disadvantaged youth. Viewing the film opened their eyes to the need to adopt healthy eating habits.*
- *I used the curriculum in my Summer school Health class. The students taking the class are mainly there to get ahead. There are many backgrounds of students there.*
- *40% of our 1000 student body qualifies for free and reduced lunch. I hope to use this curriculum to better connect kids to healthy food through the family consumer science classes and possibly science classes for 6th, 7th and 8th graders. Through my position I come into many classes, meeting a number of the student body including traditionally underserved and disadvantaged students.*
- *40% of students in our building are on a free or reduced lunch program*
- *I haven't used it in this way, but I agree that it should be used. I often am asked by community groups and other places to help put on programs for youth as well as their parents (just finished a preserving workshop series with a local community garden and the neighborhood). This could easily be adapted and used for this group.*
- *I'm not sure. I think I would have to offer the class in a different setting to achieve that goal.*
- *I will be using the curriculum for disadvantaged adults in food pantries.*
- *My use of the curriculum offered insight to my students who often buy food at a local corner store. I think they realized that there needs to be changes in the neighborhood, but that is as far as we got*

last year. We will start this curriculum again next semester with students and hopefully will be able to take this message further knowing now what engages students and what doesn't.

- *The community I work in does not have many underserved or disadvantaged youth. However, from the lack of skills and abilities of our youth is astounding and they are disadvantaged. Their ability to read and interpret recipes and make food is at a very low level. Even though students live in a community that is affluent, the problem is that many eat out or eat on the run. It is important that they know how to prepare food and know what they are eating. I have focused on easy to eat foods that can easily be prepared in a microwave - eggs in the microwave is one lesson. Students need to know how to measure ingredients and how to prepare food. IDOF is a great step, but students need to go even further - they need hands on applications. Incorporating lessons for FCS classrooms would be helpful. As you move forward, please include FCS teachers on your committee. There are some of us still teaching FCS- the ability to prepare food is more critical than ever! Another thing is that students are losing their ability to fully use their hands. They have trouble peeling vegetables, cutting fruit/vegetables. In terms of food preparation, I would generalize that the majority of our youth are disadvantaged.*
- *63% of the students in my school qualify for free and reduced lunch. This year, rumors are that of our 800+ students, 23 are homeless. The school district has chosen our school for a HeadStart infant center to open this year for 9th and 10th grade teen parents. I think those descriptions fit underserved and disadvantaged. But our school is a very caring environment with nice students.*
- *I worked with non-native English speakers, students of color, in a Title 1 school. They loved sampling food and how relevant the curriculum was.*
- *We have a significant low-SES population, so we are targeting them as we teach the entire school.*

Explanations of why curriculum wasn't used with underserved youth (30%)

- *Our use did not have that goal as an end result. We do, however, highly encourage that goal.*
- *Hopefully our students will go on to work with these populations*
- *This is hard to do because most of our schools do not meet those guidelines. If I can get a school to use it, there would be students who are underserved.*

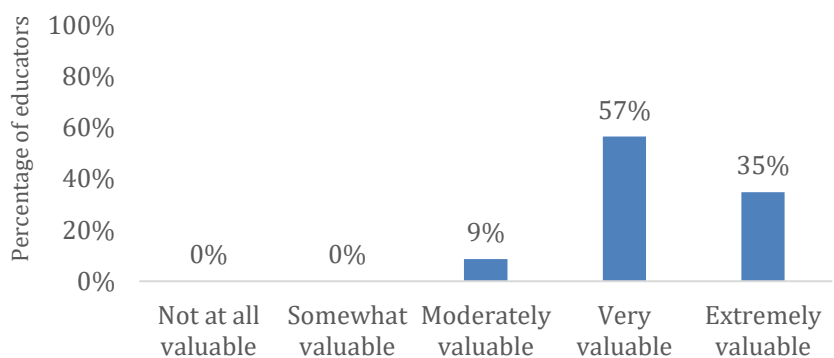
Question 3: How valuable did educators find the *In Defense of Food* curriculum?

Educators who used or planned to use the curriculum were asked for their perceptions of the curriculum's overall value in their educational setting, what they liked and disliked about the curriculum, and to rate its value in implementation.

3.1 Educator feedback regarding the value of the curriculum

All of the educators, whether they had used or planned to use the curriculum, were asked to rate the value of the curriculum for use in their educational setting, using the scale from 1.0 (*not at all valuable*) to 5.0 (*extremely valuable*). As shown in the chart to the right, more than nine-tenths found the curriculum to be *very* (57%) or *extremely* (35%) valuable. The median rating was 4.0 (*very valuable*).

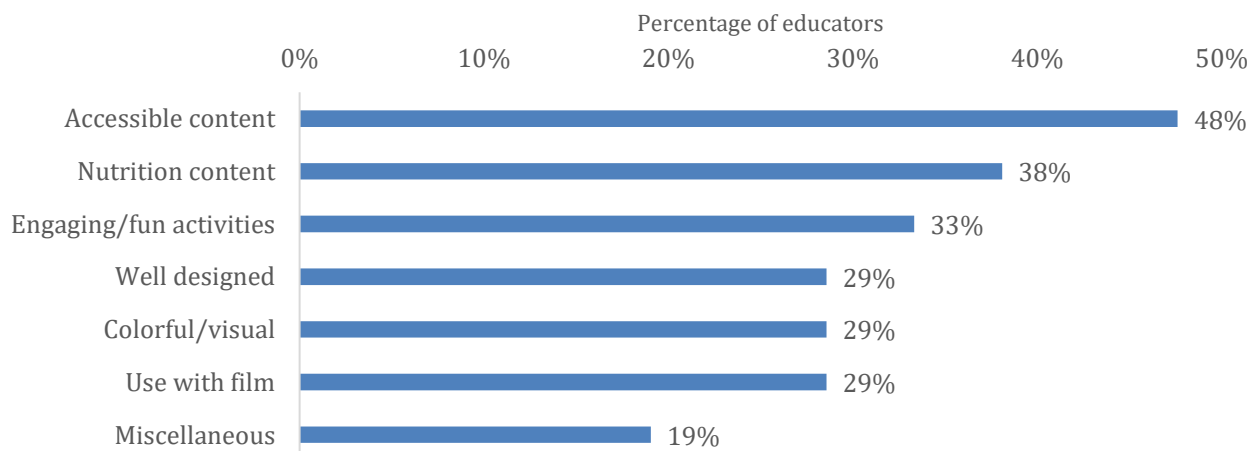
How valuable educators found the *In Defense of Food* curriculum for use in their educational settings (N=23)



3.2 What educators liked about the curriculum

Educators were asked to describe what they liked most about the curriculum. As shown in the chart below, nearly half (48%) focused on the curriculum having accessible, easy to understand content, while not quite two-fifths (38%) appreciated the nutrition content which

What educators most liked about the *In Defense of Food* curriculum (n=21)



they variously described as informative and well presented. One-third (33%) focused on the activities being fun and engaging, while slightly smaller groups described the curriculum as well designed (29%), colorful/visual (29%), and/or a good complement to their use of the film (29%). About one-fifth (19%) pointed to miscellaneous elements.

Examples of the educators' descriptions of the aspects of the curriculum they most liked follow below:

Accessible content (48%)

- *The deconstruction of food science is great. Being able to speak about food choices in a pragmatic, non-judgmental way is also helpful with teenagers.*
- *It is easy to follow, visually enticing to the students, and very informative.*
- *...the insights were on-target-- not too simplistic and not too complicated; it was targeted well to a youthful audience.*
- *I like how the curriculum gives the viewer an idea about the impact that over processing is having on people and our world. I like also how it is easy to understand.*
- *I liked the real world topics and hands-on excersizes.*
- *I like that the curriculum is easy to follow, and simple to understand*
- *I like how accessible it is to students.*
- *...accessible vocabulary.*

Nutrition content (38%)

- *"I would be excited to see how the activities, in particular, would influence a group of middle or high school students who immersed themselves in a semester-long nutritional exploration using this as a guide.I also think that this curriculum is good enough to make a little more kid-friendly so that more elementary students (like my daughter) could, likewise, be spoken to and guided in an intelligent manner about this subject material. In fact, I think, with some modification, that this could become a homeschool health resource that kids could pursue on their own and possibly be the impetus for changing their families!"*
- *The deconstruction of food science is great. Being able to speak about food choices in a pragmatic, non-judgmental way is also helpful with teenagers.*
- *I really enjoyed the lesson that focused on "Foods," and "Phuds." I'm sure if everyone used the rule which was taught in that lesson, far fewer non-nutritious foods would be consumed.*
- *Some of what I love I've already indicated. I enjoyed the message and the ability of students to question.*

Engaging/fun activities (33%)

- *I thought the activities looked fun and entertaining while educational.*
- *It passes on the info in a fun and interesting way for kids--hands on stuff, making things real for them using things that they know, video clips from the film, etc.*
- *It gives new ways to be interactive with a nutrition curriculum.*
- *Some of what I love I've already indicated. I enjoyed the message and the ability of students to question. I loved the visuals (especially for ELLs) and various activities. It's relevant.*
- *Engaging activities,.*

Well designed (29%)

- *I liked the real world topics and hands-on excersizes. Although the timing is not ideal the lessons are easily pulled from. I enjoyed the supplemental information and easily printed worksheets. Extremely clear organization, visually appealing material.*
- *It was designed well and easy to read; the insights were on-target-- not too simplistic and not too complicated; it was targeted well to a youthful audience.*

- *I feel it is put together in a very thoughtful way. the "flow" is good.*
- *So many options to choose from and even though it was made for middle schoolers and for an after school program, much of it can be used for any grade with adaptations.*
- *The activities were well laid out and easy to use.*
- *1. Detailed lesson plans 2. copies of all class materials need 3. Hand-outs for in-class use 4. Take-home activity sheets 5. Colorful and attractively presented"*

Colorful/visual (29%)

- *It is easy to follow, visually enticing to the students, and very informative.*
- *... visually appealing material.*
- *.. I also like the documentary and video components, as many of our students are 21st century learners and need that visual piece.*
- *Colorful and attractively presented*
- *I loved the visuals (especially for ELLs) and various activities. It's relevant.*

Use with film (29%)

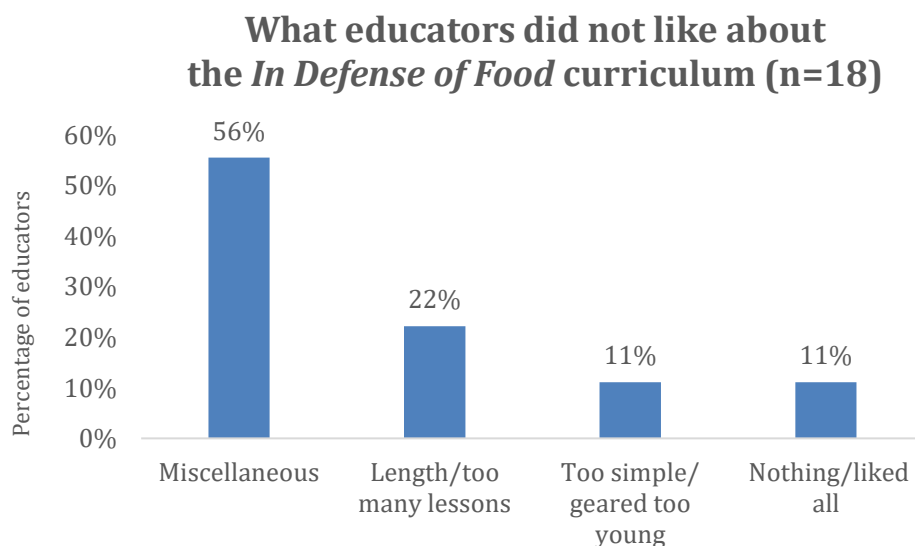
- *I like the application of content from the film*
- *Loved the film and its central message. The examples of the amount of sugar found in foods were eye-opening.*
- *It passes on the info in a fun and interesting way for kids--hands on stuff, making things real for them using things that they know, video clips from the film, etc.*
- *...I also like the documentary and video components, as many of our students are 21st century learners and need that visual piece."*

Miscellaneous (19%)

- *I also think that this curriculum is good enough to make a little more kid-friendly so that more elementary students (like my daughter) could, likewise, be spoken to and guided in an intelligent manner about this subject material. In fact, I think, with some modification, that this could become a homeschool health resource that kids could pursue on their own and possibly be the impetus for changing their families!"*
- *Honestly, I liked it all but do have two suggestions I will post in the next response.*
- *I like how the curriculum gives the viewer an idea about the impact that over processing is having on people and our world.*

3.3 What educators did not like about the curriculum

Educators were also asked to describe anything they did not like about the curriculum. As shown in the chart below, more than half (56%) of the 18 educators who answered the question pointed to a reason specific to their use that was not raised by the other educators surveyed. Just over one-fifth (22%) felt the curriculum was too long or featured too many lessons for their purposes, while about one-tenth (11%) felt the presentation was too simplistic or geared too young for the educational level of their students. Another one-tenth (11%) said there was nothing they disliked.



Examples of the educators' descriptions of the aspects of the curriculum they most liked follow below:

Miscellaneous (56%)

- *The execution of the curriculum, as it stands, is geared toward groups of older kids being led by a classroom adult mentor. I think that kids NEED this information. Maybe prime the pump by sending the IDoF documentary for free to schools and then let the kids be enlightened and ask their parents to buy the kid-friendly book -- which you, of course, would have to publish and sell. Or, better yet, make it into an APP or game where they could earn points for completing nutrition challenges and activities. Just a thought..*
- *For those who do not have internet access, including where in the DVD one could find the clips would be useful; for example 16:50 - 20:46. Also, I highly recommend labeling the activity cards with which activity they specifically go with. I found myself labeling and sorting them into baggies so I knew which cards went with which activity.*
- *The activities are repetitive.*
- *I teach in Canada. So some of the items are very "American" and we have to adjust and put in other things to make it relevant to Canadians and food that is available here.*
- *The first video basically made it seem like yoghurt (especially the yoghurt depicted) isn't good for you. I forget if the yoghurt was "Yoplait Light," but people watching this video could make a mental note that all yoghurt (including Yoplait Light) isn't that nutritious for you. Most regular people may not realize that part of the sugar in yoghurt is lactose.*

- *I think for my students in particular it would be nice to have something in the curriculum that gives students a concrete way to ease off of the junk food and get more fresh food into their diet. If there was one complaint from my kids is that it didn't seem realistic for them to start eating real food.*
- *I wish you would have lessons that could be used in food labs. It didn't appear that you had any FCS Educators on your committee. I personally wish you would have included people who have the nutrition background and teach hands-on life skills to students.*
- *Oregon schools are under-funded. I have a laser-colored printer that was purchased with Carl Perkins money but our principal lectures on printing costs starting at the middle of each school year. Much of the classroom materials can be printed in color on tagboard and used over and over. But a lot of the pages to print are one-use only. And it will take a lot of time to get all those materials printed and cards cut apart. A student aide will be useful*
- *Since I am currently an ESL teacher, I would love to see more language development opportunities-- vocabulary building activities, sentence frames, structured debates, and the like.*
- *The cookie bake race was fun, but I would have gotten flak had an administrator seen it. The concern would have been that it wasn't really adding learning if the point of the lesson was to analyze ingredient lists*

Length/too many lessons (22%)

- *There are a lot of lesson to cover.*
- *I was not able to get through the entire curriculum with my students- no complaints!*
- *The length is somewhat prohibitive. I generally speak to a group as a guest speaker. There are too many lessons for me to present the entire program. But I can pick and choose what works best for me and my audience.*
- *The lesson timing for two hours seems unrealistic. I don't know of an afterschool program that would want to keep interest that long on content after a day at school.*

Too simple/geared too young (11%)

- *They were too simplified for my students.*
- *It is probably geared toward younger students.*

Nothing/liked all (11%)

- *Nothing.*
- *Nothing comes to mind.*

3.4 Whether educators find the curriculum valuable for use in the classroom, easy to use, and would recommend to others

Finally, educators were asked to reflect on their experience to date with the *In Defense of Food* curriculum, regardless of whether they used it, by indicating how much they agreed or disagreed with a set of statements about its implementation value, using a scale from 1.0 (*strongly disagree*) to 7.0 (*strongly agree*), with 4.0 being neutral. As shown in the table below, though there were some differences of opinion, overall educators *strongly agreed* that they would recommend the curriculum to other educators (median rating 7.0) and *agreed* that the curriculum offered them a valuable way to make use of the film in their classroom setting (median rating 6.0) and that the curriculum was well organized and easy to use (median rating 6.0).

Median educator ratings of the <i>In Defense of Food</i> curriculum's implementation value (N=23)							
	Strongly disagree 1.0	Disagree 2.0	Somewhat disagree 3.0	Neutral 4.0	Somewhat agree 5.0	Agree 6.0	Strongly agree 7.0
The curriculum offers me a valuable way to make use of the film in my classroom setting	6.0 (IQR=1)						
The curriculum is well organized and easy to use	6.0 (IQR=1)						
I would recommend the curriculum to other educators	7.0 (IQR=1)						

Several educators elaborated on their ratings as follows:

- *“Easy to use” except for the amount of prep time*
- *I felt confused sometimes because there would first be an overview of what was in the lesson then I had to flip through to find that parts that went together.*
- *I would recommend the documentary as first exposure. It is very engaging and persuasive on its own.*
- *I’m going to submit this to the NYSAFCE (New York State Association of Family & Consumer Science Educators). They and the health teachers are your target audience in NY.*
- *It’s a very well thought curriculum with multiple activities for each section. You don't have to do the whole thing in order to get value from it either.*
- *science*
- *The film itself was the most valuable asset for teaching the curriculum.*
- *The integration of topics and use of media is very effective for student engagement.*
- *The only part of the film that I don't show has to do with breastfeeding. While it is really interesting, it is not appropriate for my middle schoolers.*
- *Very well done and thought-provoking curriculum. I think teachers should consider using it.*

Summary of findings

This evaluation considers educators' engagement with and reflections on the *In Defense of Food* curriculum. The evaluation gathered feedback from a total of total of 23 educators who were recruited to participate in an online survey about their use, opinion, and assessment of the curriculum.

Question 1: How did educators use and assess the *In Defense of Food* curriculum?

1.1 Educators' use of the curriculum: Of the educators who responded to the survey request, just about three-quarters indicated they had already used the *In Defense of Food* curriculum, while about one-quarter had yet to do so. Educators who indicated use of the curriculum were then asked to describe the elements they had used to date. In this case, more than two-thirds pointed to using one or more of the lessons/activities. More than one-quarter each described using the videos or indicated they used the curriculum for ideas or inspiration or as a reference or resource for another activity. Smaller groups pointed to the curriculum's visuals/graphics, handouts, or miscellaneous elements. The handful who hadn't yet used the curriculum explained that they intended to or still planned to use or adapt the curriculum.

1.2 Educators' assessment of the curriculum's impact on their students: The educators who indicated they had used the curriculum were further asked if they had an opportunity to assess/evaluate how their use of the curriculum impacted their students' knowledge, beliefs, or attitudes. More than two-thirds reported they had.

The educators who had an opportunity to assess or evaluate the curriculum were further asked to explain what their assessment/evaluation found in terms of what the youth learned or gained from their use of the curriculum in an educational setting in an educational setting. Most often these educators explained that they found their students did one or more of the following as a result of their experience with the curriculum: researched more info about nutrition/healthy eating; made healthier food choices; cooked healthier meals; analyzed food and advertising techniques in more critical ways; and talked to family members or others about their experience with the curriculum.

The educators who didn't have an opportunity to evaluate the curriculum were further asked to consider, from their perspective, what their students benefited or gained from their use of the curriculum. Most often these educators explained that they didn't have enough to go on to make a determination or that they observed their students showing increased awareness about nutritional issues, and in one case better food choices and consumption of whole foods.

1.3 Additional educator ratings of the curriculum's impact on students: In general, the educators who used the *In Defense of Food* curriculum with their students *strongly agreed* that their students learned something new from the curriculum, that their students expressed an increased interest in the topics in the curriculum, and that they would be more likely to study food/nutrition science with their students in the future. They generally *agreed* that their students' knowledge of food/nutrition science concepts and research procedures increased, that their ability to analyze how food/nutrition science has changed our food system

increased, and that they expressed an interest in pursuing more information about the topics in the curriculum.

Question 2: Where did educators use or plan to use the *In Defense of Food* curriculum, and what was their past or future use of the curriculum among underserved youth?

2.1 Settings in which educators have used or plan to use the curriculum: When asked to report the settings in which they used or planned to use the *In Defense of Food* curriculum, the largest group, not quite one-third, pointed to in-school health education classes, followed by in-school food/nutrition classes, in-school consumer science classes, and in school English/reading classes. Smaller groups of educators pointed to in-school science classes, afterschool programs, community health center programs, homeschooling, and other settings.

2.2 Use of the curriculum among underserved youth: Nearly three-quarters of the educators described their use (or expected use) of the curriculum with underserved youth, and/or in some cases adults. At the same time, just under a third indicated they had not used the curriculum with underserved audiences.

Question 3: How valuable did educators find the *In Defense of Food* curriculum?

3.1 Educator feedback regarding the value of the curriculum: All of the educators, whether they had used or planned to use the curriculum, were asked to rate the value of the resource for use in their educational setting. In general, the educators thought the curriculum was *very valuable*.

3.2 What educators liked about the curriculum: Educators were asked to describe what they liked most about the curriculum. Nearly half focused on the curriculum having accessible, easy to understand content, while not quite two-fifths appreciated the nutrition content which they variously described as informative and well presented. One-third focused on the activities being fun and engaging, while slightly smaller groups described the curriculum as well designed, colorful/visual, and/or a good complement to their use of the film. About one-fifth pointed to miscellaneous elements.

3.3 What educators did not like about the curriculum: When asked what they did not like about the curriculum, more than half of the educators who answered the question pointed to a reason specific to their use that was not raised by the other educators surveyed. Just over one-fifth felt the curriculum was too long or featured too many lessons for their purposes, while about one-tenth felt the presentation was too simplistic or geared too young for the educational level of their students. Another one-tenth said there was nothing they disliked.

3.4 Whether educators find the curriculum valuable for use in the classroom, easy to use, and would recommend to others: In general, educators *strongly agreed* that they would recommend the curriculum to other educators, *agreed* that the curriculum offered them a valuable way to make use of the film in their classroom setting, and *agreed* that the curriculum was well organized and easy to use.

Final remarks

Taken together, the findings in Study 3 highlight the use, engagement, perceived appeal, and learning value of the *In Defense of Food* curriculum among surveyed educators who used or intended to use the curriculum, as best can be determined from the available data. Below, we share comments and suggestions related to educators' feedback about the curriculum.

- Among surveyed educators who used the curriculum, about two-thirds (65%) reported using the lessons or activities, while smaller groups described using the videos, indicated they used the curriculum for ideas/inspiration or as a reference or resource for another activity, pointed to the curriculum's visuals/graphics, used the handouts, or shared miscellaneous comments. As a point of interest, when commenting on their use of the lessons or activities, educators described using these elements both with *In Defense of Food*-focused modules (as in, "*I used the In Defense of Food video as a full-length showing in my high school class, ages 15-18, and created a hand-out from the materials in this curriculum for students to follow along as they watched to get the key ideas from the presentation*") and in support of other lessons ("*We used the curriculum as a way to build background knowledge to write letters to our principal campaigning for healthier lunch options*").
- As a group, educators who used the curriculum *strongly agreed* that their students learned something new from the resource and that they expressed an increased interest in the topics covered. These educators also *strongly agreed* that they were more likely to study food or nutrition science with their students in the future. Taken together, this feedback points to an openness from educators and students to both learn from and expand upon the lessons in the *In Defense of Food* curriculum. Additionally, some of the surveyed educators noted that the curriculum's learning impact was particularly deep and/or long-lasting. For example:
 - *My daughter and I first watched the PBS documentary during lunch. She was initially resistant to viewing it because she thought she would be bored by the content. I insisted. We watched and she was utterly spellbound! She began reading labels, watching caloric intake, and even began to modify her choice of drinks. Soon afterward, she was tasked with writing a persuasive paper and she quickly selected "Kids in the U.S. should eat more vegetables every day." After writing the paper and studying the IDOF Curriculum as a reference source (as well as other library and online sources), she decided to start learning how to cook healthy entrees and snacks. She has been using a kid-friendly cookbook which we initially found at the library and now own called, "Delicious Vegetarian Main Dishes".*
 - *The students have been discussing food differently in class. They talk about Phuds as a part of normal conversation. They are talking about it with their families, and we've gotten several emails about parents. A few parents asked the kids to stop telling them to eat healthier! Most of our parents are emailing in with positive feedback. The students are responding in their conversation and attitudes. Usually, they ask to make cookies in every cooking lesson. When we finally let them make oatmeal cookies at the end of the quarter, they were thrilled and treated it as a really special treat. This is a 180 turn from how middle schoolers think.*
 - *I delivered this information last year and my students are still connecting with me about facts, figures, and food choices this year!*

It is also worth noting that a few educators shared positive feedback while pointing out the challenges of helping youth develop healthy eating habits (as in, *“Even though students were interested in the topics presented, it’s difficult to pry the hot Cheetos from their hands!”*), which may point to a need for extended engagement with the material.

- The largest groups of surveyed educators were middle school teachers (26%) and high school teachers (17%). Smaller numbers identified as college/university professors (9%), homeschooling parents (4%), nutrition or health-center based educators (4%), or other informal educators (4%), and more than a third (36%) held other educator roles. This range is particularly interesting given that, as noted on the Getting Started page of the curriculum (shown in Appendix 1), the curriculum was *“created for middle school after-school programs.”* However, the Getting Started page also draws attention to the curriculum’s potential for adaptation, explaining that its developers *“believe [it] can be adapted for students from age 10 through adulthood in a wide range of settings.”*

From the educators’ feedback, it seems that the potential for adaptation was an appealing benefit of the curriculum. For example, in addition to educators who described using the curriculum in high school and college settings, a few mentioned an interest in adapting the curriculum for younger students in the future. (For example, *“I would love a curriculum more suited to elementary school students that has a language development focus!”* and *“I also think that this curriculum is good enough to make a little more kid-friendly so that more elementary students (like my daughter) could, likewise, be spoken to and guided in an intelligent manner about this subject material. In fact, I think, with some modification, that this could become a homeschool health resource that kids could pursue on their own and possibly be the impetus for changing their families!”*)

- Finally, when asked what they *didn’t* like about the *In Defense of Food* curriculum, no single aspect stood out to the majority of educators, with the largest group (56%) citing miscellaneous elements. However, the second-largest group of educators pointed to the length of the curriculum (as in, *“The length is somewhat prohibitive”*), and throughout their surveys, some mentioned that they had difficulty finding time to review the curriculum and/or use the lessons in their educational settings (as in, *“I had planned on trying to use it for a class, but didn’t have the time to organize it”* and *“We didn’t get far enough into the nutritionism portion of the lessons. Our time with them is very limited...”*). Additionally – tying in with the previous bullet point – some educators found it time-consuming to adapt the curriculum to their educational settings, as in, *“I knew it would take a lot of prep time to go through the whole curriculum and adapt it from middle-school level content to high school level content and did not have time to do that during the school year.”*

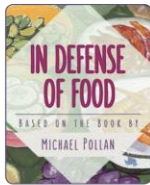
Given that, at nearly 300 pages, the curriculum is comprised of 10 sequential two-hour lessons, it is not surprising that some of the educators reporting feeling overwhelmed by the scope of the resource. This appears to have been anticipated by Kikim Media and the curriculum developers at Teachers College, Columbia University, at least to some extent, as the Getting Started page points educators with *“limited time”* to a selection of lessons and activities. Taking it a step further, some educators might also benefit from short stand-alone lessons that could be accessed independent from the full curriculum, as these resources might be more easily reviewed and incorporated into a range of educational settings.

Appendix 1: The Getting Started page of the *In Defense of Food* curriculum

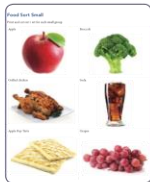


GETTING STARTED

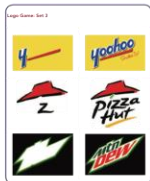
This curriculum was created for middle school after-school programs. After-school programs provide a great setting for two-hour sessions with a variety of lively and hands-on activities. But we also believe that this curriculum can be adapted for students from age 10 through adulthood in a wide range of settings. We encourage you to teach the lessons sequentially and do all 10 of them. If you have limited time, or just want to try out some activities, we recommend that you:



Watch any of the *In Defense of Food* film clips that go with these lessons. On www.pbslearningmedia.org search *In Defense of Food* for links to the film clips. Have a discussion after the clip, ask the discussion questions that are in the lesson procedure.



Try out the **Food Sort** activity in **Lesson 1**. See the *Food Sort* guide sheet p. 33, *Food Sort Small* cards p. 35 and *Food Sort Large* cards p. 37. This activity will help students become aware that some foods help us do what we want to do (e.g., play sports, write poems, sing, dance) while others do not.



Play the **Logo** game in **Lesson 4**. See Lesson 4, procedure #3 p. 117 and the *Logo* and *Logo Game* cards, p. 121 and p. 124 respectively. In this activity students see cards with a partial food logo and try to guess the brand. Then the full logo is revealed. After completing all cards, ask students if it was easy or hard to recognize the logos and why. Then ask them, “Does seeing the logos make you want the foods? Why do you think so many of us can recognize these logos so quickly?”



Conduct the **Investigating Blood Sugar** activity in **Lesson 6**. See the *Investigating Blood Sugar* guide sheet p. 186. Students learn how type 2 diabetes develops and what they can do to prevent it.



Do the **Grab 2** activity in **Lesson 6**. See Lesson 6, procedure # 5 p. 180 and the *Grab 2* cards p. 188. Have students choose a snack and beverage card and add up the total teaspoons of sugar. Students then compare this total to the recommendation of no more than 12.5 teaspoons of sugar a day. Ask students to guess why snacks and beverages have such high levels of sugar.