



Tisch Report

A is for Apple:

The State of Nutrition Education Programs in New York City Schools



March, 2018



Laurie M. Tisch Center for Food, Education & Policy Program in Nutrition Teachers College, Columbia University

The Center cultivates research about connections between a just, sustainable food system and healthy eating and translates it into recommendations and resources for educators, policy makers, and community advocates. The Center focuses on schools as critical levers for learning and social change.

Research team:

Pamela Koch, EdD, RD

Claire Uno, MLIS

Heewon Lee Gray, PhD, RDN

Georgia Simatou, MS

Julia McCarthy, JD

Laura Guerra, EdD, MS, MS

Isobel R. Contento, PhD, CDN

Design and layout: Morgan Bookheimer

Cover photo: 123rf.com profile_olgabonitas

Suggested citation: Koch PA, McCarthy JE, Uno C, Gray HL, Simatou G. A is for Apple: The State of Nutrition Education Programs in New York City Schools. Laurie M. Tisch Center for Food, Education & Policy, Program in Nutrition at Teachers College, Columbia University, March 2018.

This report builds on our team's prior research, specifically that of Kathleen Porter and Isobel Contento:

Porter KJ, Koch PA, Peralta R, Contento IR. (2014). *Expanding Nutrition Education Programs in New York City Elementary Schools: Understanding Practice to Inform Policy*. Laurie M. Tisch Center for Food, Education & Policy, Program in Nutrition at Teachers College, Columbia University.

Porter K, Koch P, Contento IR. (2017). Why and How Schools Make Nutrition Education Programs "Work." *Journal of School Health*, 88: 23-33.

Support for this work was provided by the New York State Health Foundation (NYSHealth). The mission of NYSHealth is to expand health insurance coverage, increase access to high-quality health care services, and improve public and community health. The views presented here are not necessarily those of the New York State Health Foundation or its directors, officers, and staff. A special thank you to our program officer, Bronwyn Starr, for her support.



For more information about this study or the Laurie M. Tisch Center for Food, Education & Policy please contact Claire Uno, Deputy Director at 212-678-3693 or cu2155@tc.columbia.edu • www.tc.edu/tisch

Acknowledgements

The Tisch Food Center thanks all of the people representing nutrition education programs who took the time to speak with us, share data, and give invaluable insight into the landscape of school-based nutrition education programs in New York City.

A huge thank you to Jeannie Fournier, Lynn Fredericks, and Alyson Rosenthal for their help developing the NEP survey. Also, thank you to the staff from organizations with NEPs who helped review the survey.



Photo Credit: 123rf rawpixel

Table of Contents

Letter from the Director	6	VI. Characteristics of Nutrition Education Programs in New York City Schools	31
Executive Summary	7	NEP Start Year	31
Acronyms.	12	NEP Geographic Scope	32
How to Use this Report	13	NEP Reach	32
Report Overview	13	NEP Funding Sources.	33
NEP Online Database.	13	NEP Session Length.	34
I. Nutrition Education Overview	14	NEP Target Outcomes and Evaluation	35
What is Nutrition Education?	14	NEP Activities	36
Nutrition Education Promotes Child Development	14	Academic Subjects that NEPs Address	37
II. Schools Need Nutrition Education Programs	15	NEP Curriculum Content Areas	38
Schools Struggle to Provide Nutrition Education	15	NEP Availability in Languages Other than English	39
NEPs Benefit Schools	15	NEP Implementer.	40
III. Public Policies and Programs to Support Nutrition Education in New York City Schools	16	Day-to-Day Challenges for NEPs	41
Federal Policies and Programs.	16	Where NEPs Occur	42
New York State Policies and Programs	17	Essential Equipment for NEPs.	43
New York City Policies and Programs	17	VII. Analysis of Nutrition Education Program Distribution in New York City Schools	44
IV. Methodology.	19	Schools with NEPs	45
Study Design	19	Comparison of Elementary Schools with NEPs in 2011–12 and 2016–17.	46
Data Collection.	19	NEP Distribution Varies by Borough.	47
Data Analysis.	20	NEP Distribution Varies by School Type	48
V. Characteristics of Organizations that Operate Nutrition Education Programs in New York City Schools.	21	NEP Distribution Varies by School Poverty Rate	49
Organization Type	21	Schools with the Highest Rates of Students who are Black and/or Hispanic have Slightly Lower Rates of NEPs than the Citywide Average.	50
Organization’s Total Budget.	22	NEP Distribution by Elementary and Middle School State Test Scores	52
Organization’s NEP Budget.. . . .	22	VII. Recommendations	54
Percentage of Organization’s Total Budget Spent on NEPs.. . . .	23	VIII. Future Research.	56
Percentage of NEP Budget Spent on Programming Staff	24	References	57
How Many NEPs Organizations Offer.	25	Appendices	
Barriers to Increase or Sustain Funding.	26	A: Organizations and Nutrition Education Programs Included in this Study	59
Funding Source Influence.	27	B: Steps to Integrate Nutrition Education into Schools	61
Full-Time NEP Employees	28		
Evaluation	29		

Figures and Tables

Figures

Figure 5.1: Organization Type	21
Figure 5.2: Organization's Total Budget	22
Figure 5.3: Organization's NEP Budget	22
Figure 5.4: Percentage of Organization's Total Budget Spent on NEPs.	23
Figure 5.5: Percentage of NEP Budget Spent on Programming Staff	24
Figure 5.6: How Many NEPs Organizations Offer	25
Figure 5.7: Barriers to Increase or Sustain Funding	26
Figure 5.8: Funding Source Influence	27
Figure 5.9: Full-Time NEP Employees.	28
Figure 5.10: Conduct Evaluation	29
Figure 5.11: Barriers to Evaluation	29
Figure 5.12: Evaluation Staff	30
Figure 5.13: Evaluation in a Peer-Reviewed Publication	30
Figure 6.1: NEP Start Year	31
Figure 6.2: NEP Geographic Scope	32
Figure 6.3: NEP Reach.	32
Figure 6.4: NEP Funding Sources	33
Figure 6.5: NEP Session Length	34
Figure 6.6: NEP Target Outcomes and Evaluation	35
Figure 6.7: NEP Activities	36
Figure 6.8: Academic Subjects that NEPs Address	37
Figure 6.9: NEP Curriculum Content Areas	38
Figure 6.10: NEP Availability in Languages Other than English	39
Figure 6.11: NEP Implementer Educational Requirements	40

Figure 6.12: Who Implements NEPs	40
Figure 6.13: Day-to-Day Challenges for NEPs	41
Figure 6.14: Where NEPs Occur	42
Figure 6.15: School Space Provided.	42
Figure 6.16: Essential Equipment for NEPs	43
Figure 7.1: Schools with NEPs.	45
Figure 7.2: Comparison of Elementary Schools with NEPs in 2011–12 and 2016–17	46
Figure 7.3: NEP Distribution by Borough	47
Figure 7.4: NEP Distribution by School Type	48
Figure 7.5: NEP Distribution by School Poverty Rate.	49
Figure 7.6: NEP Distribution by Percentage of Students who are Black and/or Hispanic	51
Figure 7.7: NEP Distribution by Elementary and Middle School Math State Test Scores	52
Figure 7.8: NEP Distribution by Elementary and Middle School English Language Arts State Test Scores	53

Tables

Table 7.1: Percentage and Number of Schools with No to 6+ NEPs	
Table 7.2: Number of NEPs in Schools by Borough	47
Table 7.3: Number of NEPs by School Type.	48
Table 7.4: Number of NEPs by School Poverty Rate.	49
Table 7.5: Number of NEPs by Percentage of Students who are Black and/or Hispanic	51
Table 7.6: Number of NEPs by Elementary and Middle School Math State Test Scores	52
Table 7.7: Number of NEPs by Elementary and Middle School English Language Arts State Test Scores	53

Letter from the Director

Why did we conduct a study on nutrition education in New York City schools? One reason is to show the facts and figures—to provide hard data on where nutrition education is happening and what it looks like. But peek behind the data and the real story emerges. Health-promoting schools are more important now than ever. And great nutrition education is a critical ingredient in the recipe for a healthy school community. Through nutrition education, students have exciting and engaging experiences gardening, cooking, and critically thinking about our food supply. Students gain knowledge and skills to make food choices that promote health, ecological sustainability, and social justice. They gain confidence to navigate our challenging food environments and persuasive marketing of unhealthy foods.

All NYC students, no matter their age, borough, or background, deserve to have access to great nutrition education.

The 40 organizations running 101 nutrition education programs that were part of this study can help reach that goal. These programs provide expertise and resources in gardening, cooking, nutrition science, media literacy and much more. This complements the expertise of teachers and builds school capacity.

Let's flash back to five years ago. During the 2011–12 school year, we looked at organizations that provide nutrition education programs in elementary schools in the NYC boroughs of Brooklyn, Manhattan, and Queens. The results were alarming. Only 39% of schools had one or more nutrition education programs.

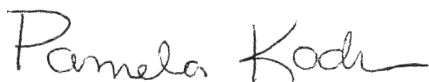
In this chapter of our research, we are seeing progress. During the 2016–17 school year, 71% of the elementary schools in the boroughs we studied last time had programs. The number of schools with more than one program increased almost three-fold in this five year span.

This study expands the scope to all five NYC boroughs and all elementary, middle, and high schools. We found almost 56% of NYC's 1840 public schools had one or more nutrition education programs. Despite the good news on elementary schools, high schools lag far behind with only 32% having one or more programs.

So how does this story unfold? We can and must work toward even more nutrition education for all NYC students in the future. In the recommendation section we outline how advocates, schools, funders, and policymakers can work together toward a goal of 100% of schools with at least one nutrition education program five years from now. This means all students getting nutrition education that can reduce their risk of chronic diseases such as type 2 diabetes and obesity, and feeling excited and empowered to choose foods that help mitigate climate change.

We hope that this report, and the accompanying online database of [Nutrition Education Programs in NYC Schools \(www.tc.edu/tisch/nepnyc\)](http://www.tc.edu/tisch/nepnyc), can pave the way for all NYC students to get more great nutrition education.

Sincerely,



Pamela Koch, EdD, RD

Executive Summary

Background and Context

Through engaging hands-on activities, school-based nutrition education provides students with the motivation, skills, and knowledge to make choices that are healthy for themselves, their communities, and the planet (Koch, 2016).

Schools increasingly recognize that healthy eating supports students' long-term health and a Whole School, Whole Community, Whole Child approach to education. As such, many schools are serving local foods in cafeterias, teaching nutrition education in classrooms, and maintaining school gardens (Lewallen et al., 2015; Michael et al., 2015; Blank, 2015; and Berezowitz et al., 2015). But, academic requirements, standardized testing, and staff expertise can limit schools' capacity to provide enough nutrition education (Institute of Medicine, 2013). To offer more nutrition education, schools often turn to nutrition education programs (NEPs) that outside nonprofits, hospitals, companies, government agencies, and universities operate. Educational experts recommend schools work with outside programs to expand their nutrition education (Porter, 2017).

Ultimately, all New York City students should have access to great nutrition education. NEPs play an important part in achieving this goal. This report helps everyone who has a stake in the city's schools understand the current status of NEPs, including their characteristics, distribution, and the policy context in which they operate. The report also recommends ways that advocates, organizations, schools, funders, and policymakers can support and strengthen school-based nutrition education.

Methodology

We conducted a cross-sectional study to determine the landscape of NEPs in New York City schools during the 2016–17 school year. Using a survey we developed, our research team collected quantitative and qualitative data on organizations and the NEPs they operate. We used a second survey to gather data about the schools in which NEPs operate. To determine the distribution of NEPs across New York City schools, we also conducted secondary analysis using publicly available school data from the New York City Department of Education (NYC DOE) website, New York State School Report Card, and Accountability Reports.

Key Findings

Characteristics of Organizations that Operate Nutrition Education Programs in New York City Schools

We collected data from **40 organizations** that operate NEPs. Key findings were:

- The majority of organizations that operate NEPs are nonprofits.
- Many organizations that operate NEPs have budgets of less than \$500,000.
- Education staff costs comprise the majority of organizations' spending on NEPs.

Characteristics of Nutrition Education Programs in New York City Schools

These 40 organizations provided data on **101 NEPs**. Key findings were:

- Foundation and program fees are the most common NEP funding sources.
- Program staff, as opposed to classroom teachers or volunteers, implement the majority of NEPs.
- NEPs are rarely available to students in languages other than English.
- Limited time during the school day and space within schools are the two greatest daily challenges for NEPs.

Analysis of Nutrition Education Program Distribution in New York City Schools

These 101 NEPs operate in **1,840 schools**. For these schools, key findings were:

- Fifty-six percent of New York City public schools have at least one NEP. That is 1025 schools. However, 815 schools, or 44%, lack even one NEP.
- In Brooklyn, Manhattan, and Queens, the rate of elementary schools with at least one NEP has increased from 39% to 71% since the 2011-12 school year. This is an 82% increase.
- Staten Island has the lowest rate of schools with at least one NEP.
- Elementary schools have the highest rate of at least one NEP, whereas high schools have the lowest.
- NEPs are in more schools with the highest and the lowest proportions of students eligible for free or reduced price lunch.
- Three-fifths of New York City public schools have over 80% black and/or Hispanic students. Their rate of NEPs is slightly lower than the city average.
- Schools with low, medium, and high average test scores all have similar NEP rates.

Recommendations

Our goal is to ensure that all New York City students have access to great nutrition education. NEPs play an important part in achieving this goal. To ensure equitable access, everyone who has a stake in the city's schools should work towards 100% of elementary, middle, and high schools in all five boroughs having at least one NEP in the next five years.

Achieving this objective will require coordination, investment, and collaboration.

Coordination: Create a network that coordinates nutrition education distribution across city schools, advocates for policies to support nutrition education, aligns evaluation strategies, and bolsters efficiencies through shared resources.

Investment: Build capacity for school-based nutrition education through funding, technical assistance, tools, and training.

Collaboration: Amplify the unique roles of NEPs, school administrators, teachers, school food service, parents, students, funders, advocates, and policy makers to support and strengthen school-based nutrition education.

The following recommendations lay out specific action to enhance coordination, investment and collaboration for key players in school-based nutrition education.

Recommendations for Organizations that Operate NEPs

- Strategically partner with other organizations that operate NEPs to ensure schools have comprehensive nutrition education.
- Convene program developers, evaluators, and educators from different organizations to plan and share resources and best practices.
- Create an NEP clearinghouse to share curricula, lesson plans, translated materials, and professional development tools.
- Explore merging organizations and/or sharing core administrative functions.
- Advocate for strong public policies, programs, and funding to support nutrition education.
- Charge schools on a needs-based sliding scale to diversify funding sources.
- Continue to explore ways to integrate nutrition education programming into core academic subjects.
- Consider scalable NEP models that classroom teachers can lead.
- Include media literacy as a core component of programming.
- Continue to cover ecology, food justice, environment, and access in curricula.
- Develop or identify resources in languages other than English to meet school communities' needs.

Recommendations for Schools

- Allocate funds and support teacher professional development for nutrition education.
- Dedicate space for NEPs to operate on school property.
- Prioritize and align nutrition education across cafeterias, classrooms, gardens, and other school spaces as part of the Whole School, Whole Community, Whole Child model. See Appendix B, page 61 for some practical steps to integrate nutrition education into schools.
- Connect classroom teachers' lessons on food and nutrition—across all subjects—to NEP lessons.
- Work with a mix of NEPs. Schools can use the [Nutrition Education Programs in NYC Schools \(www.tc.edu/tisch/nepnyc\)](http://www.tc.edu/tisch/nepnyc) database the Tisch Food Center developed to search for different NEPs that match with the school philosophy and mission.
- Support nutrition education for English language learners.

Recommendations for Funders and Policymakers

- Keep grant reporting and other administrative requirements minimal.
- Maximize investment in evaluation. Instead of requiring organizations to conduct costly individual evaluations, fund an organization to create an assessment tool that measures evidence-based practices.
- Expand Grow to Learn's capacity to support not just school gardens, but also NEPs that offer gardening activities.
- Support nutrition education professional development opportunities for classroom teachers and NEP educators.
- Convene program developers, evaluators, and educators from different organizations that operate NEPs to plan and share resources and best practices.
- Advocate to maintain and expand federal, state, and city support for nutrition education.
- Invest more state and city tax levy dollars in NEPs.
- Fund a collective impact process for NEPs to articulate a common agenda, share metrics, and align efforts.
- Fund efforts to align nutrition education with grade level learning standards.
- Direct NYC DOE to translate nutrition education resources into languages other than English.

Future Research

Future research could:

- continue to track the saturation and characteristics of NEPs in NYC schools;
- replicate portions of this study in other geographic locations or institutions besides schools, such as early childcare centers, senior centers, and after school settings;
- conduct case studies within a single school or community where multiple NEPs are operating to understand the cumulative impact of NEPs;
- conduct longitudinal research by collecting annual data on high school students' eating behaviors and attitudes to track changes over time and correlate with quantity and quality of nutrition education in grades K–12;
- clarify what amount of time is needed to help students achieve healthy eating habits— with advances in the field of nutrition education over the past 30 years, new research is needed;
- assess the effects of providing more nutrition education in students' and families' native languages; and
- ascertain what barriers deter teachers from working with NEPs.

Acronyms

Short Hand	Name
1305	State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and Promote School Health
1422	State and Local Public Health Actions to Prevent and Control Diabetes, Heart Disease, and Stroke
Ag & Markets	New York State Department of Agriculture and Markets
CDC	Centers for Disease Control and Prevention
CHSC	Creating Healthy Schools and Communities
CNPP	Center for Nutrition Policy and Promotion
ED	United States Department of Education
ESSA	Every Student Succeeds Act
FTS	Farm to School
LEA	Local Educational Authority
LWP	Local Wellness Policy
NEP	Nutrition Education Program
NHAC	Neighborhood Health Action Center
NSLP	National School Lunch Program
NYC DOE	New York City Department of Education
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYSDOH	New York State Department of Health
NYSED	New York State Education Department
PSE	Policy, Systems, and Environment Change
SNAP-Ed	Supplemental Nutrition Assistance Program Education
USDA	United States Department of Agriculture
WSCC	Whole School, Whole Community, Whole Child

How to Use This Report

Report Overview

This report examines nutrition education programs (NEPs) in public elementary, middle, and high schools across all five New York City boroughs. The term “NEP” refers to programming that organizations other than public schools—nonprofits, hospitals, companies, government agencies, and universities—provide to increase school-based nutrition education. NEP offerings include teacher professional development, curricula, hands-on cooking and gardening, support for school wellness councils, media literacy training, and other educational resources.

Below are ways different stakeholders can use this report and the accompanying searchable database [Nutrition Education Programs in NYC Schools \(ww.tc.edu/tisch/nepnyc\)](http://ww.tc.edu/tisch/nepnyc):

Schools Can Use this Report to Better Understand:

- why school-based nutrition education is so important, and
- how to partner with organizations to increase student access to nutrition education.

Organizations that Operate NEPs Can Use this Report to Better Understand:

- how to promote NEPs to school decision makers and policymakers, and
- where opportunities exist to collaborate with other organizations.

Funders and Policymakers Can Use this Report to Better Understand:

- which federal, state, and local policies and programs support school-based nutrition education, and
- why schools need NEPs, and how to strategically support them.

NEP Online Database

To complement this report, we have also created a searchable database [Nutrition Education Programs in NYC Schools \(ww.tc.edu/tisch/nepnyc\)](http://ww.tc.edu/tisch/nepnyc) that includes program-specific information about the many NEPs available in New York City schools.

I. Nutrition Education Overview

[W]here nutrition education is concerned, society's needs now require that we produce persons knowledgeable enough about their food systems to demand that their leaders act to preserve them.

- Gussow and Contento. "Nutrition Education in a Changing World: A Conceptualization and Selective Review." 1984

What is School-Based Nutrition Education?

Growing tomatoes in a school garden; making and eating a salad with classmates; analyzing a junk food advertisement; and measuring out teaspoons of sugar in a soda bottle—these are all forms of nutrition education. Through engaging hands-on activities, nutrition education gets students excited to eat well. Nutrition education develops gardening, cooking, and critical thinking skills, empowering students to adopt healthier eating habits that can last a lifetime. Nutrition education encourages students to consider how their everyday food choices connect them to the environment, the work force, big business, and the social justice movement. It encourages students to advocate for healthier environments where they live, learn, and play. Ultimately, nutrition education provides students with the motivation, skills, and knowledge to make choices that are healthy for themselves, their communities, and the planet (Koch, 2016).

Nutrition Education Promotes Child Development

School-based nutrition education gets children excited about eating school meals which support long-term health and learning (Koch, 2016).

Research indicates that healthy eating can improve academic performance (Pucher et al., 2012). To highlight the connection between health and education, the U.S. Centers for Disease Control and Prevention (CDC) promotes a Whole School, Whole Community, Whole Child (WSCC) model. This model encourages schools to integrate learning with health across academic subjects and spaces (Lewallen et al, 2015). Recognizing the role that healthy eating plays in student achievement, many schools are serving local foods in cafeterias, teaching nutrition education in classrooms, and maintaining school gardens (Lewallen et al., 2015; Michael et al., 2015; Blank, 2015; and Berezowitz et al., 2015).

Public schools offer students at least one, and sometimes up to three meals a day (Story, 2009). Engaging students in the cafeteria, classroom, and school garden can help to ensure that students actually eat these meals. In the cafeteria, many factors contribute to students' understanding and appreciation of food including which foods the school serves, what the atmosphere is like, and how the staff treat mealtime (Koch, 2016). Evidence indicates that when efforts to create healthier school food environments—like the recently updated federal school meal standards—are paired with nutrition education, they are more effective (Center for Nutrition Policy and Promotion, 2012). In the classroom and garden, growing, cooking, and tasting foods can expand students' palates and minds, ensuring that they are properly nourished and prepared to learn (Koch, 2016).

II. Schools Need Nutrition Education Programs

Good nutrition education does make a difference. [With nutrition education students are] equipped, they will be better prepared to cope with the problems of a new age. These are the possibilities. When can we achieve them? Today is not too soon.

- Jacobson et al. “Promising Practices in Nutrition Education in the Elementary School.” 1959

Schools Struggle to Provide Nutrition Education

Despite its importance, schools struggle to provide nutrition education. Prior research indicated that students need 30 to 50 hours a year of behaviorally-focused, good quality nutrition education to make healthy food choices (Connell et al., 1985). However, studies estimate that students receive between 4.5 and 13 hours a year (Kann, 2006; Celebuski & Farris, 2000). It may be unrealistic and possibly unnecessary for schools to reach the higher target. With advances in the field of nutrition education over the past 30 years, new research is needed to determine what amount of time is optimal for behavior change.

In New York, classroom teachers are supposed to teach food and nutrition content and skills, often as part of health education and science units. But other academic requirements, standardized testing, and staff expertise can limit schools’ capacity to provide nutrition education (Institute of Medicine, 2013). So, in addition to school teachers, administrators, and food service staff, outside groups may provide nutrition education. This report focuses on NEPs—nutrition education programs that outside nonprofits, hospitals, companies, government agencies, and universities operate in order to increase nutrition education in schools.



Photo Credit: Harlem Grown

NEPs Benefit Schools

NEPs can ensure that students receive more high-quality nutrition education by easing the burden on teachers and other school staff.

School decision makers recruit NEPs for a variety of reasons—to encourage better health through better eating, to promote holistic education, or even to cultivate school pride. NEPs bring many resources to schools (Porter, 2017). They can provide teacher professional development, access to staff with food and nutrition expertise, and resources such as curricula and gardening supplies. NEPs can take many forms—hands-on food preparation, school-wide assemblies, or community social marketing campaigns are just a few examples of NEP activities. Some NEPs include field trips to farmers markets or botanical gardens. Others help establish school gardens and provide garden-based lessons. Others still facilitate lessons that meet academic standards for subjects like English and math.

By providing additional nutrition education resources and experiences, NEPs can also help schools fulfill various federal, state, and city requirements. For example, NEPs can help schools comply with the United States Department of Agriculture (USDA) Local Wellness Policy (LWP) mandate and make the most of the National School Lunch Program (NSLP). For further discussion of how public policies and programs can support school-based nutrition education, see Section Three.

III. Public Policies and Programs to Support Nutrition Education in New York City Schools

Many NEPs receive government funding or support. As a result, to fully understand how NEPs operate, it is helpful to also understand the landscape of federal, state, and city policies and programs that enable schools to increase good quality nutrition education.

Federal Policies and Programs

There are many examples of federal policies or programs that can support nutrition education in schools. A few examples include:

- **Every Student Succeeds Act (ESSA)** amends existing federal education law (20 U.S.C. §§ 6301 et al.). Under ESSA, the United States Department of Education (ED) now permits states to fund health and wellness measures through their accountability systems. ESSA enables local educational authorities (LEAs) to use certain grants to promote student health (20 U.S.C. §§ 7111 et al.; 20 U.S.C. §§ 7171—76). It also allows schools to use Title I and II funds for health education and professional development, respectively (20 U.S.C. §§ 6314; 6613).
- USDA's **Local Wellness Policy (LWP)** rule requires LEAs that participate in the National School Lunch Program (NSLP) to develop a LWP that includes measurable goals and evidence-based strategies for nutrition education and promotion (7 C.F.R. § 210.31).
- **Team Nutrition** is a USDA initiative to develop child nutrition resources, provide technical assistance to food service providers, and coordinate nutrition education for students and caregivers (42 U.S.C. § 1788). Team Nutrition also provides training grants to states to support school-based nutrition education efforts.
- **SNAP-Education (SNAP-Ed)** is a USDA nutrition education and obesity prevention program available to low income individuals (7 U.S.C. § 2036a). Schools are a common SNAP-Ed program site. SNAP-Ed teaches participants skills to make nourishing food choices; promotes policy, systems, and environmental changes (PSEs) such as building school gardens and having active school wellness committees; and encourages active lifestyles.
- The **Expanded Food and Nutrition Education Program (EFNEP)** is a USDA nutrition education initiative for low income families with children that focuses on food preparation, resource management, and food safety (7 U.S.C. §§ 3175 et seq.). Schools are a common EFNEP program site. Peer educators, typically paraprofessionals who previously participated in EFNEP, deliver the lesson series.
- **Farm to School (FTS)** is a USDA grant program to support local food procurement, school gardens, and nutrition education (42 U.S.C. § 1769). States and local providers can apply.
- Two CDC initiatives—**State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity, and Associated Risk Factors and Promote School Health (1305)** and **State and**

Local Public Health Actions to Prevent Obesity, Diabetes, and Heart Disease and Stroke (1422)—provide grants to support PSEs in communities with high rates of diet-related diseases (42 U.S.C §§ 241; 247b; 280g-14; 300u-2; 300u-11). Schools are a common site for 1305 and 1422 activities.

New York State Policies and Programs

New York State has established policies and programs that supplement federal support for school-based nutrition education. Examples include:

- **New York State Education Regulations** require schools to provide health education which, by definition, includes nutrition education (8 N.Y.C.R.R. § 135.3). These regulations require students in secondary schools to take a half-year health course, but do not specify how often elementary schools must provide health education (8 N.Y.C.R.R. §§ 135.1; 135.3). State regulations do not dictate to what degree elementary or secondary health education must include nutrition education.
- **New York State Education Law** encourages school districts to form nutrition advisory committees to study “all facets of nutritional policies” and make recommendations to school community members (N.Y. Educ. Law § 918). These committees may focus on nutrition education curriculum and other opportunities to educate teachers, staff, caregivers, and children about healthy foods.
- **New York State Agriculture and Markets Law** requires the Department of Agriculture and Markets (Ag & Markets) to establish a farm to school program; cooperate with the Department of Health (NYSDOH) to implement the currently unfunded Childhood Obesity Prevention Program (N.Y. Pub. Health Law §§ 2599 a—d); work with the Department of Education (NYSED) to encourage students to eat fresh, locally-produced fruits and vegetables; and collaborate with federal, state, and municipal agencies to expand

community gardens (N.Y. Agric. & Mkts. Law §§ 3; 16; 31-f—j). Ag & Markets has used both federal and state dollars to promote and increase the use of local foods in school meals.

- NYSDOH’s **Creating Healthy Schools and Communities** (CHSC) program aims to improve school and community environments. CHSC grantees work with local schools to implement wellness policies, establish fresh food initiatives, and promote healthy beverages. Local providers also educate school and community decision makers on why changes to nutrition policy, systems, and environments are important.

New York City Policies and Programs

New York City agencies have also established several supports for school-based nutrition education. These supports include:

- **New York City Administrative Code** requires DOE to report data on health education and health education instructors. While the law focuses on HIV/AIDS education requirements, it does require middle and high schools to report the total number and percentage of students who meet health education requirements, the number of certified and non-certified health education instructors in all schools, and additional programmatic information (N.Y.C. Admin. Code § 21a-966—7).
- NYC DOE’s **Office of School Wellness** tracks school compliance with health education requirements subject to N.Y.C. Admin. Code § 21a-966—7; reviews and selects health education curricula; offers teacher professional development and other school supports; and awards grants to school wellness councils (New York City Department of Education, 2017). The health education curricula for elementary and secondary schools include nutrition education lessons.

- NYC DOHMH's **Neighborhood Health Action Centers** (NHACs) help schools develop and support school wellness councils (New York City Department of Health and Mental Hygiene, 2017). NHACs provide resources such as the Healthy Schools Toolkit, convene meetings, and recognize elementary schools that are creating healthy school environments with the NYC Excellence in School Wellness Award.
- **Grow to Learn NYC** is a citywide initiative that aims to have a school garden in every K-12 public school in the city (Grow to Learn, 2017). GrowNYC, New York City Department of Parks, and New York City Department of Education (NYC DOE) coordinate communication and resources for school gardens, provide minigrants for equipment, and offer technical assistance to schools and educators (GrowNYC, 2016).
- **Garden to Café** is an NYC DOE initiative to educate students about gardening and local food systems; support school gardens; and encourage students to eat more fresh, local produce (New York City SchoolFood, 2013). NYC DOE's Office of SchoolFood partners with Grow to Learn to support Garden to Café schools. These schools host seasonal harvest celebrations and tasting events.



Photo Credit: 123rf rawpixel

IV. Methodology



Photo Credit: 123rf rawpixel

Study Design

We conducted a cross-sectional study to determine the landscape of NEPs in New York City during the 2016–17 school year. We collected quantitative and qualitative survey data on organizations and the NEPs they operate. We also gathered data about the schools in which NEPs operate. To determine the distribution of NEPs across schools, we conducted secondary analysis using publicly available school data from the NYC DOE website, New York State School Report Card, and Accountability Reports.

Data Collection

Survey Development and Dissemination

We created an initial list of 65 organizations that operate NEPs based on previous contacts and then used “snowball sampling” to refine the sample. Through this process, we identified 72 different

organizations possibly implementing 180 NEPs in New York City schools during the 2016–17 school year.

We invited all identified organizations to a project launch meeting in June 2016; over 30 people attended. Attendees worked collaboratively with our research team to identify topics to address in an NEP survey. We formed a survey design committee comprised of Tisch Food Center researchers and three representative organizations that operate NEPs. Using a similar, previously-developed survey tool, the survey design committee incorporated feedback from the launch meeting to design a new draft survey. Seven staff from organizations that operate NEPs piloted and helped refine the draft survey, resulting in a final survey.

The final survey included 45 items on organizations and the NEPs they operate, including inputs, outputs, and outcomes. We conducted the final survey using Qualtrics®. Forty organizations participated.

Creating an NEP Database

We incorporated program-specific data for each organization and NEP into the database based on survey feedback in October 2016. These data included information on NEP activities, occurrence, audience, grades targeted, geographic location, academic subject areas, lesson content, and language.

Creating a School Database

In June 2017, we asked organizations that operate NEPs to identify the schools in which they implemented programs during the 2016–17 school year. Forty-five organizations responded.

We downloaded a list of the 1,840 public schools that NYC DOE operates from the Department’s website (New York City Department of Education, 2017). This list included school name and grade level information. To this list we added data on school location, demographics, and student achievement from the New York State School Report Card and

Accountability Reports (New York State Data, 2017). Based on the address of each school, we also added information on the 59 NYC Council Districts.

Combining Databases

We combined the NEP and schools databases to determine which schools hosted NEPs during the 2016–17 school year. This allowed us to perform queries about organizations, NEPs, and schools.

Data Analysis

We conducted descriptive analyses in three areas:

- *Section Five* presents data on the 40 organizations (see Appendix A) that completed the NEP survey.
- *Section Six* includes data on the 101 NEPs (see Appendix A) that these 40 organizations run.
- *Section Seven* includes data on the distribution of NEPs across New York City schools.



Photo Credit: Wellness in the Schools

V. Characteristics of Organizations that Operate Nutrition Education Programs in New York City Schools

This section reports on the **40 organizations** operating NEPs that provided reliable survey data. These organizations vary by structure, size, funding sources, and staff makeup.

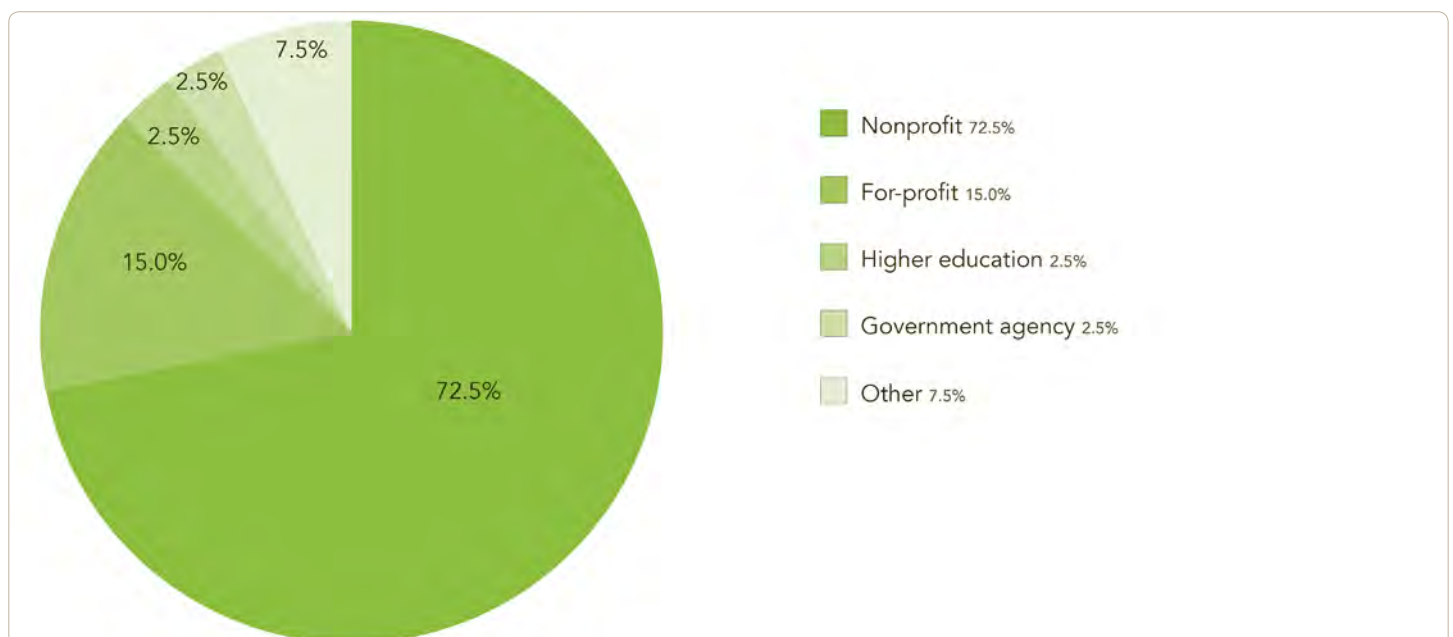
Key Findings

- The majority of organizations that operate NEPs are nonprofits.
- Many organizations that operate NEPs have budgets of less than \$500,000.
- Education staff costs comprise the majority of organizations' spending on NEPs.

Organization Type

The vast majority of organizations that operate NEPs are nonprofits—over 70% of organizations. For-profit entities constituted the next largest group of nutrition education providers.

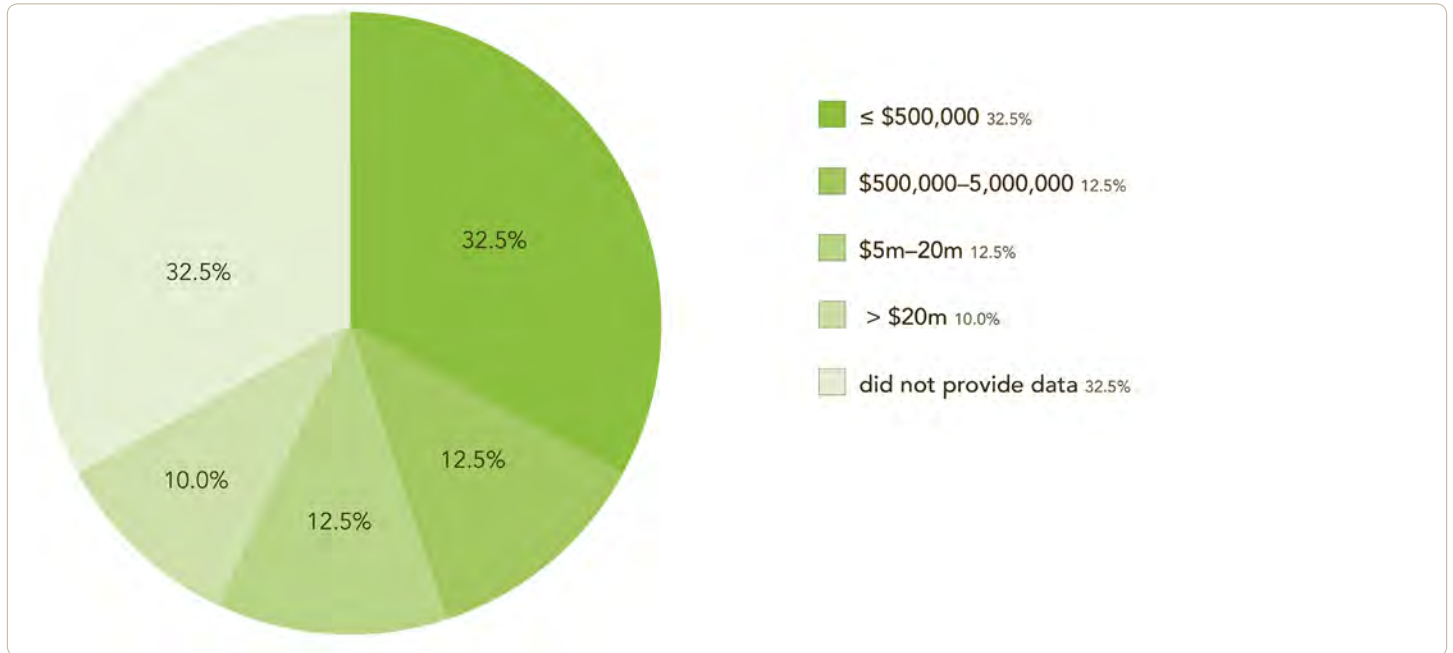
Figure 5.1: Organization Type



Organization's Total Budget

Organizations with a total annual budget of less than \$500,000 constitute the largest single group of respondents.

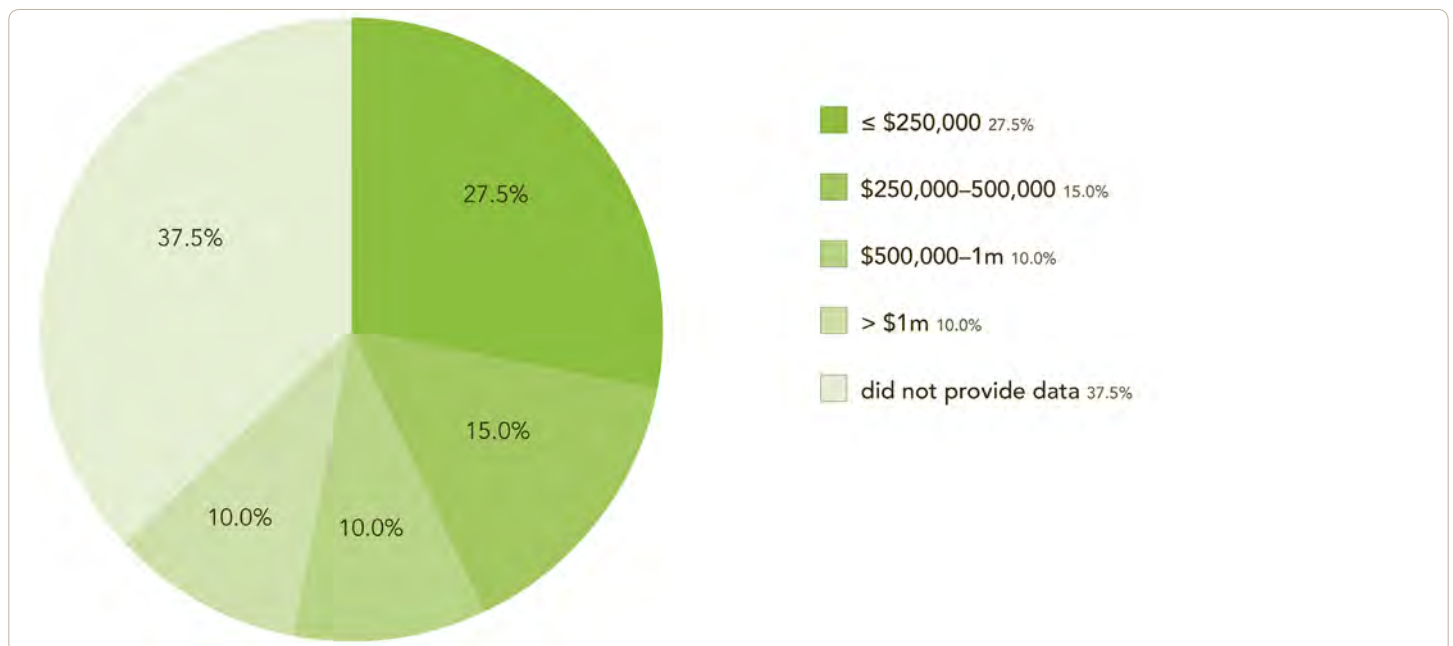
Figure 5.2: Organization's Total Budget



Organization's NEP Budget

Many organizations that operate NEPs spend less than \$250,000 on nutrition education. But, 10% spend more than \$1 million annually on NEPs.

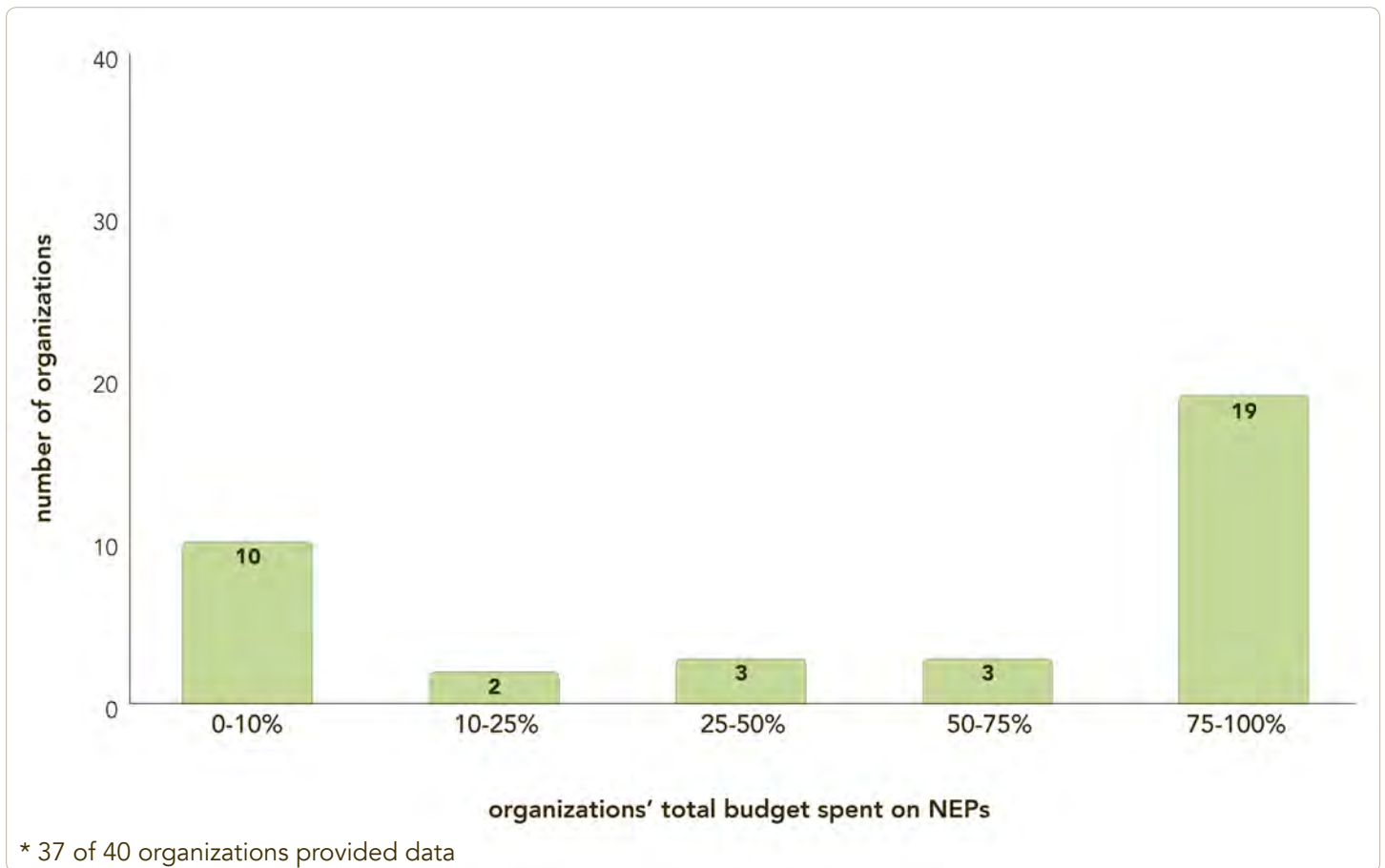
Figure 5.3: Organization's NEP Budget



Percentage of Organization's Total Budget Spent on NEPs

A majority of respondents make nutrition education a primary focus—22 organizations spend half or more of their annual budget on nutrition education in schools. But some organizations indicated that nutrition education is one of many programs they offer; ten organizations spend less than 10% of their budget on nutrition education.

Figure 5.4: Percentage of Organization's Total Budget Spent on NEPs

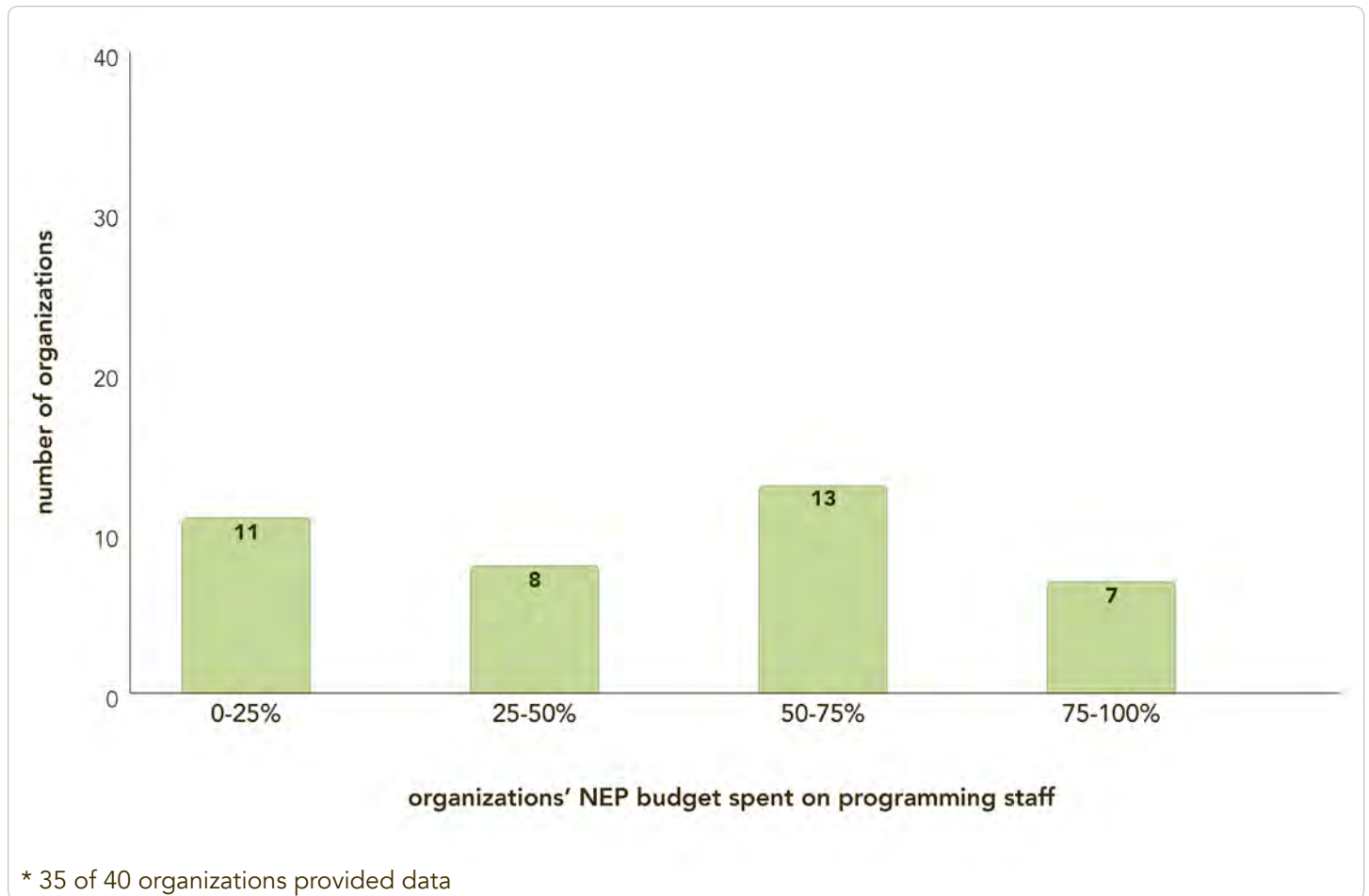


Percentage of NEP Budget Spent on Programming Staff

Half of the organizations spend 50% or more of their NEP budget on staff who teach nutrition education.

Organizations typically spend less than 25% of their NEP budget on any one of the following items: program supplies, administration, advocacy, evaluation, and marketing. (data not shown).

Figure 5.5: Percentage of NEP Budget Spent on Programming Staff

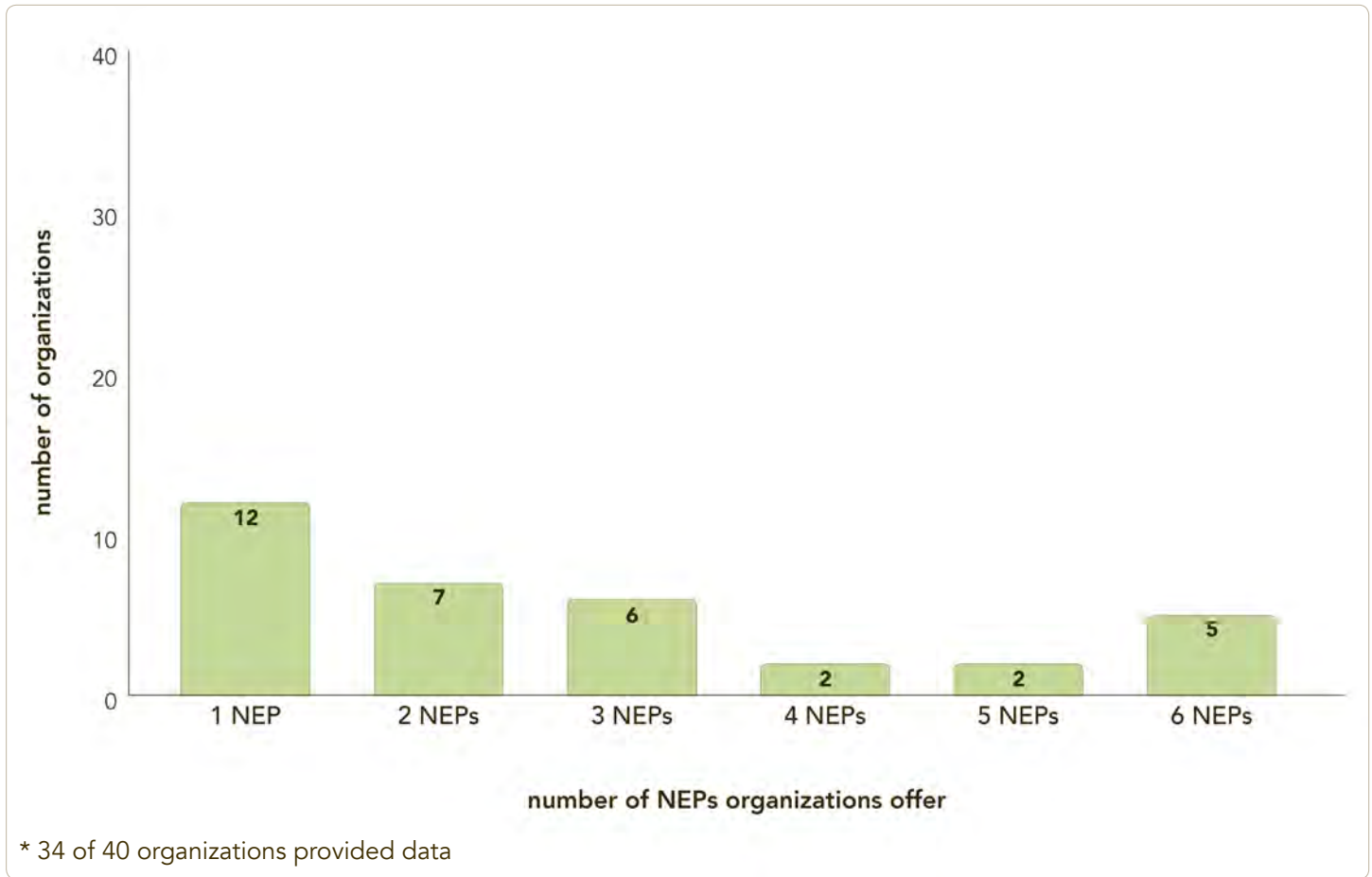


How Many NEPs Organizations Offer

Organizations define what constitutes a single program (NEP) differently. Some organizations classify different activities as separate NEPs, whereas others may group a similar set of activities as components of a single program. We used their definitions.

Twelve organizations offer one NEP. Most offer three NEPs or fewer. Five organizations offer six or more NEPs.

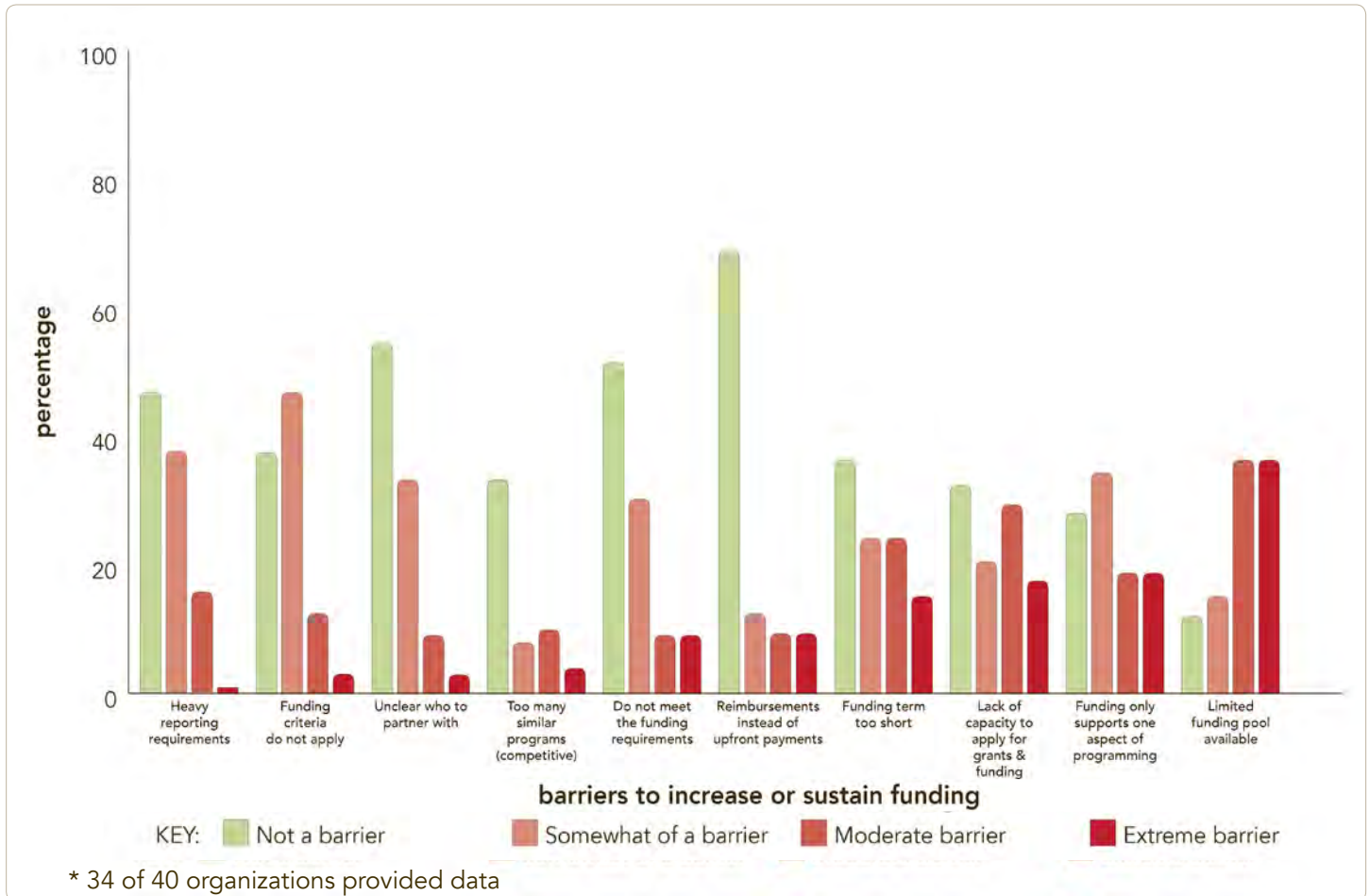
Figure 5.6: How Many NEPs Organizations Offer



Barriers to Increase or Sustain Funding

Respondents categorized the limited pool of available funding, lack of funding to support comprehensive programs, and lack of capacity to apply for funding as “extreme” barriers.

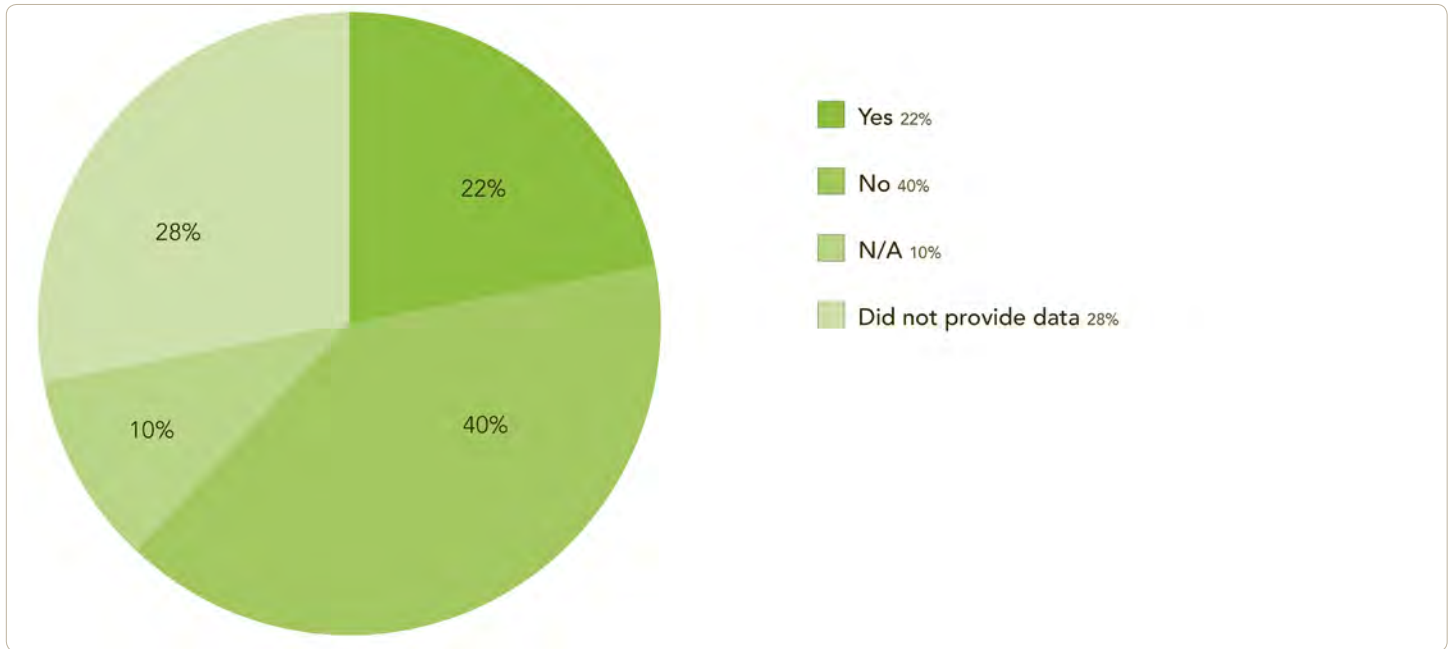
Figure 5.7: Barriers to Increase or Sustain Funding



Funding Source Influence

More than one in five organizations reported that their funding sources influence their programming.

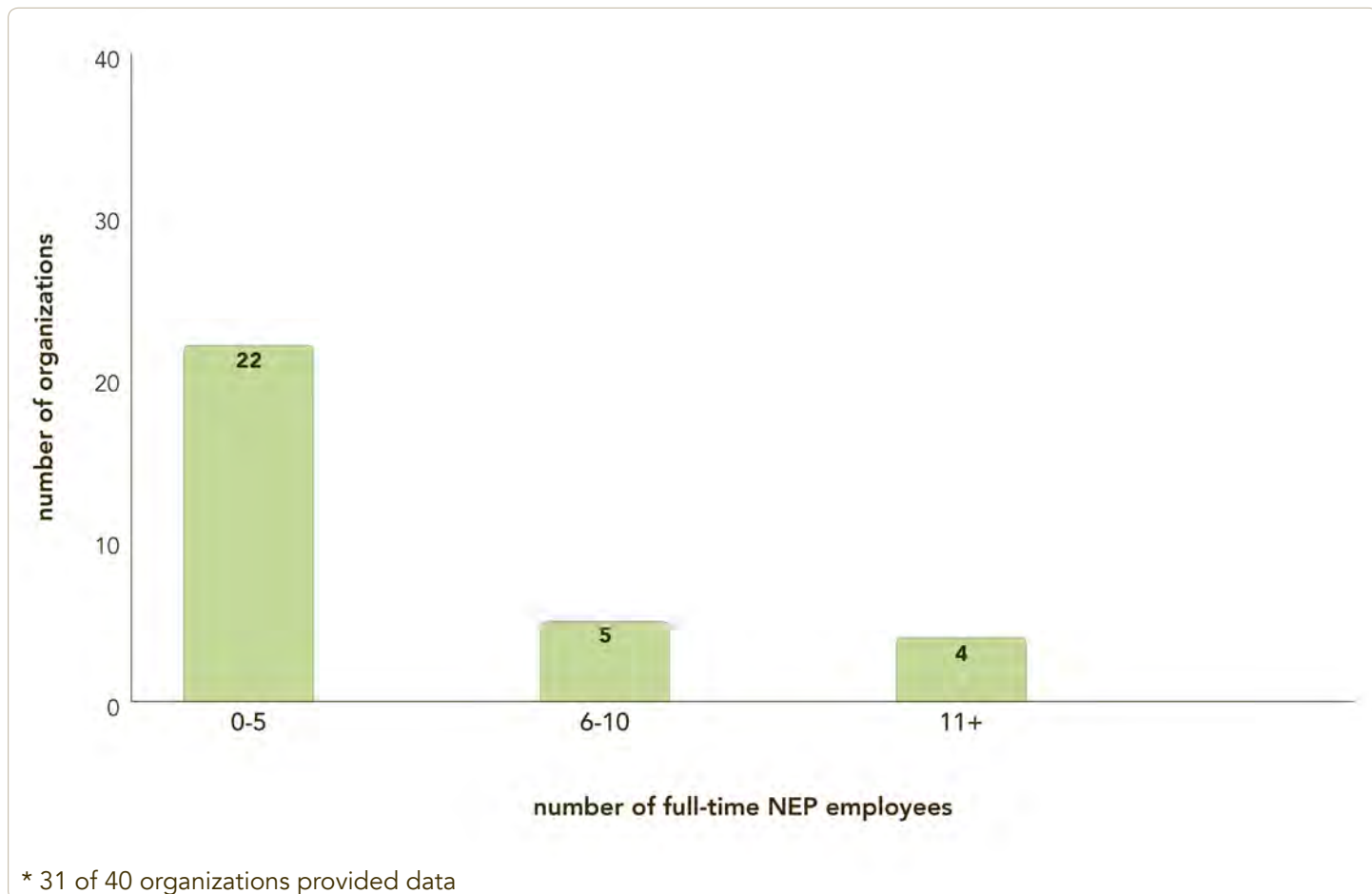
Figure 5.8: Funding Source Influence



Full-Time NEP Employees

More than half of the organizations have five or fewer full-time staff dedicated to nutrition education programming. In comparison, several have a large number of staff devoted to NEP programming—four organizations have 11 or more full-time staff.

Figure 5.9: Full-Time NEP Employees



Evaluation

A majority of organizations evaluate their NEPs. Organizations cited lack of staff time and funding as significant barriers to evaluation.

Figure 5.10: Conduct Evaluation

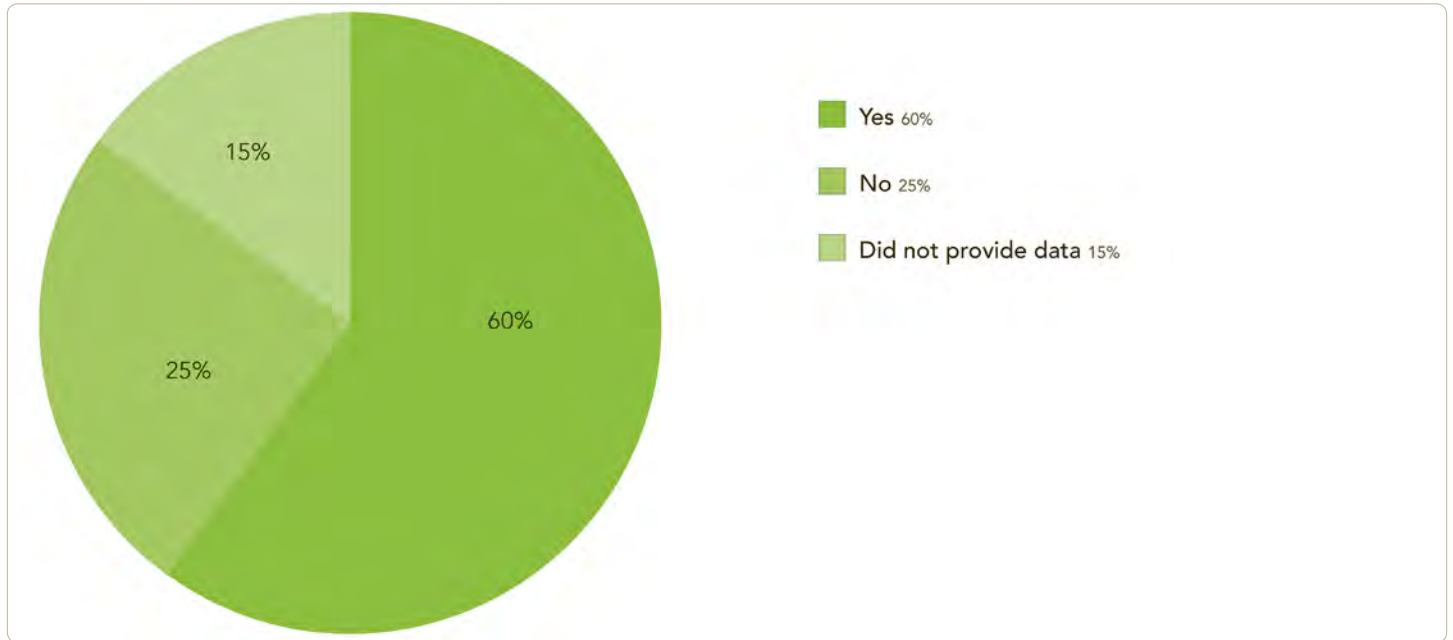
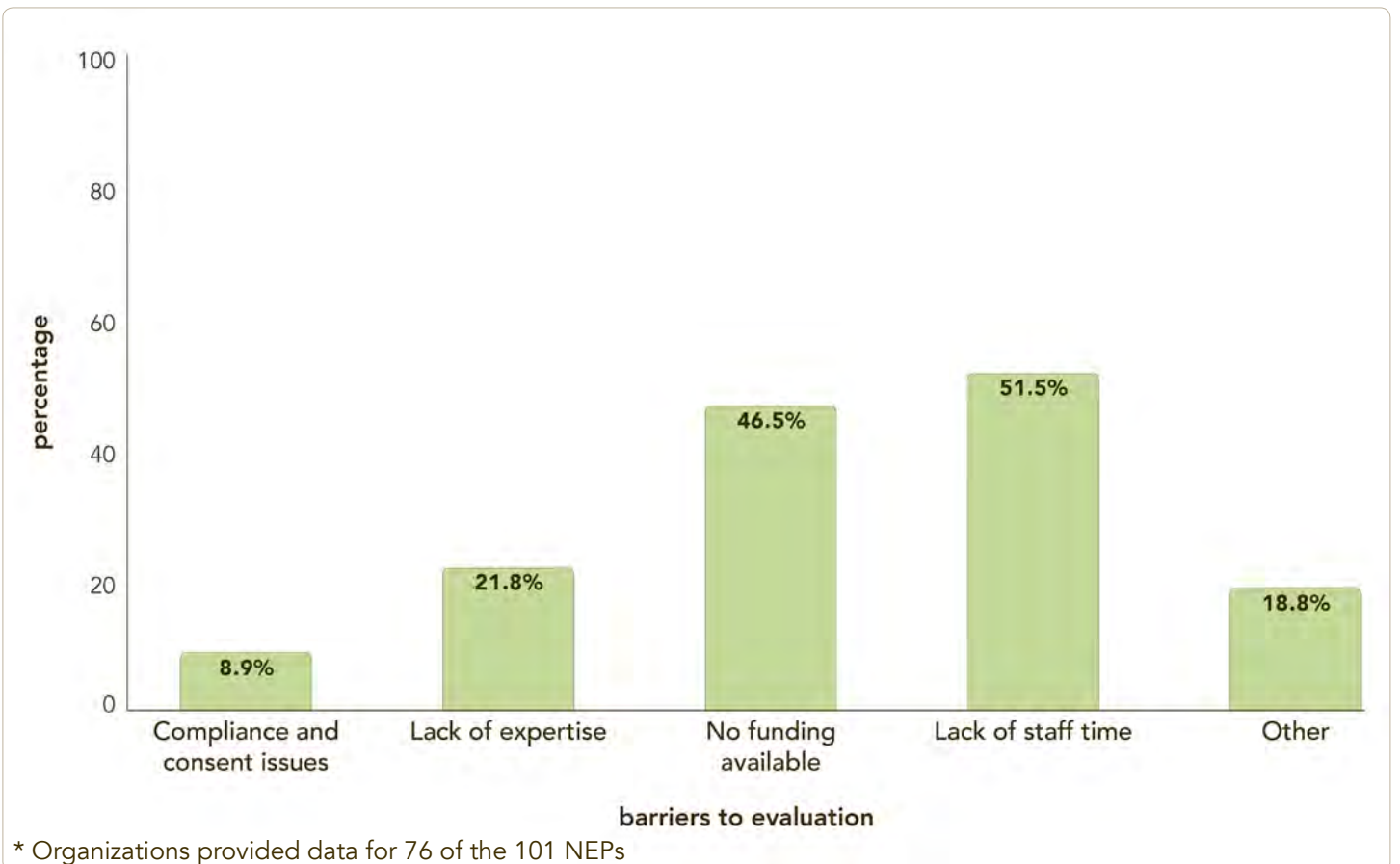


Figure 5.11: Barriers to Evaluation



Evaluation (continued)

Most organizations have their own staff conduct evaluation—only half of whom they identify as expert evaluators. Funders provide external evaluators for several organizations. Twenty percent of organizations that evaluate programs publish their findings in peer-reviewed journals.

Figure 5.12: Evaluation Staff

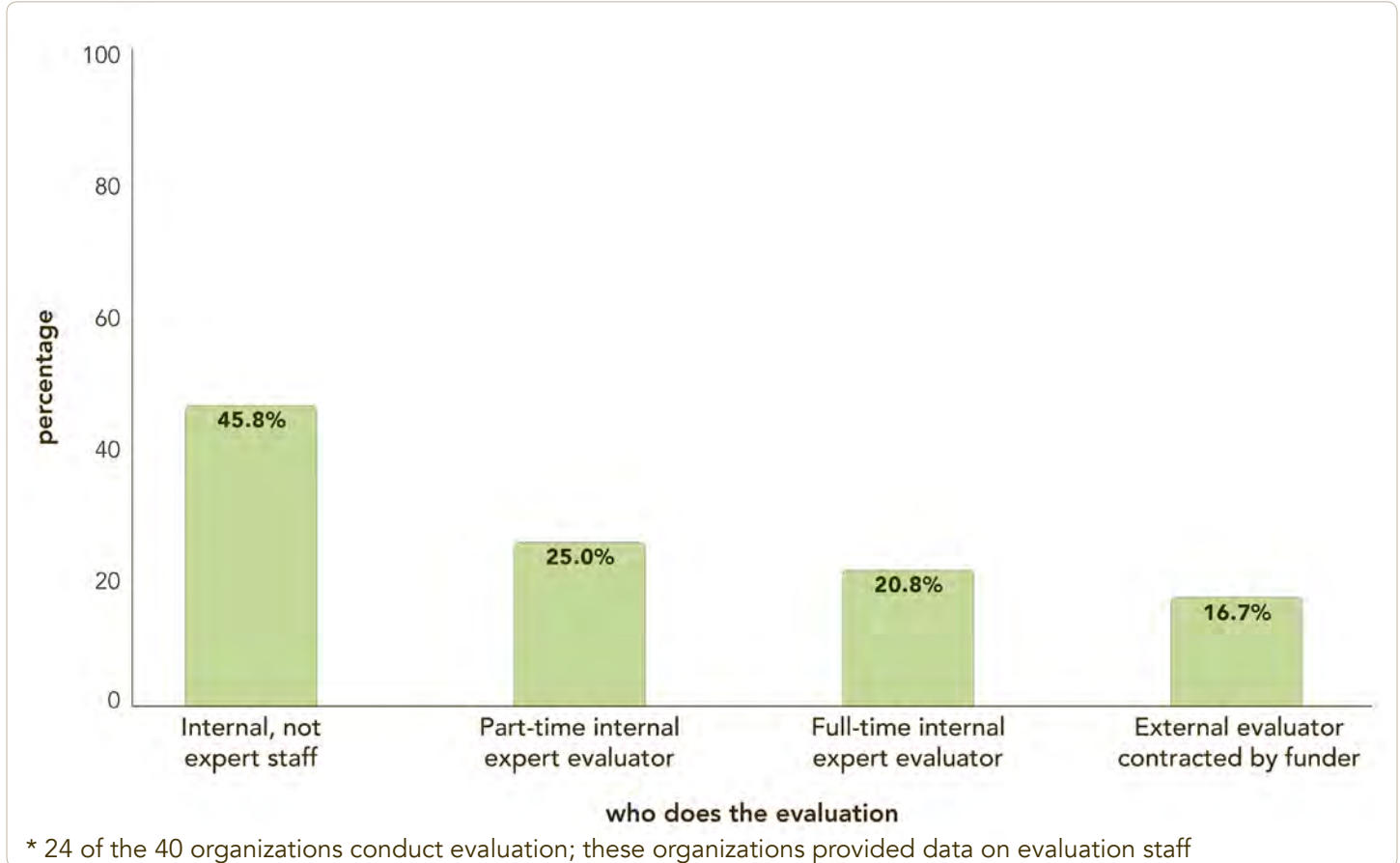
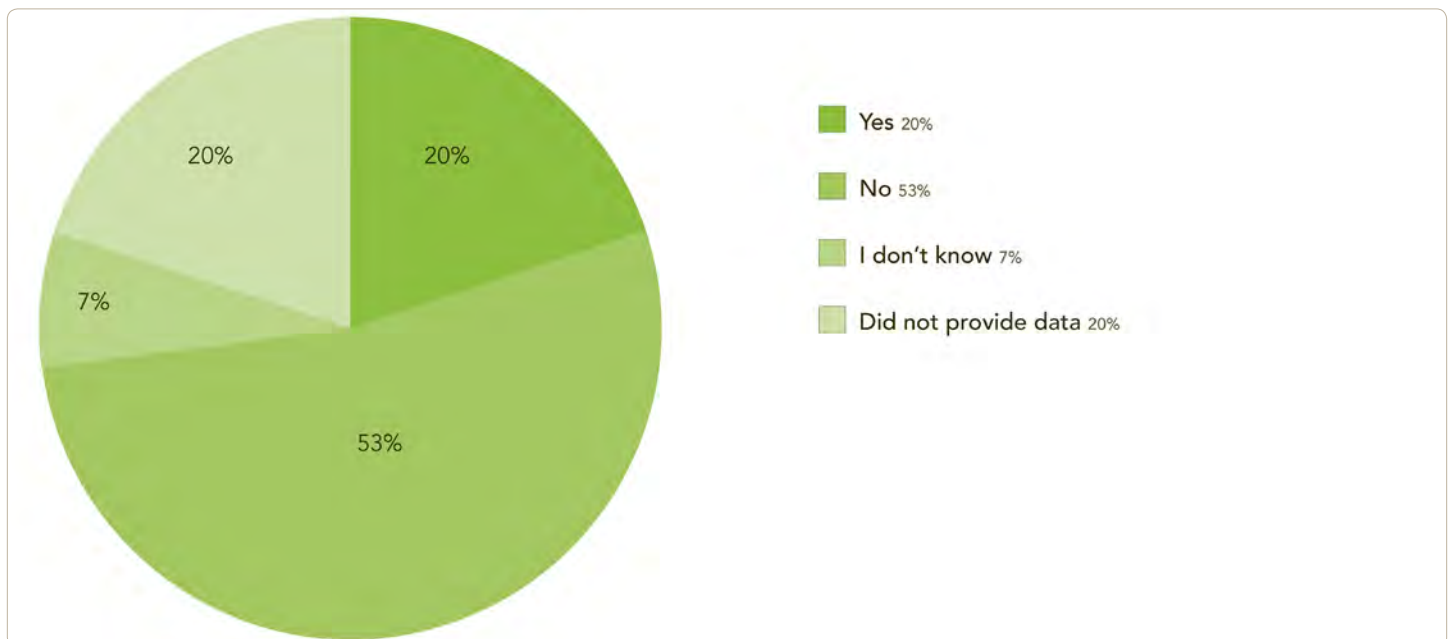


Figure 5.13: Evaluation in a Peer-Reviewed Publication



VI. Characteristics of Nutrition Education Programs in New York City Schools

NEPs vary by structure, size, funding source, and staff makeup. The figures below illustrate select characteristics of the 101 NEPs that operate in New York City public schools.

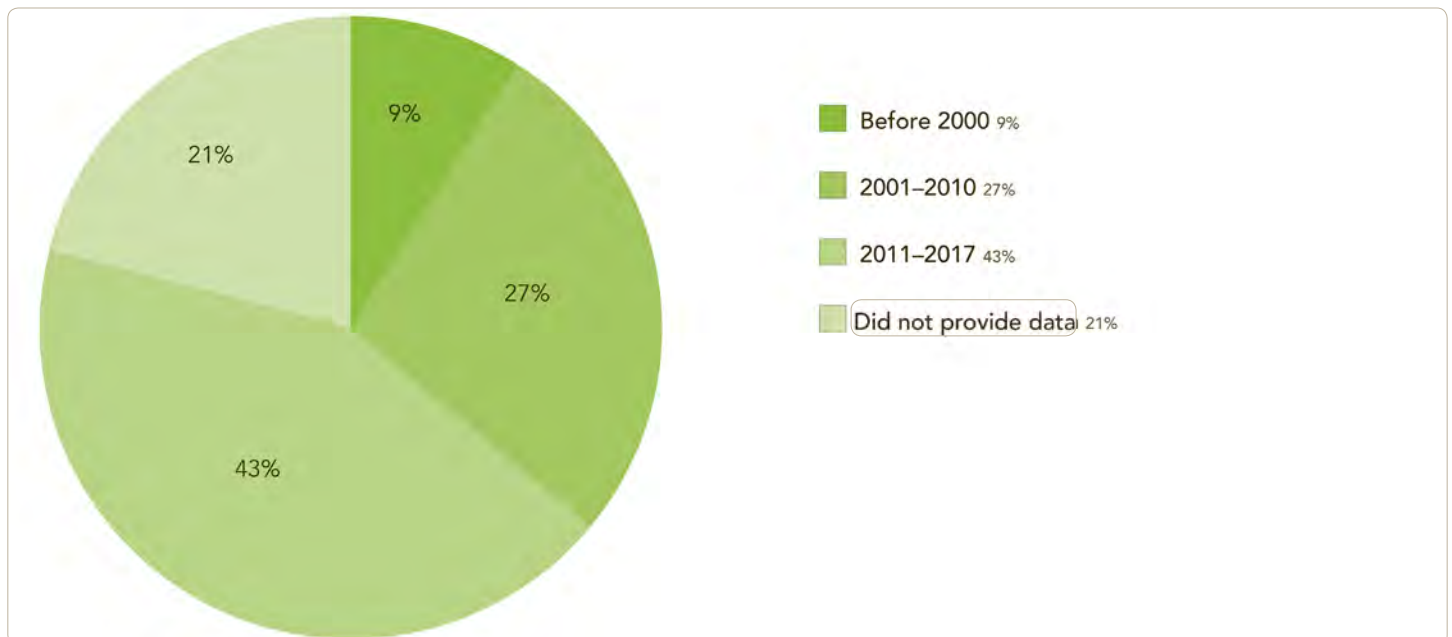
Key Findings

- Foundation and program fees are the most common NEP funding sources.
- Program staff, as opposed to classroom teachers or volunteers, implement the majority of NEPs.
- NEPs are rarely available to students in languages other than English.
- Limited time during the school day and space within schools are the two greatest daily challenges for organizations operating NEPs.

NEP Start Year

Many NEPs are less than a decade old—43% started in 2011 or later. Less than 10% of organizations currently operating existed before 2000.

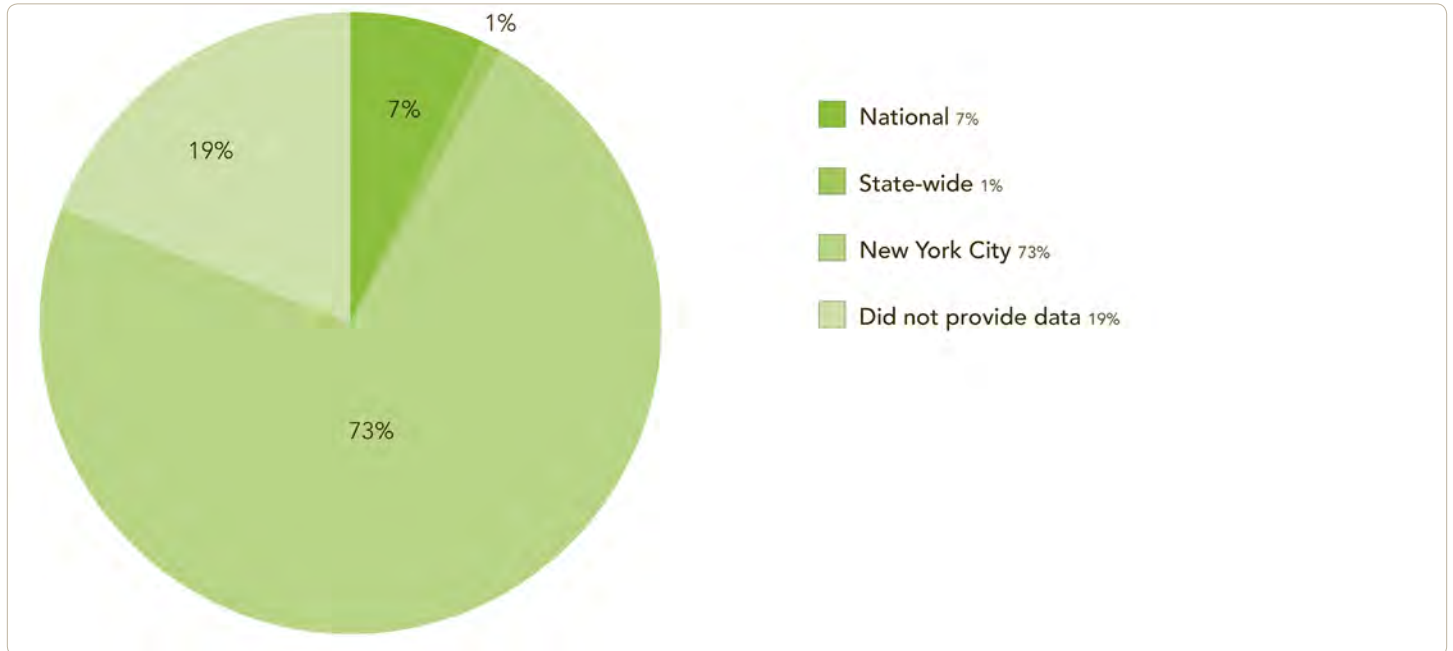
Figure 6.1: NEP Start Year



NEP Geographic Scope

Nearly three-quarters of NEPs focus their work exclusively in New York City. Only 1% operates across New York State, while 7% serve a larger, national audience.

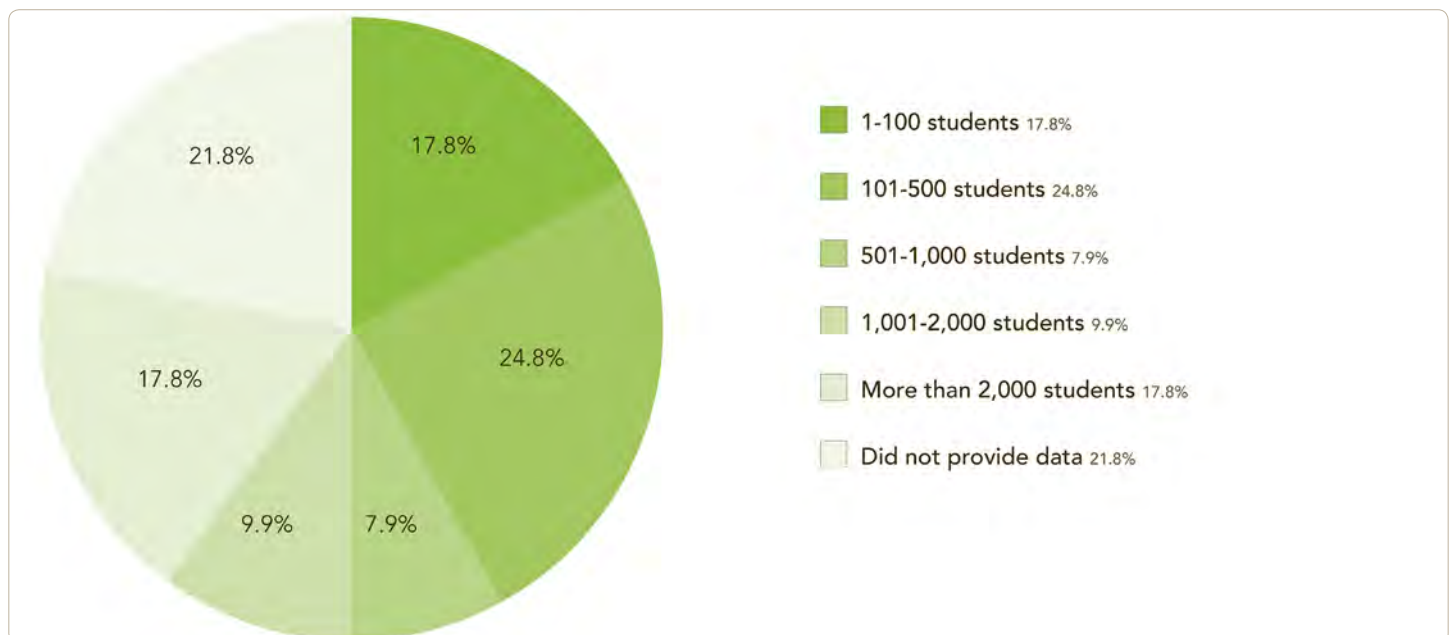
Figure 6.2: NEP Geographic Scope



NEP Reach

NEPs vary significantly in the number of students they reach in a school year. One in four NEPs reach between 100 and 500 students a year. But nearly 20% of NEPs reach fewer than 100 students, and an equal ratio reaches more than 2,000.

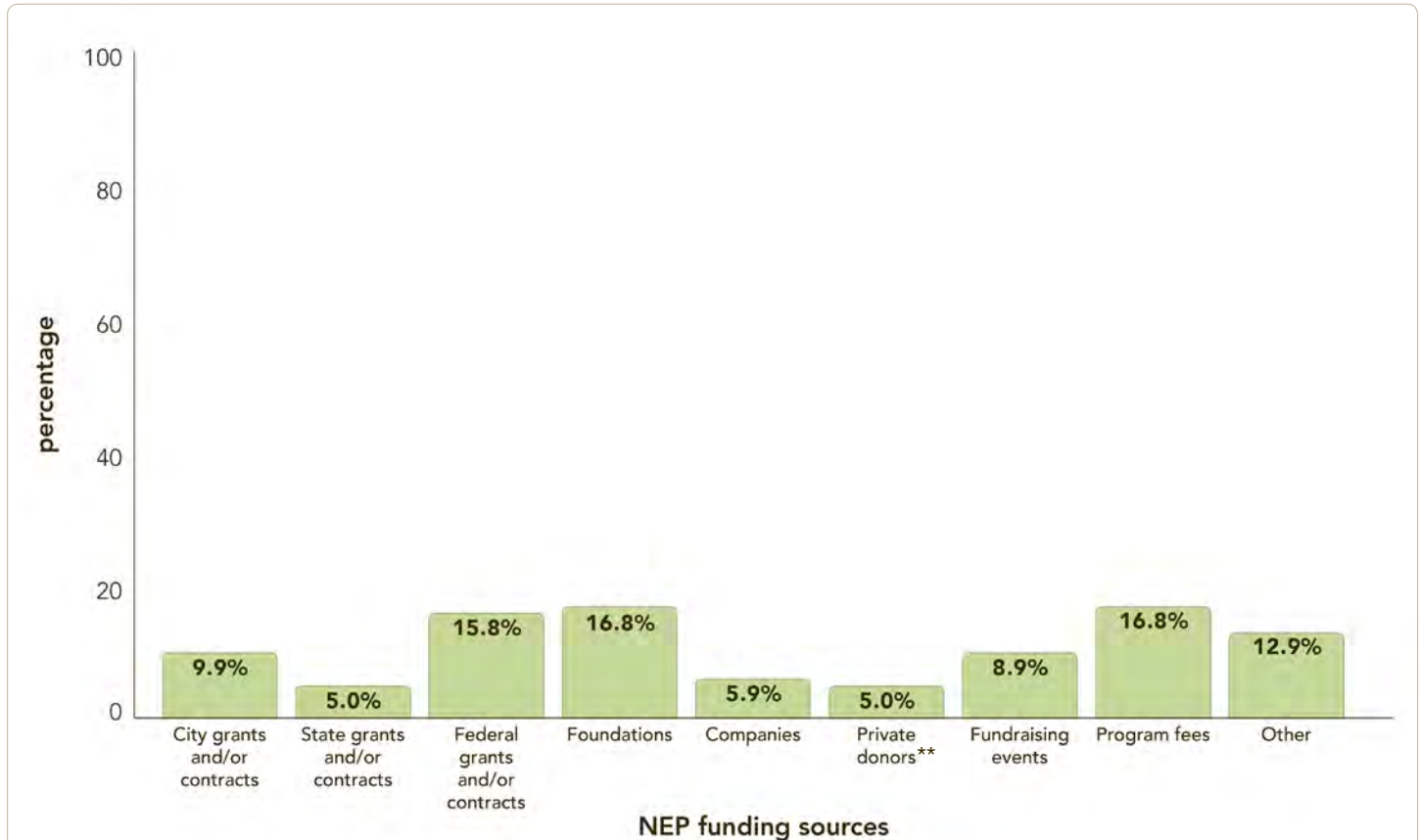
Figure 6.3: NEP Reach



NEP Funding Sources

NEPs rely on a patchwork of funding sources. While foundations and program fees are the most common, these fund less than 20% of NEPs. Further analysis of the data found that 42% of the NEPs that charge a program fee do so on a sliding scale.

Figure 6.4: NEP Funding Sources



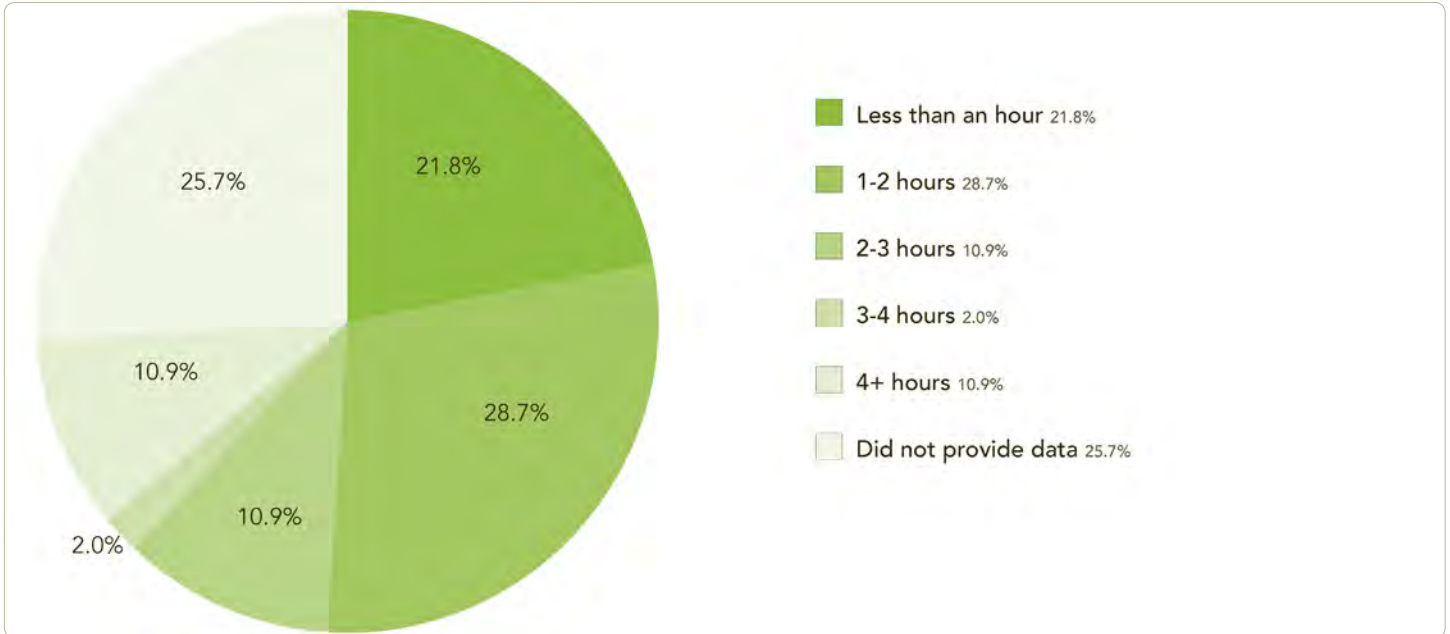
* 58 of 101 programs provided data

** "Private donors" was the most common "other" response. We pulled these responses from "other" to create a new category. More NEPs than noted here may receive funding from "private donors."

NEP Session Length

Roughly half of NEPs last less than two hours, but some can last more than four.

Figure 6.5: NEP Session Length

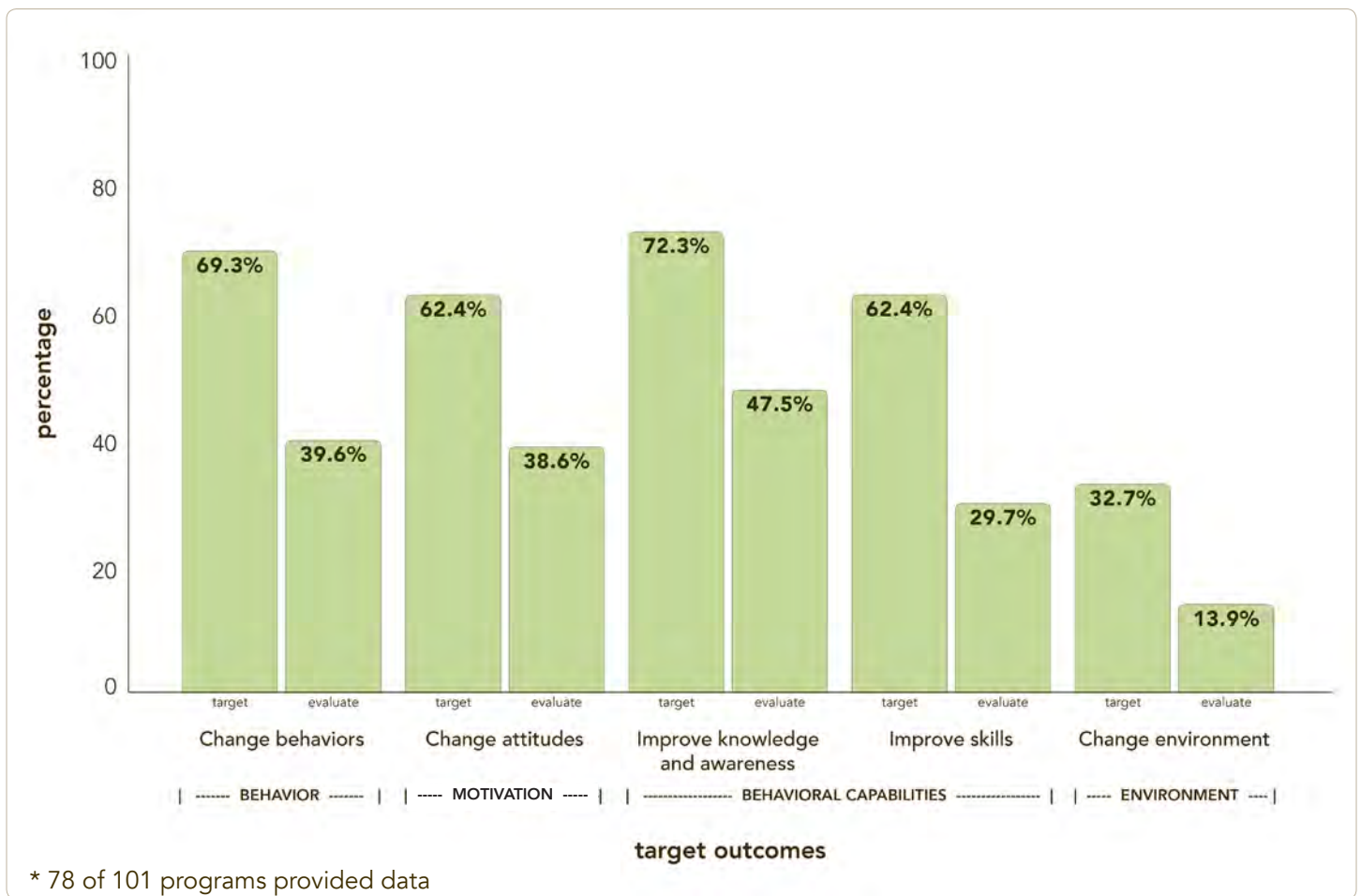


NEP Target Outcomes and Evaluation

Common NEPs goals include changing participants' behaviors, as well as improving attitudes, knowledge, awareness, and skills. Research shows that programs that focus on changing behaviors can improve eating patterns. Programs that motivate participants, changing their attitudes around eating, and programs that increase behavioral capabilities through knowledge and skills practice are also effective. Programs that improve environments, making healthy choices easy choices, can also support healthy eating patterns.

Improved knowledge and awareness is the outcome that is most commonly targeted and evaluated. All other outcomes are evaluated less often than they are targeted. The most common form of evaluation is pre and post program survey (data not shown).

Figure 6.6: NEP Target Outcomes and Evaluation

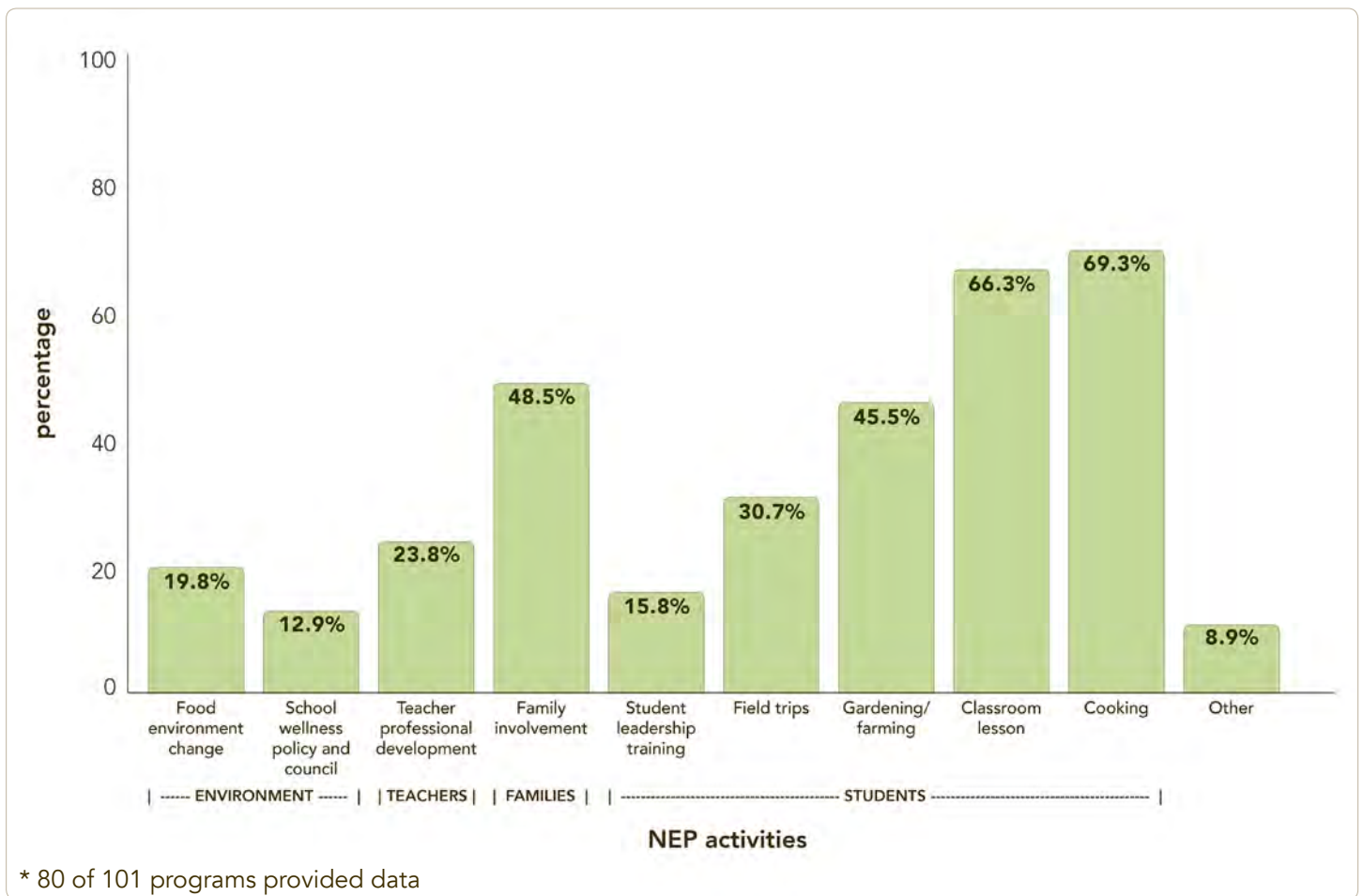


NEP Activities

NEP activities can reach students, teachers, and families. They can also aim to make school and community environments healthier.

Most NEPs focus on activities for students. These include cooking, classroom lessons, gardening, and field trips.

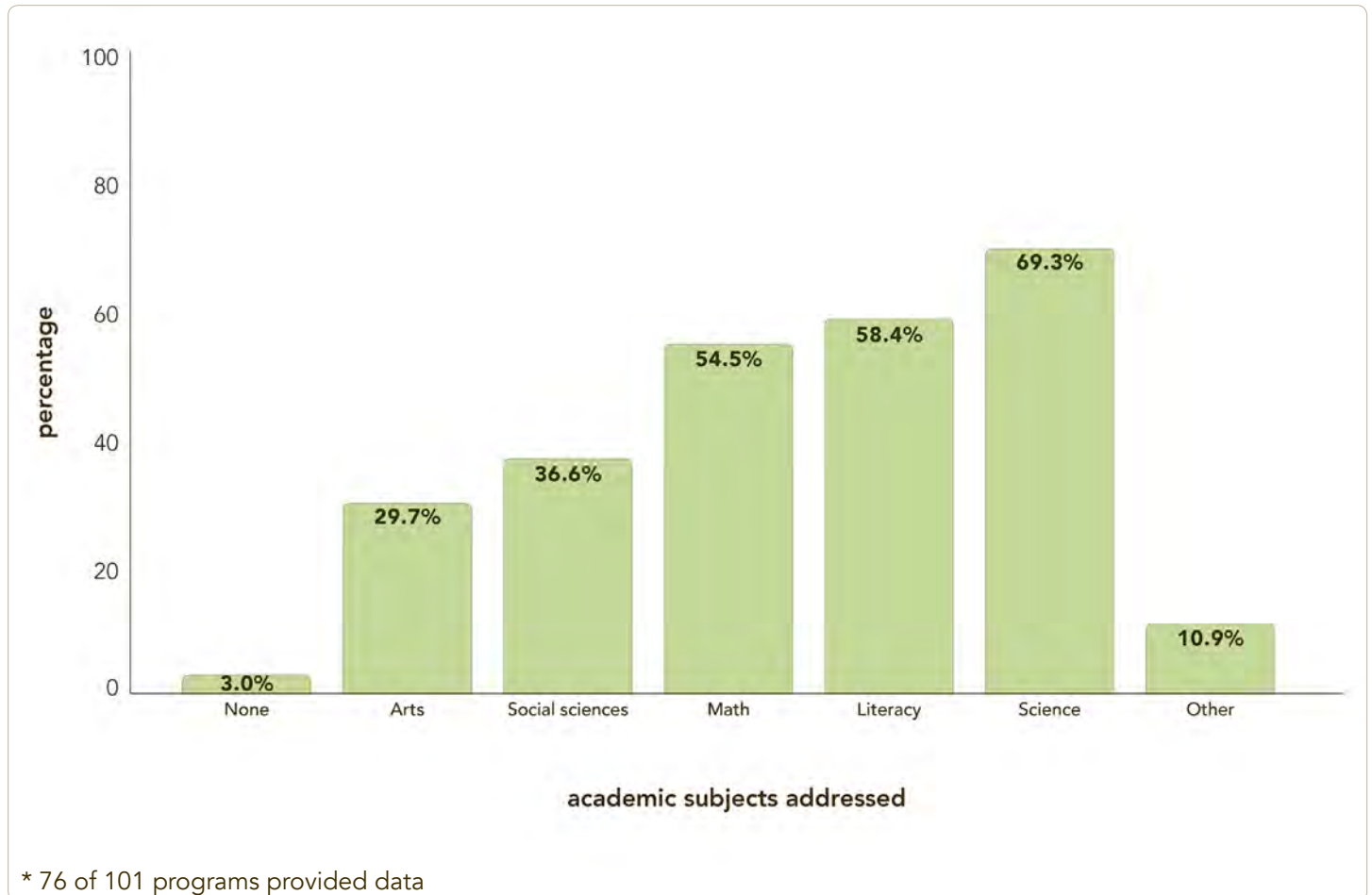
Figure 6.7: NEP Activities



Academic Subjects that NEPs Address

Nearly 70% of NEPs include science learning objectives. Literacy and math are also common subjects that NEPs address.

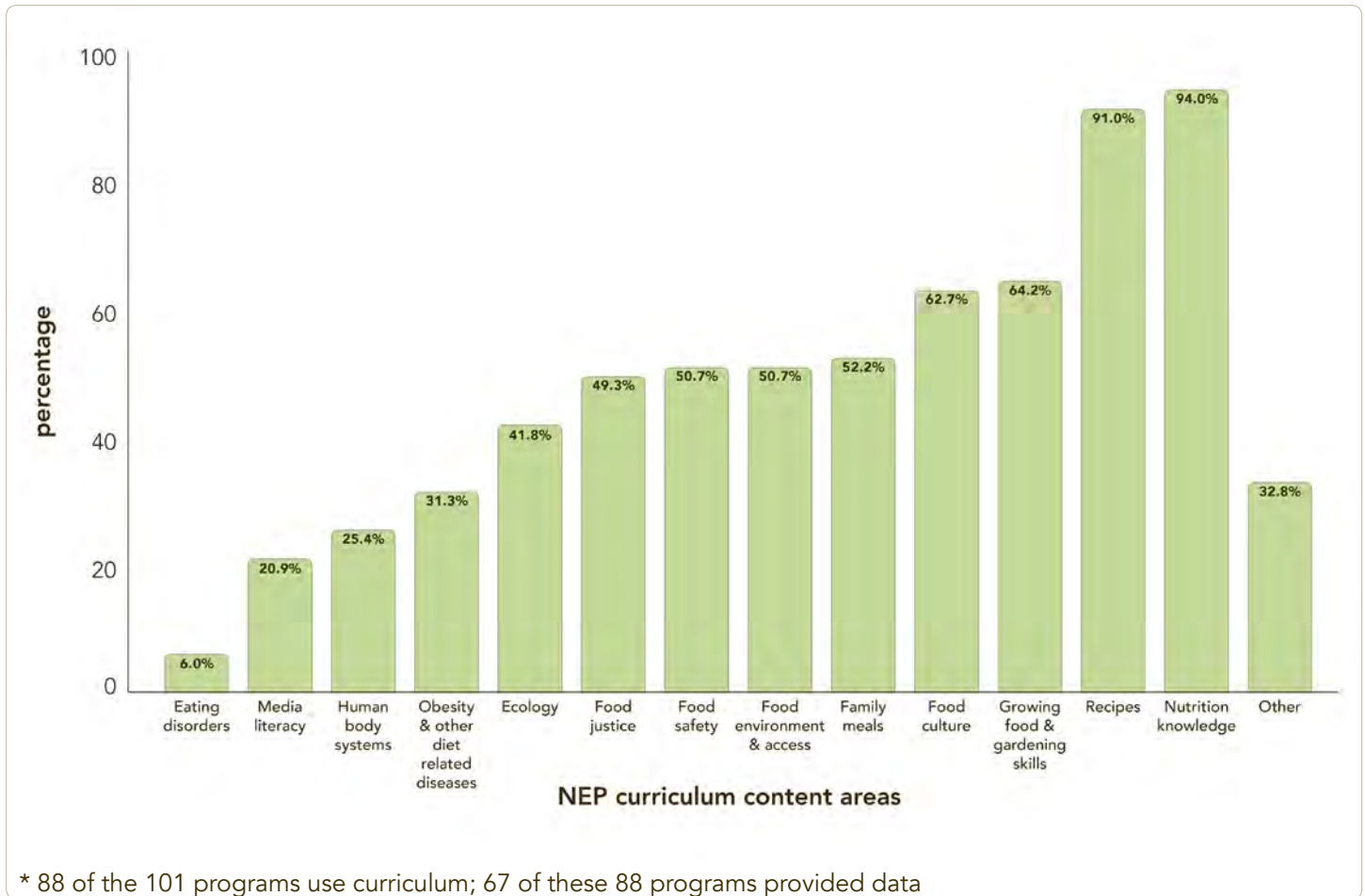
Figure 6.8: Academic Subjects that NEPs Address



NEP Curriculum Content Areas

A majority of NEP curricula cover nutritional knowledge and recipes. Encouragingly, over 40% focus on ecology, and just about half focus on food justice, environment, and access. However, few focus on media literacy or diet-related diseases.

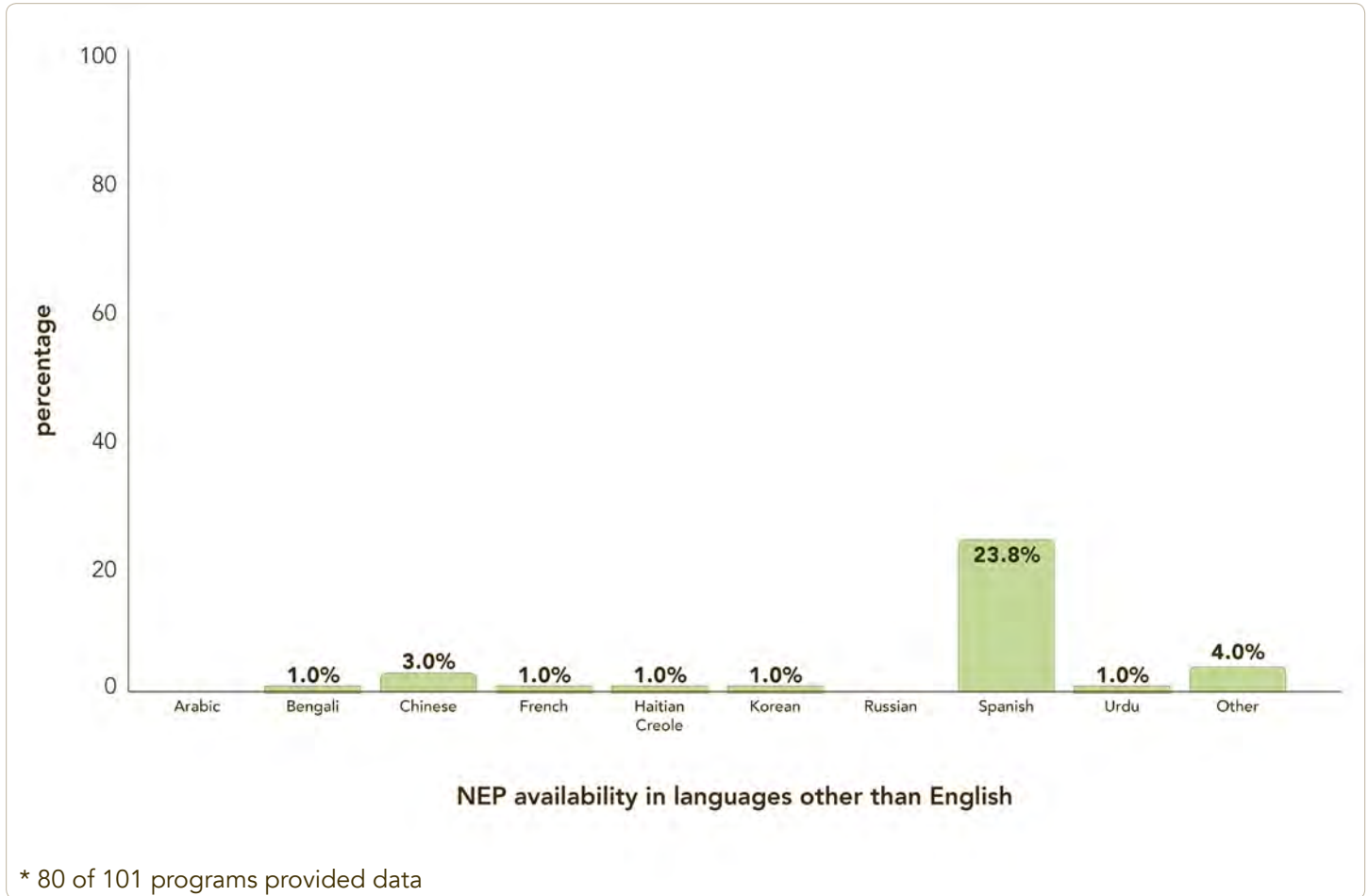
Figure 6.9: NEP Curriculum Content Areas



NEP Availability in Languages Other than English

New York City public school students speak more than 180 languages at home (Office of English Language Learners, 2013). Organizations do not provide NEPs in many languages, though some are available in languages other than English. Spanish is the most common, with nearly one-fourth of NEPs translating some materials.

Figure 6.10: NEP Availability in Languages Other than English



NEP Implementer

Approximately half of NEPs require educators to complete program specific training or professional development. Program staff are the most common educators. On their own, staff implement nearly 38% of NEPs. Less than 10% of these programs require educators to have a degree in education or nutrition. Classroom teachers exclusively implement only 3% of NEPs. But, these NEPs tend to be in a greater number of schools than 3% suggests. Further analysis showed that of the 1,025 schools that have at least one NEP, 178 have an NEP that teachers lead—17%.

Figure 6.11: NEP Implementer Educational Requirements

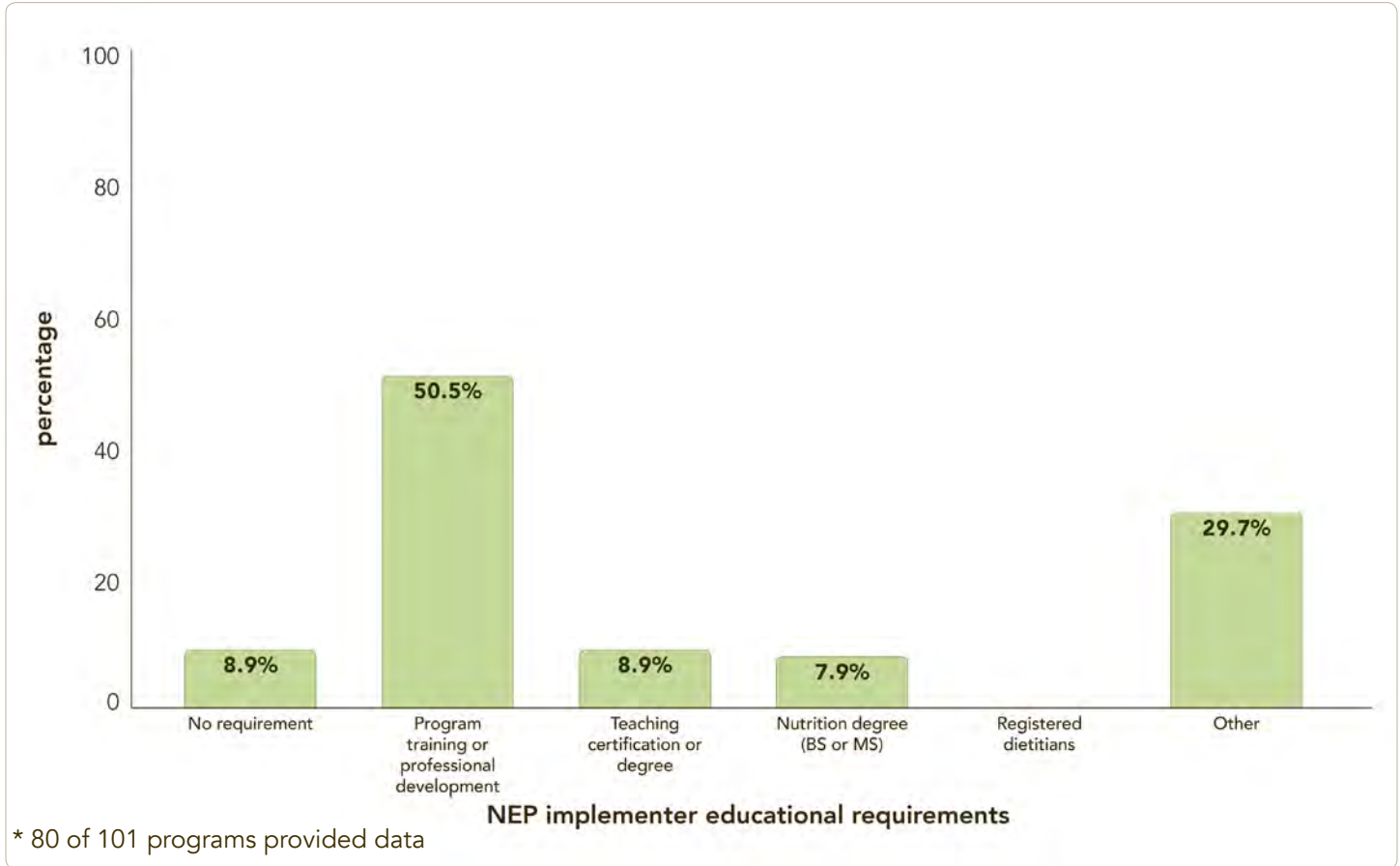
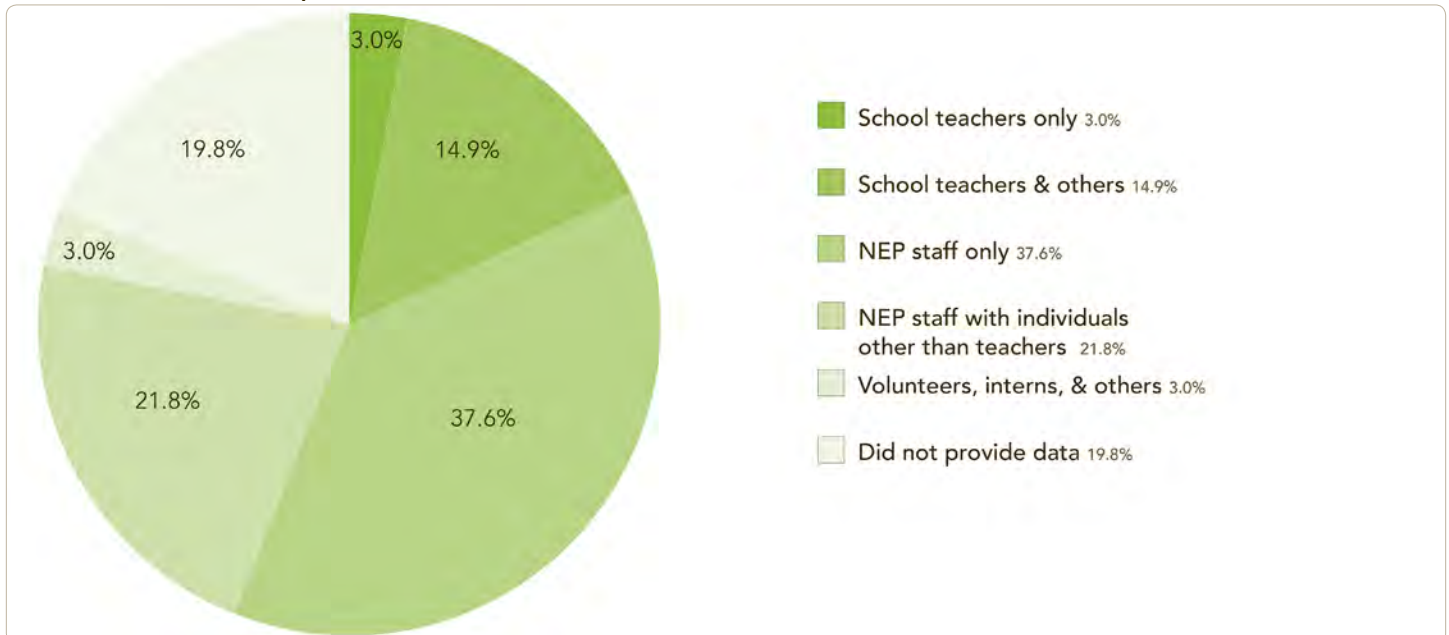


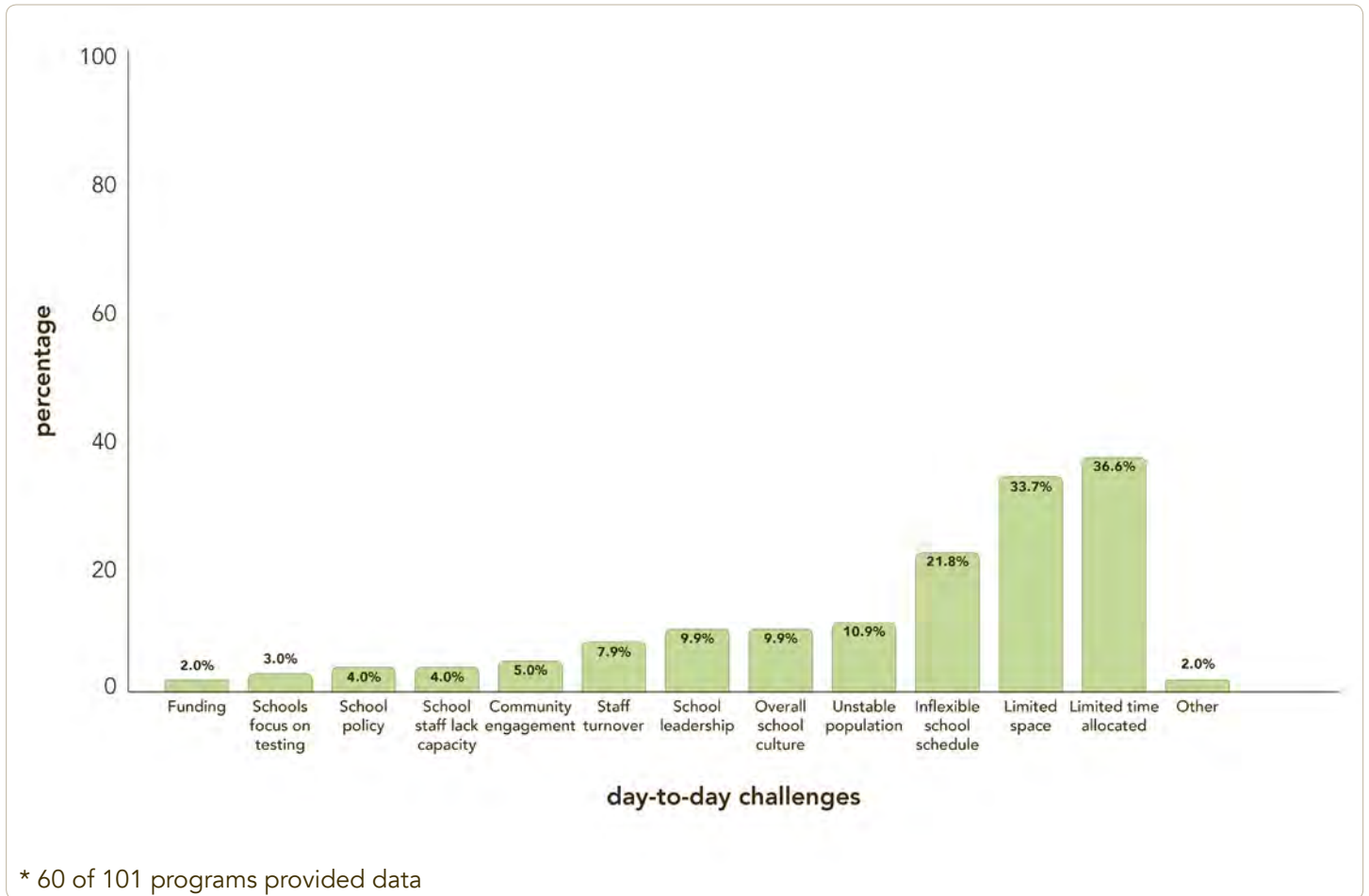
Figure 6.12: Who Implements NEPs



Day-to-Day Challenges for NEPs

Limited time that schools allocate to nutrition education and limited space to conduct activities were the two greatest daily challenges for organizations operating NEPs.

Figure 6.13: Day-to-Day Challenges for NEPs



Where NEPs Occur

Nearly a quarter of NEPs take place only on school property, such as in a classroom or school garden. More than a third of programs combine school-based learning with off-site learning. For instance, an NEP may include take students to the farmers markets to reinforce classroom-based learning. Approximately 34% of NEPs occur only as offsite fieldtrips or workshops, for example at a botanical garden or farmers market.

Figure 6.14: Schools or Other Settings

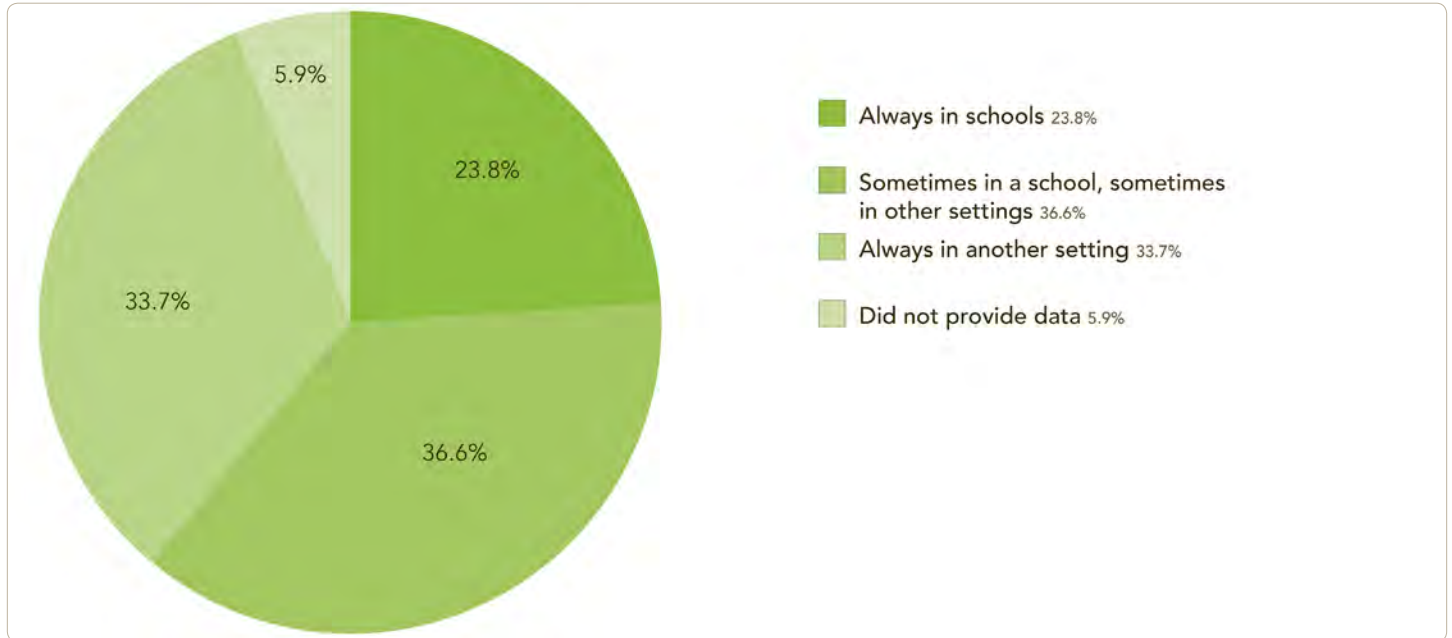
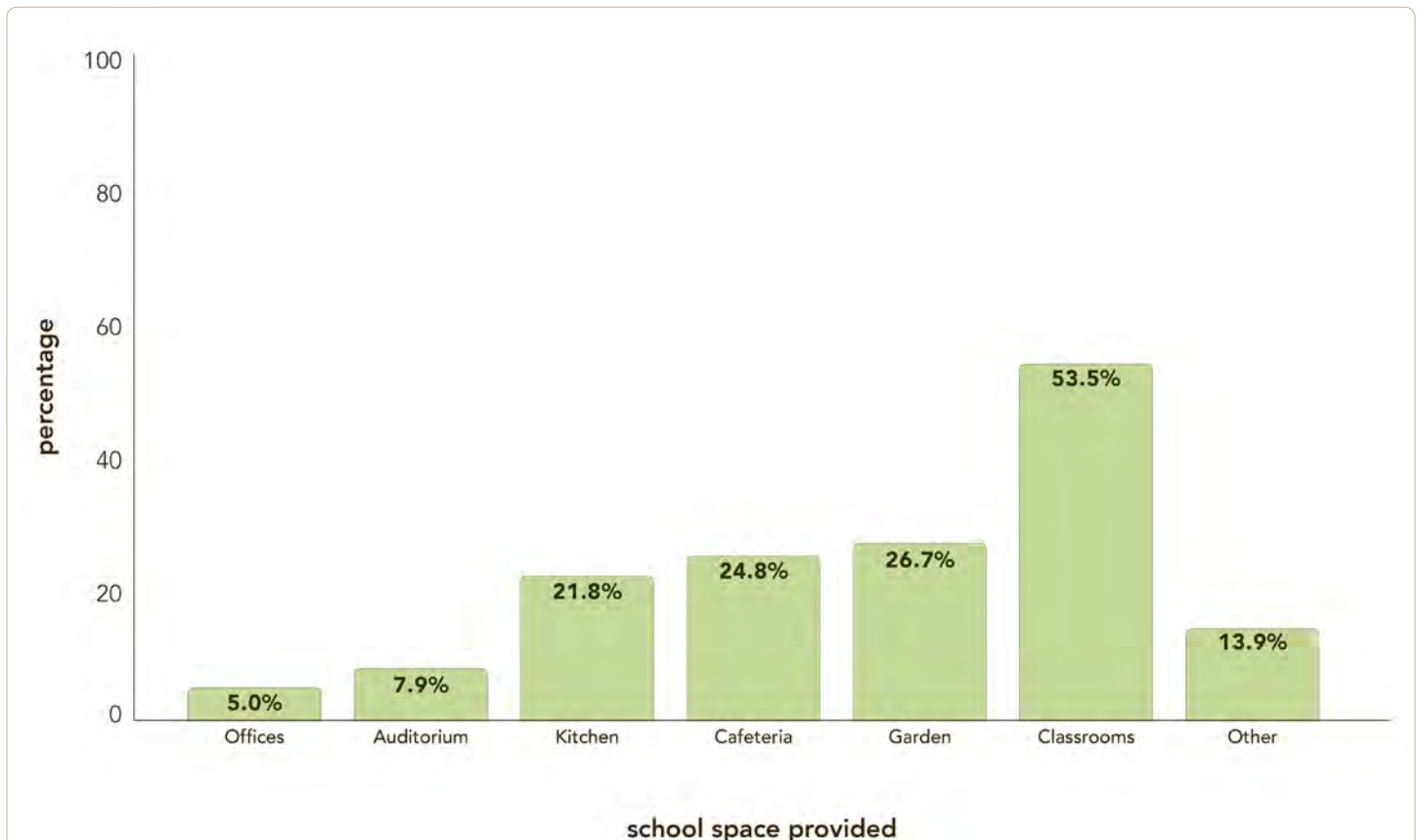


Figure 6.15: School Space Provided

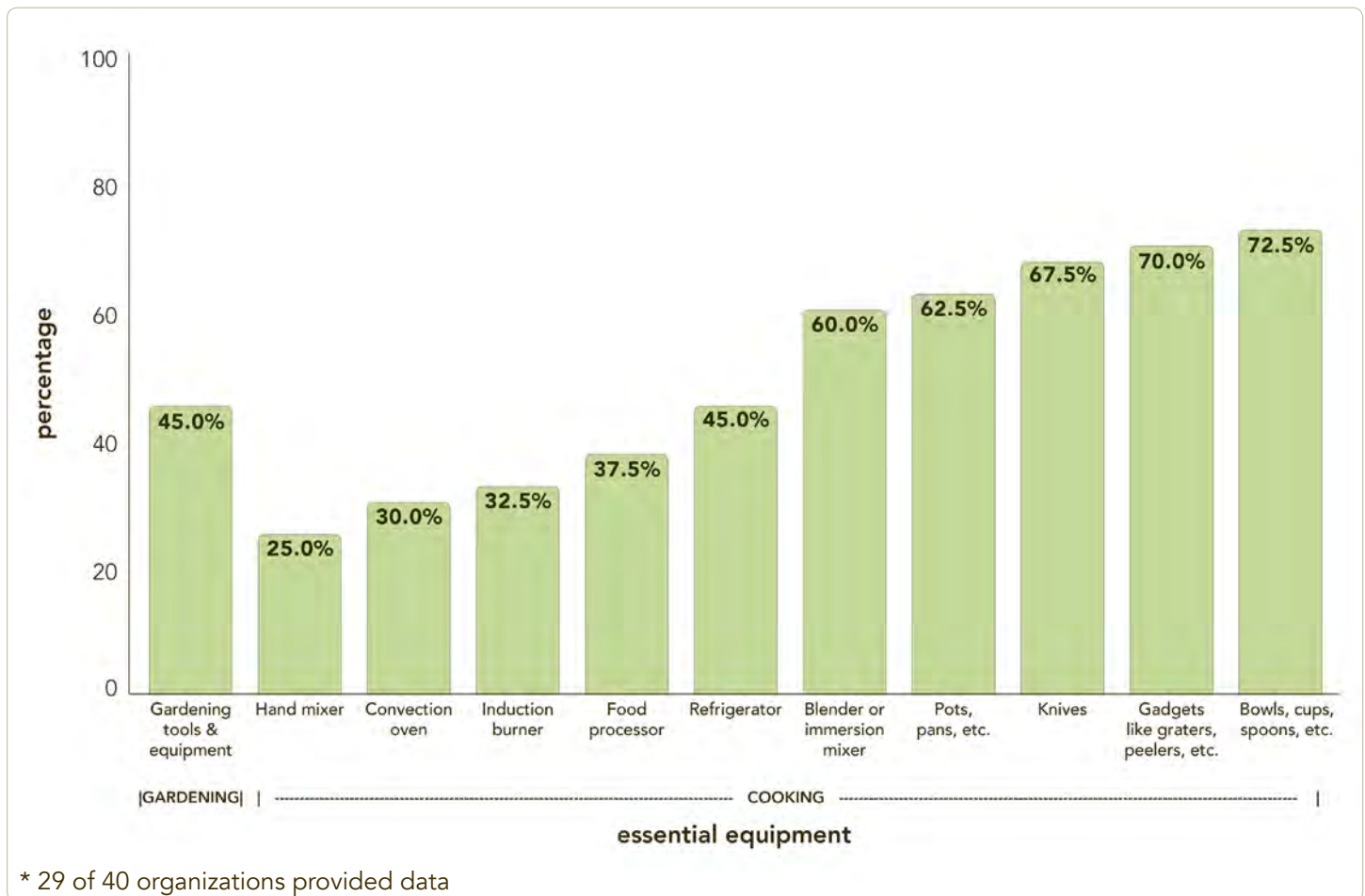


* 83 of the 101 programs take place at schools; 60 of these 83 programs provided data

Essential Equipment for NEPs

Close to half of organizations use gardening equipment. More than 80% use basic cooking equipment such as bowls, measuring cups, and cutting boards. Many also use cooking tools like graters, peelers, knives, pots, pans, and blenders. Fewer organizations currently require heating mechanisms such as convection ovens and induction burners.

Figure 6.16: Essential Equipment for NEPs



VII. Analysis of Nutrition Education Program Distribution in New York City Schools

The New York City Department of Education (NYC DOE) operates approximately 1,840 schools and serves 1.1 million students, making it the largest public education system in the United States (New York City Department of Education, 2017). Figures and tables in the following section demonstrate how NEPs are distributed across New York's public schools. These figures and tables include NEP information by school location, grade-level, poverty rate, racial and ethnic makeup, and test scores.

Key Findings

- Fifty-six percent of New York City public schools have at least one NEP. That is 1025 schools. However, 815 schools, or 44%, lack even one NEP.
- In Brooklyn, Manhattan, and Queens, the rate of elementary schools with at least one NEP has increased from 39% to 71% since the 2011-12 school year. This is an 82% increase.
- Staten Island has the lowest rate of schools with at least one NEP.
- Elementary schools have the highest rate of at least one NEP, whereas high schools have the lowest.
- NEPs are in more schools with the highest and the lowest proportions of students eligible for free or reduced price lunch.
- Three-fifths of New York City public schools have over 80% black and/or Hispanic students. Their rate of NEPs is slightly lower than the city average.
- Schools with low, medium, and high average test scores all have similar NEP rates.

Schools with NEPs

Just over half of New York City public schools have at least one NEP. That is 1025 schools. However, 815 schools or 44.3%, lack even one NEP.

Figure 7.1: Schools with NEPs

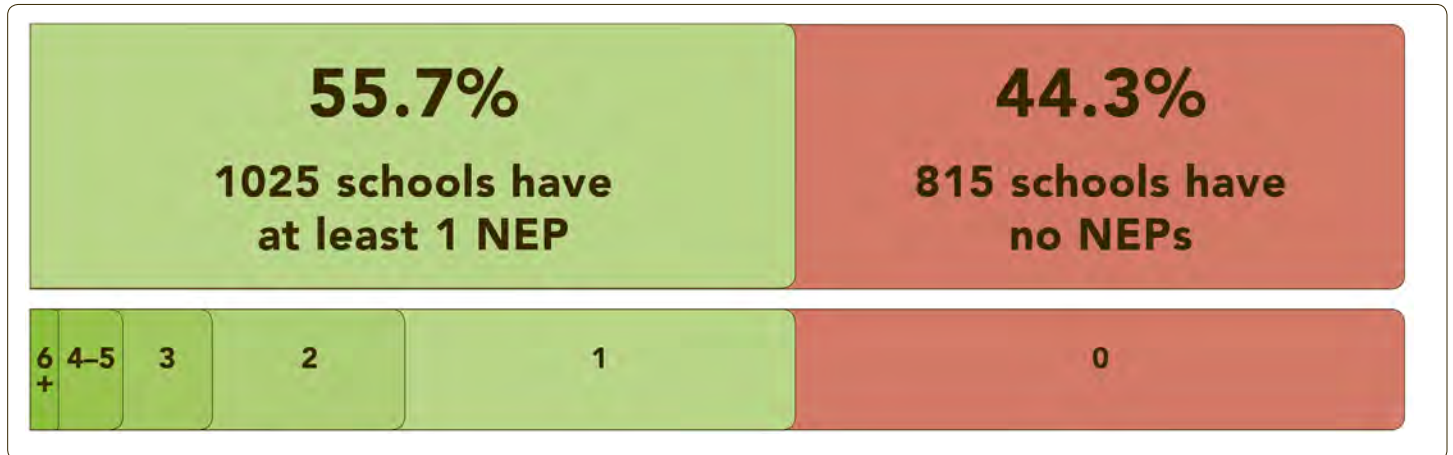


Photo Credit: Claire Uno

Table 7.1 Percentage and Number of Schools with no to 6+ NEPs

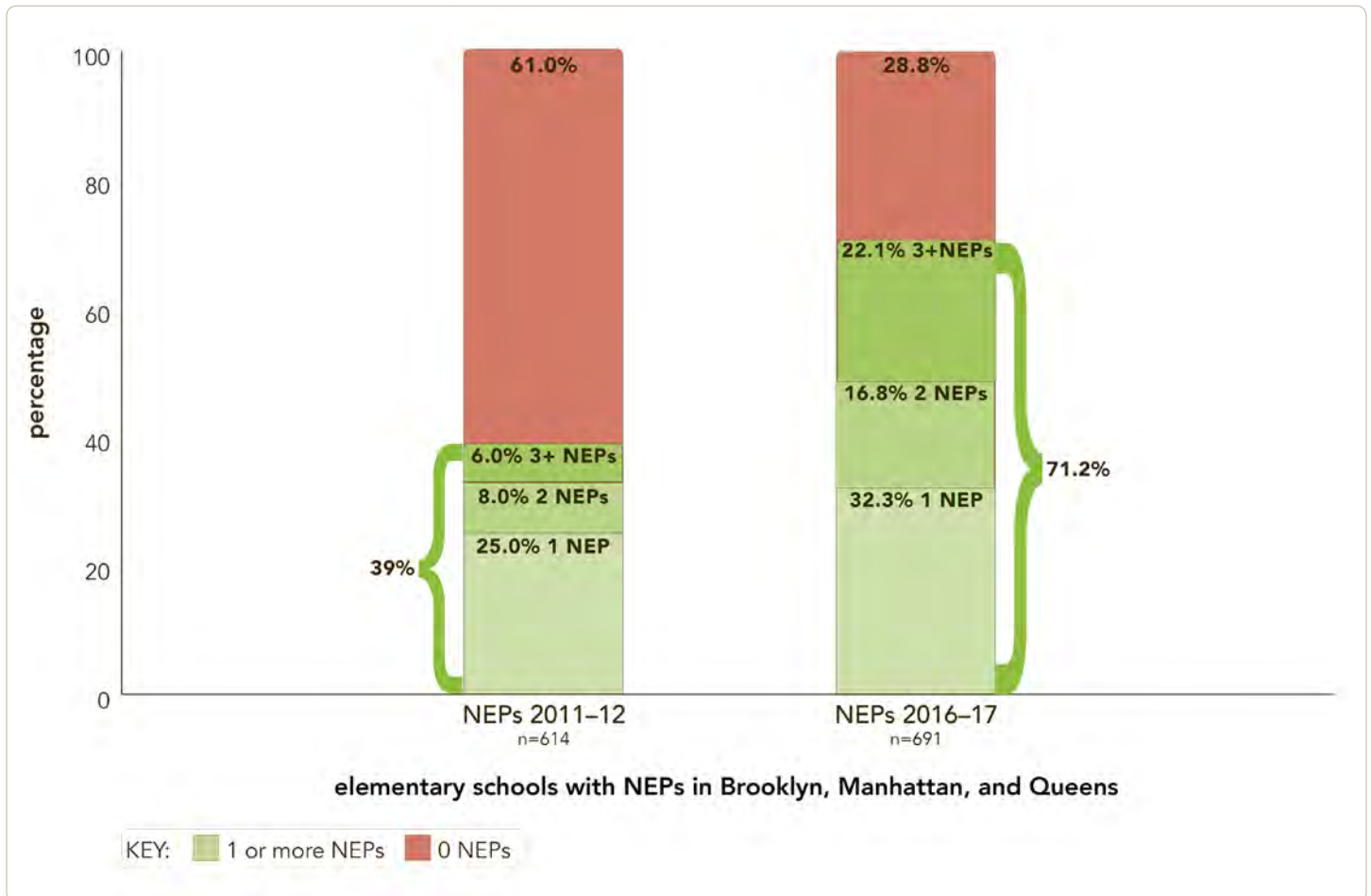
Total	No NEPs	1 NEP	2 NEPs	3 NEPs	4-5 NEPs	6+ NEPs
Percentage	44.3%	28.4%	14.1%	6.4%	4.7%	2.1%
Schools	815	522	259	118	87	39

Comparison of Elementary Schools with NEPs in 2011–12 and 2016–17

Our previous study looked at NEPs in elementary schools in Brooklyn, Manhattan, and Queens in the 2011–12 school year (Porter, 2014). That study found that 39% of schools had at least one NEP.

Analysis of elementary schools in these boroughs in the 2016–17 school year shows the rate of NEPs is now 71.2%, an increase of 82%. Even more encouraging is that much of the gain has been in schools that have added more than one NEP.

Figure 7.2: Comparison of Elementary Schools with NEPs in 2011–12 and 2016–17



NEP Distribution Varies by Borough

Manhattan and Brooklyn have slightly higher than average rates of schools with NEPs, while the Bronx and Queens have slightly lower than average rates.

Staten Island has the lowest rate. Fewer than half of Staten Island schools, 43% or 34 of 80 schools, have an NEP.

Figure 7.3: NEP Distribution by Borough

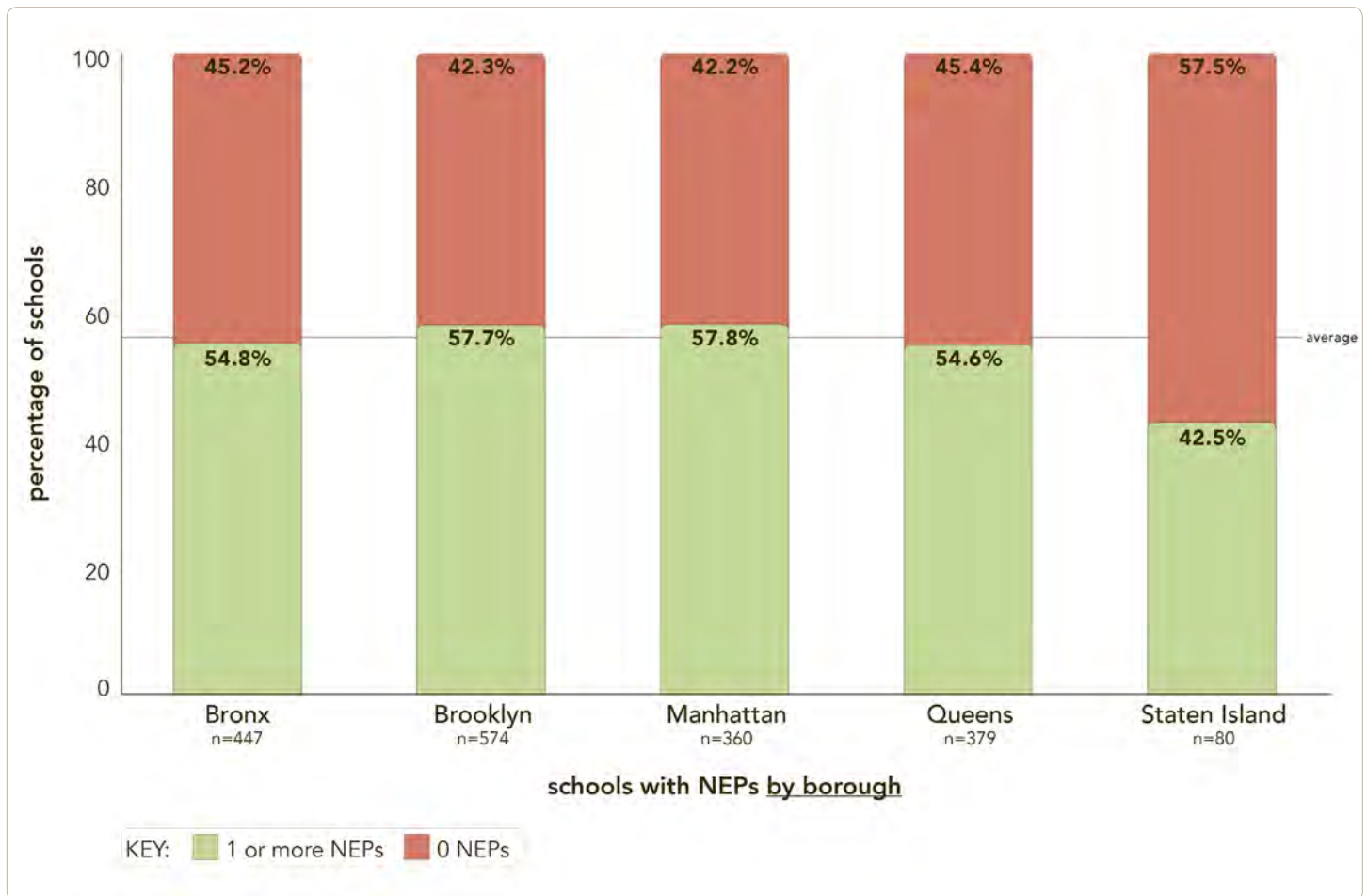


Table 7.2: Number of NEPs in Schools by Borough

Borough	No NEPs	1 NEP	2 NEPs	3 NEPs	4-5 NEPs	6+ NEPs
Bronx	45.2%	26.0%	14.5%	6.5%	4.9%	2.9%
Brooklyn	42.3%	29.8%	13.9%	7.1%	4.5%	2.3%
Manhattan	42.2%	26.1%	14.4%	7.2%	7.5%	2.5%
Queens	45.4%	31.4%	14.0%	5.3%	2.9%	1.1%
Staten Island	57.5%	27.5%	11.2%	2.5%	1.3%	0%

NEP Distribution Varies by School Type

Elementary schools have the highest rate of NEPs, while high schools have the lowest. Only one-third of high schools have one or more NEPs, and very few have more than three.

Figure 7.4: NEP Distribution by School Type

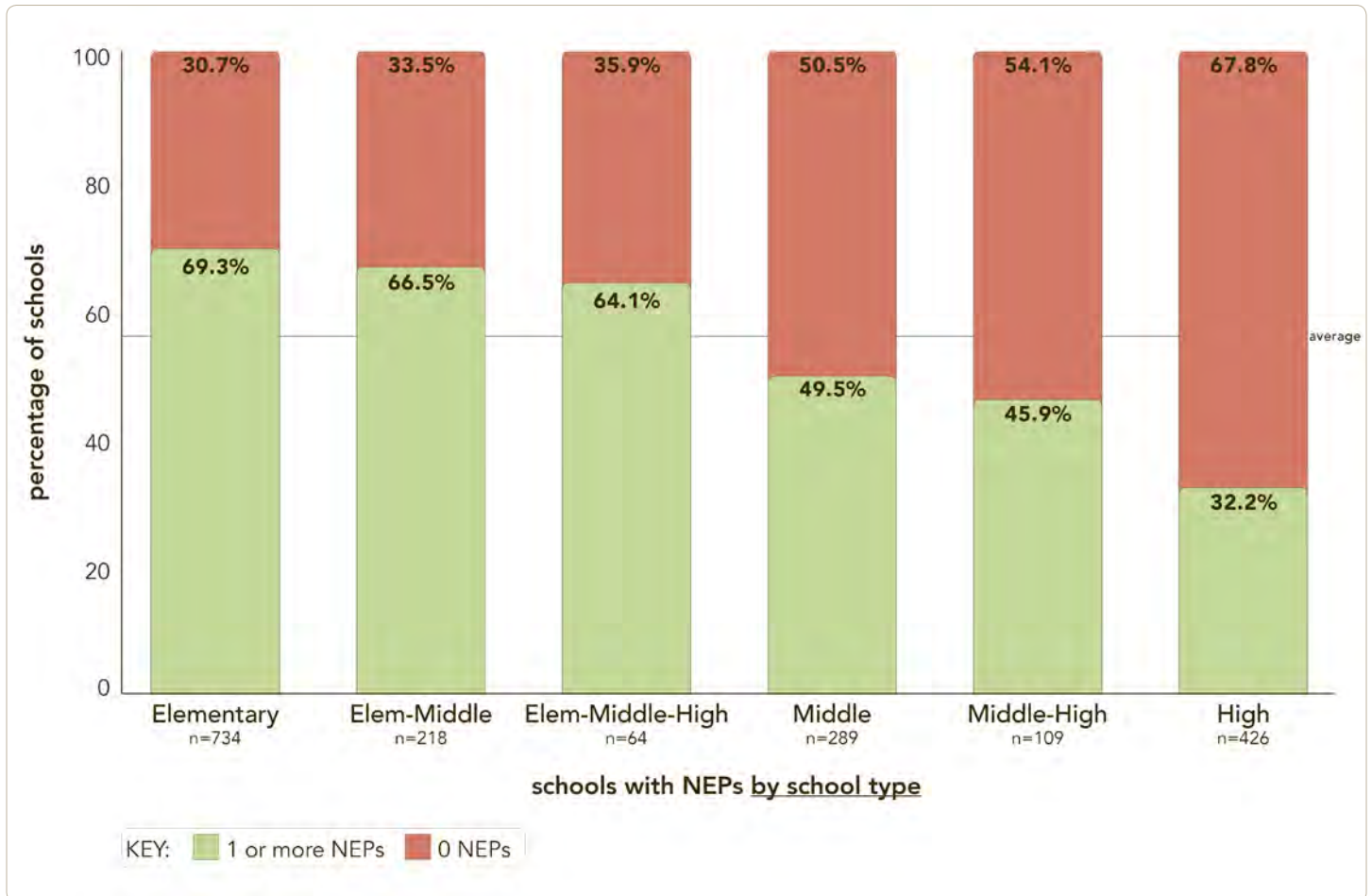


Table 7.3: Number of NEPs by School Type

School Type	No NEPs	1 NEP	2 NEPs	3 NEPs	4-5 NEPs	6+ NEPs
Elementary	30.7%	31.2%	16.9%	9.7%	7.8%	3.8%
Elementary-Middle	33.5%	30.7%	17.0%	9.2%	6.0%	3.7%
Elementary-Middle-High	35.9%	34.4%	23.4%	0%	4.7%	1.6%
Middle	50.5%	27.3%	14.5%	4.8%	2.8%	0%
Middle-High	54.1%	25.7%	13.8%	2.8%	1.8%	1.8%
High	67.8%	22.8%	6.1%	2.3%	0.9%	0%

NEP Distribution Varies by School Poverty Rate

Students qualify for free or reduced-price lunch when their families earn less than 130% or 185%, respectively, of the federal poverty guidelines (Food and Nutrition Service, 2017). Policymakers often use a school’s rate of free or reduced-price lunch as a proxy for poverty.

NEPs are in more schools with the highest and the lowest proportions of students eligible for free or reduced-price lunch. In contrast, NEPs serve a smaller percentage of schools in the middle—fewer than half of schools in the second and third income quintiles have NEPs. The majority of students in these two quintiles still qualify for free and reduced-price lunch at a far greater rate than the national average (Snyder & Musu-Gillette, 2015).

Figure 7.5: NEP Distribution by School Poverty Rate

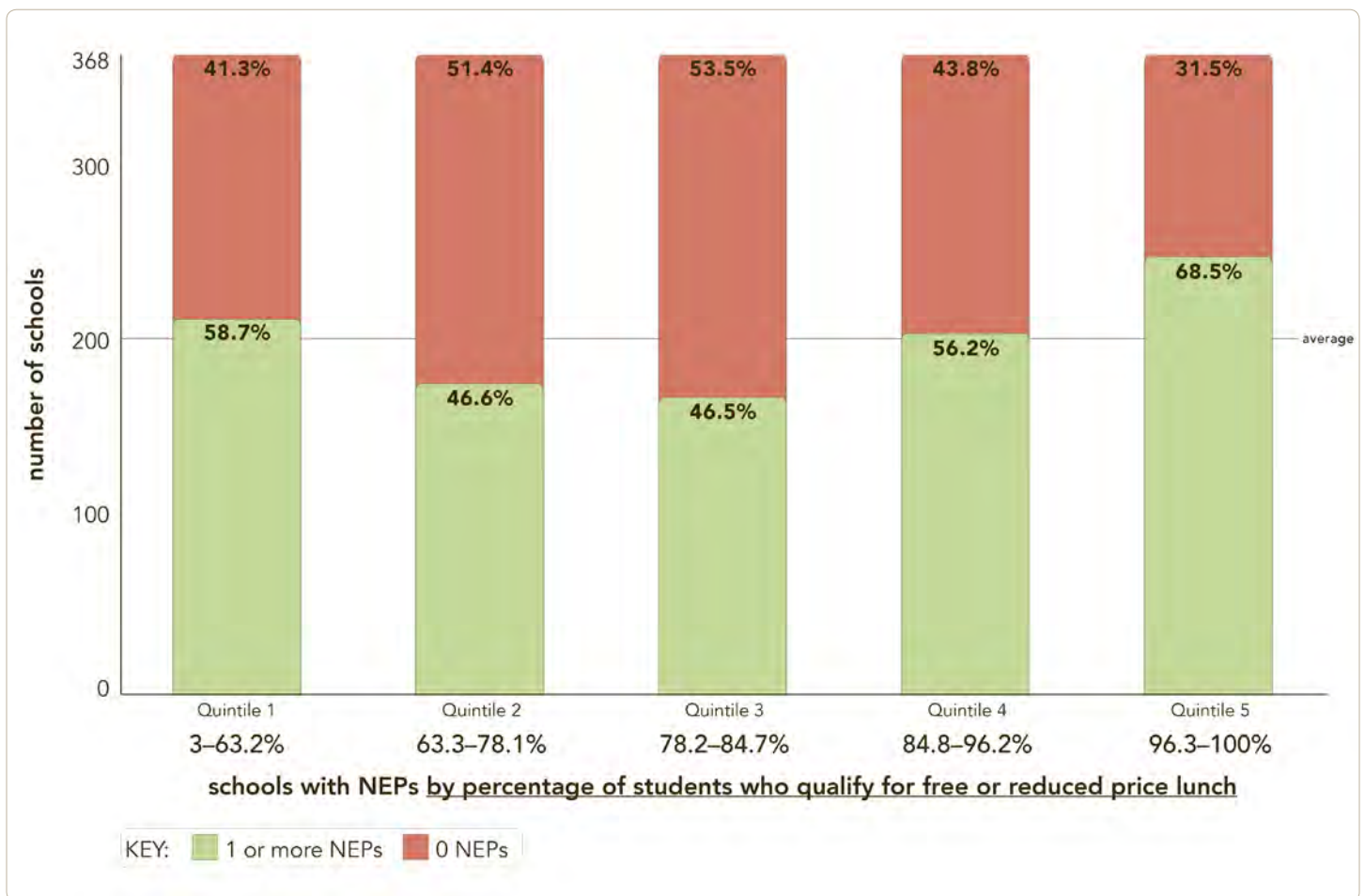


Table 7.4: Number of NEPs by School Poverty Rate

Quintile	No NEPs	1 NEP	2 NEPs	3 NEPs	4-5 NEPs	6+ NEPs
1: 3-63.2%	41.3%	29.3%	16.8%	6.8%	4.1%	1.6%
2: 63.3-78.1%	51.4%	30.7%	10.6%	4.3%	2.4%	0.5%
3: 78.2-84.7%	53.5%	25.3%	14.1%	2.7%	3.0%	1.4%
4: 84.8-96.2%	43.8%	27.4%	13.3%	6.3%	7.3%	1.9%
5: 96.3-100%	31.5%	29.1%	15.5%	12.0%	6.8%	5.2%

Schools with the Highest Rates of Students who are Black and/or Hispanic have Slightly Lower Rates of NEPs than the Citywide Average

Across schools with varied rates of black and/or Hispanic students, the rates of NEPs are fairly consistent. In the three-fifths of schools that have over 80% black and/or Hispanic students, 53.4% have at least one NEP. This rate is slightly lower than the citywide average. In contrast, nearly 58% of schools with the lowest proportion of black and/or Hispanic students have at least one NEP.

Two NEP characteristics may be especially relevant for schools with high rates of black and/or Hispanic students: addressing media literacy and providing materials in Spanish.

Media literacy can help combat discriminatory food industry marketing. Food industry advertising disproportionately targets minority populations who are also at higher risk for obesity (Fleming & Harris, 2016; Ogden et al., 2014). Quintile 5 in Figure 7.6 shows schools with more than 96% black and/or Hispanic students. Further analysis shows that 20% of the schools in this quintile have an NEP that covers media literacy. While 20% is low, for the other quintiles, only 5% of schools with NEPs have programs that address media literacy.

Providing English language learners (ELL) and their families access to materials in their native languages is a best practice. Two-thirds of ELL students in New York City schools speak Spanish at home (Office of English Language Learners, 2013). Further analysis shows that of the 732 schools with a majority Hispanic population, 429 have at least one NEP. Only half of these schools, or 215, have an NEP that translates materials into Spanish.

Nutrition education combats
targeted food industry marketing



Schools with the Highest Rates of Students who are Black and/or Hispanic have Slightly Lower Rates of NEPs than the Citywide Average (continued)

Figure 7.6: NEP Distribution by Percentage of Students who are Black and/or Hispanic

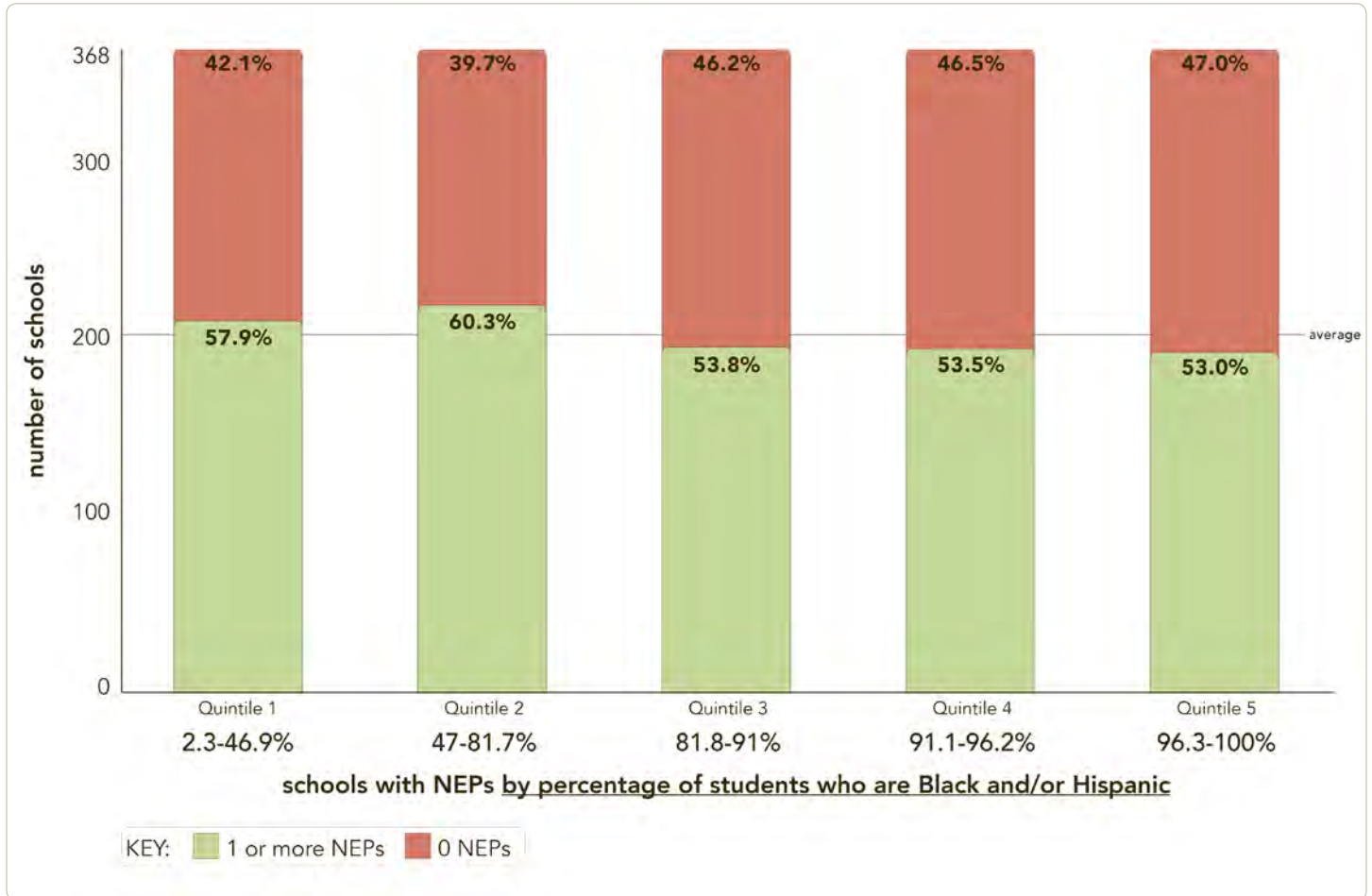


Table 7.5: Number of NEPs by Percentage of Students who are Black and/or Hispanic

Quintile	No NEPs	1 NEP	2 NEPs	3 NEPs	4-5 NEPs	6+ NEPs
1: 2.3-46.9%	42.1%	30.7%	14.1%	6.5%	4.6%	1.9%
2: 47.0-81.7%	39.7%	28.0%	21.2%	4.6%	4.3%	2.2%
3: 81.8-91.0%	46.2%	31.3%	11.7%	6.5%	3.0%	1.4%
4: 91.1-96.2%	46.5%	29.9%	10.9%	6.8%	3.8%	2.2%
5: 96.3%-100%	47.0%	22.0%	12.5%	7.6%	7.9%	3.0%

NEP Distribution by Elementary and Middle School State Test Scores

New York State tests math and English language arts (ELA) for students in third through eighth grades. The rate of elementary and middle schools with at least one NEP does not vary much across the range of average school math and ELA test scores.

Figure 7.7: NEP Distribution by Elementary and Middle School Math State Test Scores

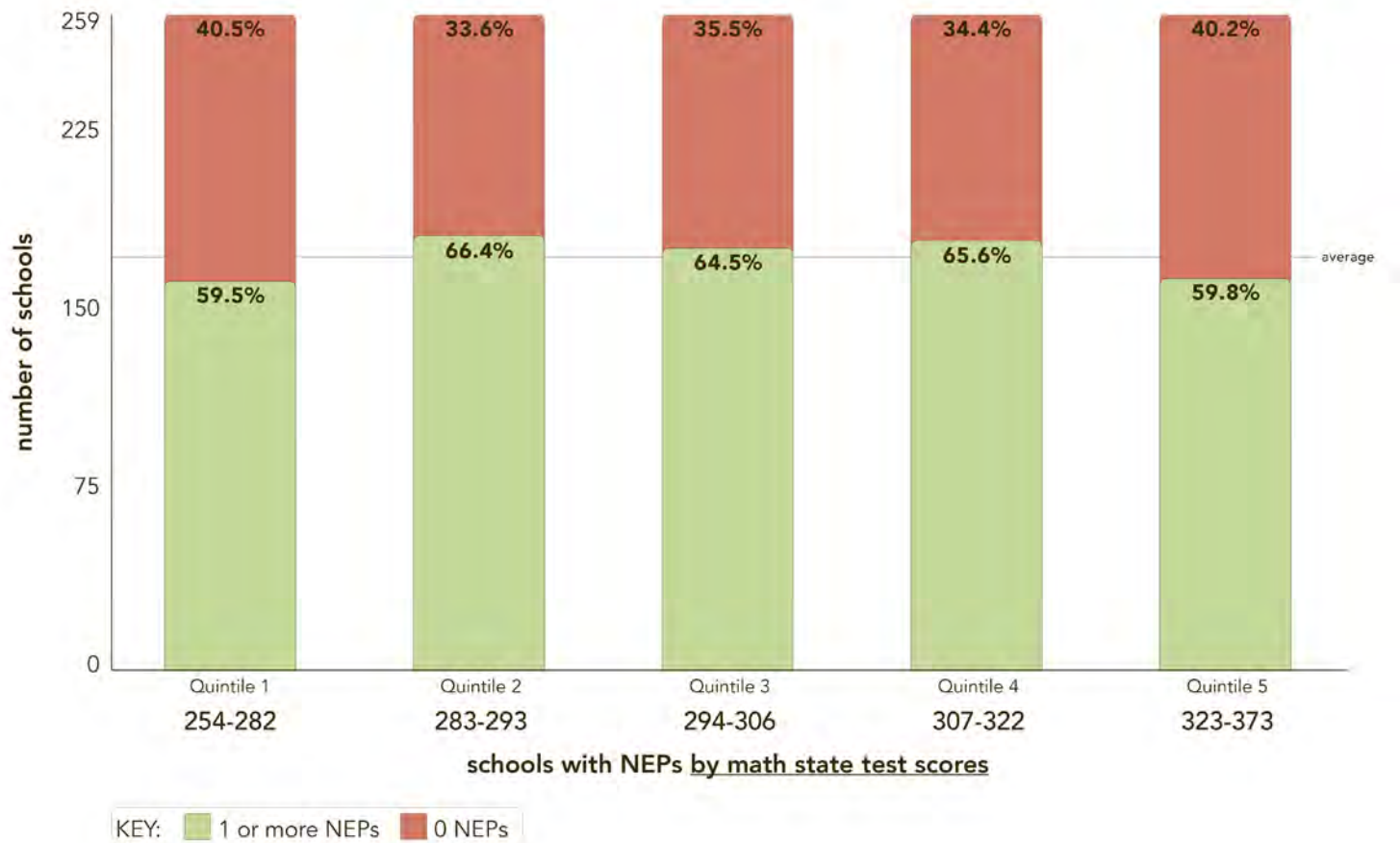


Table 7.6: Number of NEPs by Elementary and Middle School Math State Test Scores

Quintile	No NEPs	1 NEP	2 NEPs	3 NEPs	4-5 NEPs	6+ NEPs
1: 254-282	40.5%	29.0%	12.7%	9.3%	6.2%	2.3%
2: 283-293	33.6%	30.5%	17.8%	10.4%	4.2%	3.5%
3: 294-306	35.5%	27.4%	18.5%	6.9%	8.5%	3.1%
4: 307-322	34.4%	30.9%	17.4%	7.7%	6.9%	2.7%
5: 323-373	40.2%	32.4%	14.7%	5.4%	5.0%	2.3%

* Does not include high school Regents and district 75 (special education) tests

NEP Distribution by Elementary and Middle School State Test Scores (continued)

Figure 7.8: NEP Distribution by Elementary and Middle School English Language Arts State Test Scores

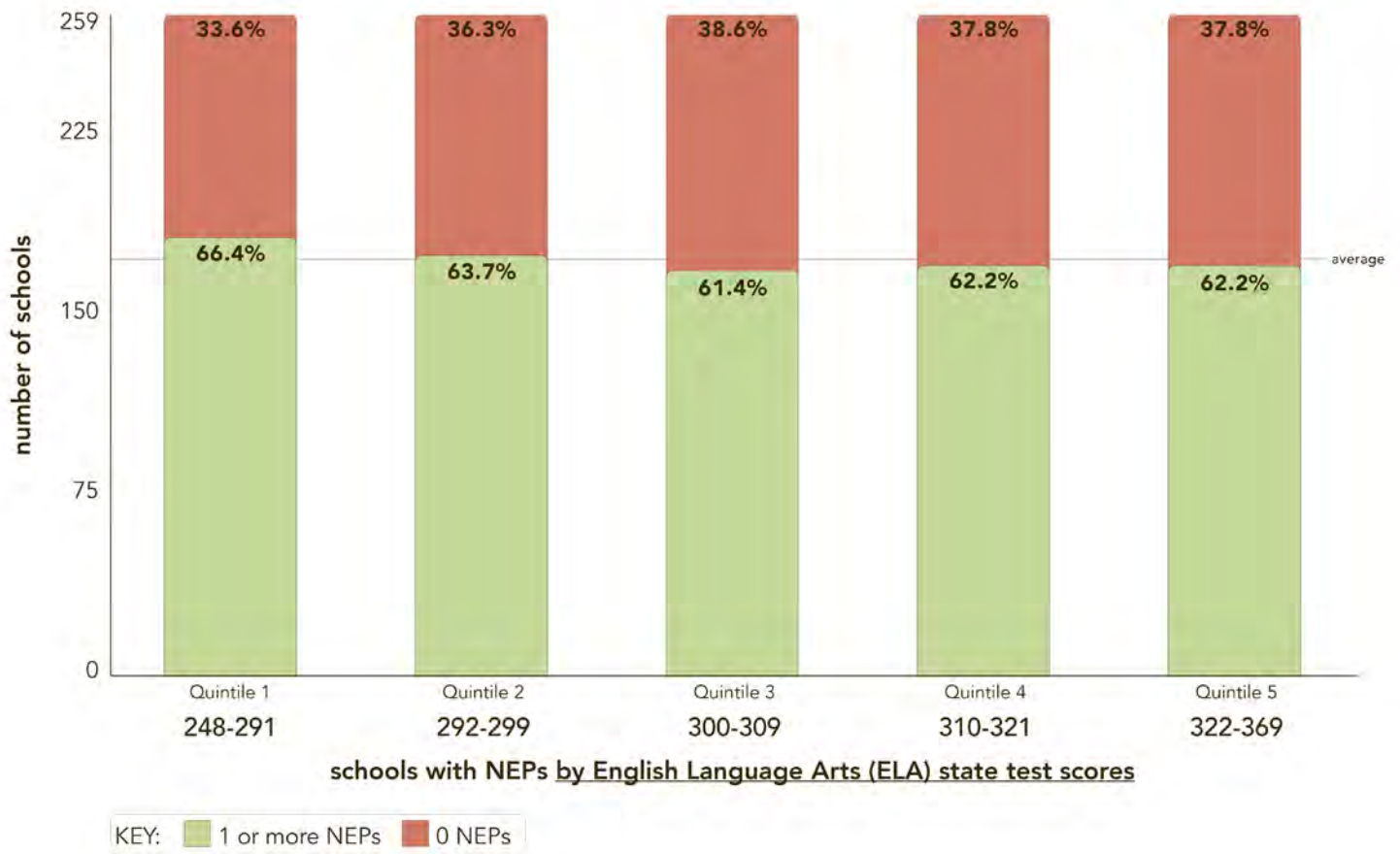


Table 7.7: NEPs in Elementary and Middle School by English Language Arts State Test Scores

Quintile	No NEPs	1 NEP	2 NEPs	3 NEPs	4-5 NEPs	6+ NEPs
1: 248-291	33.6%	30.5%	12.0%	13.1%	7.3%	3.5%
2: 292-299	36.3%	30.5%	17.4%	7.7%	5.8%	2.3%
3: 300-309	38.6%	26.3%	20.8%	5.0%	6.9%	2.3%
4: 310-321	37.8%	29.7%	16.2%	8.1%	5.4%	2.7%
5: 22-369	37.8%	33.2%	14.7%	5.8%	5.4%	3.1%

* Does not include High Schools Regency and D75 tests

VIII. Recommendations

Our goal is to ensure that all New York City students have access to great nutrition education. NEPs play an important part in achieving this goal. To ensure equitable access, everyone who has a stake in the city's schools should work towards 100% of elementary, middle, and high schools in all five boroughs having at least one NEP in the next five years.

Achieving this objective will require coordination, investment, and collaboration.

Coordination: Create a network that coordinates nutrition education distribution across city schools, advocates for policies to support nutrition education, aligns evaluation strategies, and bolsters efficiencies through shared resources.

Investment: Build capacity for school-based nutrition education through funding, technical assistance, tools, and training.

Collaboration: Amplify the unique roles of NEPs, school administrators, teachers, school food service, parents, students, funders, advocates, and policy makers to support and strengthen school-based nutrition education.

The following recommendations lay out specific action to enhance coordination, investment and collaboration for key players in school-based nutrition education.

Recommendations for Organizations that Operate NEPs

- Strategically partner with other organizations that operate NEPs to ensure schools have comprehensive nutrition education. For example, organizations with NEPs that focus on developing skills should partner with organizations focused on changing food environments.
- Convene program developers, evaluators, and educators from different organizations to plan and share resources and best practices.
- Create an NEP clearinghouse to share curricula, lesson plans, translated materials, and professional development tools.
- Explore merging organizations and/or sharing core administrative functions.
- Advocate for strong public policies, programs, and funding to support nutrition education.
- Charge schools on a needs-based sliding scale to diversify funding sources.
- Continue to explore ways to integrate nutrition education programming into core academic subjects. Organizations should make clear how nutrition education lessons meet specific grade level standards.
- Consider scalable NEP models that classroom teachers can lead.
- Include media literacy as a core component of programming.
- Continue to cover ecology, food justice, environment, and access in curricula.
- Develop or identify resources in languages other than English to meet school communities' needs.

Recommendations for Schools

- Allocate funds for and support teacher professional development for nutrition education.
- Dedicate space for NEPs to operate on school property. For example, schools could invest in kitchen classrooms or mobile kitchen units. Schools can also offer space to store NEPs' equipment.
- Prioritize and align nutrition education across cafeterias, classrooms, gardens, and other school spaces as part of the Whole School, Whole Community, Whole Child model. For some practical steps to integrate nutrition education into schools see Appendix B, page 61.
- Connect classroom teachers' lessons on food and nutrition—across all subjects—to NEP lessons.
- Work with a mix of NEPs. Having assessed need, schools can choose programs that focus on students and parents or that promote healthy changes to the school environment, for example. Schools can use the searchable online database [Nutrition Education Programs in NYC Schools \(www.tc.edu/tisch/nepnyc\)](http://www.tc.edu/tisch/nepnyc) the Tisch Food Center has developed to search for different NEPs that match with the school philosophy and mission.
- Support nutrition education for English language learners. Hands-on programming supports vocabulary acquisition, making NEPs ideal for students learning English.

Recommendations for Funders and Policymakers

- Keep grant reporting and other administrative requirements minimal. Many organizations that operate NEPs have limited capacity and spend the majority of funds on teaching staff.
- Increase NEPs capacity to incorporate evidence-based best practices by developing tools and technical assistances for NEPs to self-evaluate and refine their curricula and programs.

- Maximize investment in evaluation. Given the expense of individual NEPs conducting rigorous student outcome evaluation, funders and policymakers could develop outcome evaluation tools measuring dietary behaviors, attitudes, and conceptual understandings that could be used by multiple NEPs.
- Expand Grow to Learn's capacity to support not just school gardens, but also NEPs that offer gardening activities, ultimately helping schools integrate their gardens with learning opportunities.
- Support nutrition education professional development opportunities for classroom teachers and NEP educators to ensure that nutrition education is effective and evidence-based.
- Convene program directors, developers, evaluators, and educators from organizations that operate NEPs to plan and share resources and best practices.
- Advocate to maintain and expand federal, state, and city support for nutrition education.
- Invest more state and city tax levy dollars in NEPs. For example, the state could restore funding to the Creating Healthy Schools and Communities initiative which supports environmental changes and wellness councils in schools. City legislators could dedicate capital funds to create teaching kitchens in schools, complementing ongoing support for school gardens.
- Fund a collective impact process for NEPs and other stakeholders to articulate a common agenda, share metrics, and align efforts.
- Fund efforts to align nutrition education with grade level learning standards. Funds should support organizations that create resources and provide technical assistance to align nutrition education with standards.
- Direct NYC DOE to translate nutrition education resources into languages other than English.

IX. Future Research

Future research could:

- continue to track the saturation and characteristics of NEPs in NYC schools;
- replicate portions of this study in other geographic locations or institutions besides schools, such as early childcare centers and after school settings;
- conduct case studies within a single school or community where multiple NEPs are operating to understand the cumulative impact of NEPs;
- conduct longitudinal research by collecting annual data on high school students' eating behaviors and attitudes to track changes over time and correlate with quantity and quality of nutrition education in grades K–12;
- clarify what amount of time needed to help students achieve healthy eating habits. With advances in the field of nutrition education over the past 30 years, new research is needed;
- assess the effects of providing more nutrition education in students' and families' native languages; and
- ascertain what barriers deter teachers from working with NEPs.



Photo Credit: Claire Uno

References

Legal References

- 7 U.S.C. § 2036a. Nutrition Education and Obesity Prevention Grant Program
- 7 U.S.C. §§ 3175 et seq. Nutrition Education Program
- 20 U.S.C. §§ 6301 et seq. Improving the Academic Achievement of the Disadvantaged
- 20 U.S.C. § 6314. Schoolwide Programs
- 20 U.S.C. § 6613. Local Uses of Funds
- 20 U.S.C. §§ 7111 et seq. Student Support and Academic Enrichment Grants
- 20 U.S.C. §§ 7171–76. 21st Century Community Learning Centers
- 42 U.S.C. § 1769. Pilot Projects
- 42 U.S.C. § 1788. Team Nutrition Network
- 42 U.S.C §§ 241. Research and Investigations Generally
- 42 U.S.C § 247b. Project Grants for Preventive Health Services
- 42 U.S.C § 280g-14. National Diabetes Prevention Program
- 42 U.S.C §§ 300u-2. Grants and Contracts for Community Health Programs
- 42 U.S.C §§ 300u-11. Prevention and Public Health Fund
- 7 C.F.R. § 210.31. Local School Wellness Policy
- N.Y. Agric. & Mkts. Law § 3. Declaration of Policy and Purposes
- N.Y. Agric. & Mkts. Law § 16. General Powers and Duties of Department
- N.Y. Agric. & Mkts. Law § § 31-f—j. Community Gardens
- N.Y. Educ. Law § 918. School District Nutrition Advisory Committees
- N.Y. Pub. Health Law §§ 2599-a—d. Childhood Obesity Prevention Program
- N.Y.C. Admin. Code § 21a-966. Reporting on Health Education
- N.Y.C. Admin. Code § 21a-967. Instructors Receiving Sexual Health Training

General References

- ASCD. (2010). Learning, Teaching, and Leading in Healthy School Communities. *The ASCD Whole Child Initiative*.
- Berezowitz CK, Bontrager Yoder AB, & Schoeller DA. (2015). School Gardens Enhance Academic Performance and Dietary Outcomes in Children. *Journal of School Health*, 85(8), 508–518.
- Blank MJ. (2015). Building Sustainable Health and Education Partnerships: Stories from Local Communities. *Journal of School Health*, 85(11), 810–816.
- Celebuski C & Farris E, U.S. Department of Education, National Center for Education Statistics. (2000). *Nutrition Education in Public Elementary School Classrooms*, NCES 2000-040. Available at <https://nces.ed.gov/pubs2000/2000040.pdf>.
- Center for Nutrition Policy and Promotion, Evidence Analysis Library Division. (2012). *A Series of Systematic Reviews on the Effects of Nutrition Education on Children's and Adolescents' Dietary Intake*. Available at <https://www.cnpp.usda.gov/nutrition-evidence-library-nutrition-education-systematic-review-project>.
- Connell DB & Turner RR. (1985). The Impact of Instructional Experience and the Effects of Cumulative Instruction. *Journal of School Health*, 55(8), 324-331.
- Contento IR. (2015). *Nutrition Education: Linking Research, Theory and Practice*. Third Edition ed: Jones & Bartlett, Burlington.
- Fleming MF, Harris J. (2016). Television Food Advertising Viewed by Preschoolers, Children, and Adolescents: Contributors to Differences in Exposure for Black and White Youth in the United States. *Pediatric Obesity*. December, 1-8.
- Food and Nutrition Service, United States Department of Agriculture. (2017). Child Nutrition Programs: Income Eligibility Guidelines. *Federal Register*, 82 FR 17182, 17182-17185.
- Grow to Learn. (2017). About Grow to Learn. <http://www.growtolearn.org/about/>. Accessed July 11, 2017.
- GrowNYC. (2016). Grow to Learn NYC: the Citywide School Gardens Initiative. <https://www.grownyc.org/grow-to-learn>. Accessed July 11, 2017.

- Gussow JD and Contento IR. (1984). Nutrition Education in a Changing World: A Conceptualization and Selective Review. *World Review of Nutrition and Dietetics*, 44, 1–56.
- Institute of Medicine. (2013). *Nutrition Education in the K-12 Curriculum: The Role of National Standards: Workshop Summary*. The National Academies Press, Washington, DC.
- Jacobson WJ, Boyd FL, and Hill MM. Promising Practices in Nutrition Education in Elementary School. Bureau of Publications. Teachers College, Columbia University, 1959.
- Kann L, Brener ND, & Wechsler H. (2007). Overview and Summary: School Health Policies and Programs Study 2006. *Journal of School Health*, 77(8), 385-397.
- Koch PA. (2016). Learning, Food, and Sustainability in the School Curriculum. In: Sumner J. (eds) *Learning, Food, and Sustainability*. Palgrave Macmillan, New York.
- Lewallen TC, Hunt H Potts-Datema W, Zaza S, & Giles W. (2015). The Whole School, Whole Community, Whole Child Model: A New Approach for Improving Educational Attainment and Healthy Development for Students. *Journal of School Health*, 85(11), 729–739.
- Michael SM, Merlo CL, Basch CE, Wentzel KR, & Wechsler H. (2015). Critical Connections: Health and Academics. *Journal of School Health*, 85(11), 740–758.
- New York City Department of Education. (2017). About Us. <http://schools.nyc.gov/AboutUs/default.htm>. Accessed December 1, 2017.
- New York City Department of Education. (2017). Health Education. <http://schools.nyc.gov/Academics/Wellness/WhatWeTeach/HealthEducation/default.htm>. Accessed December 1, 2017.
- New York City Department of Education. (2017). School Wellness Council. <http://schools.nyc.gov/Academics/Wellness/WhatWeOffer/WellnessCouncils/default.htm>. Accessed December 1, 2017.
- New York City Department of Health and Mental Hygiene. (2017). Healthy Schools. <https://www1.nyc.gov/site/doh/health/neighborhood-health/healthy-schools.page>. Accessed December 13, 2017.
- New York State Data. (2017). NY State - School Report Card Data [2016–17]. <https://data.nysed.gov/reportcard.php?year=2017&state=yes>. Accessed December 22, 2017.
- SchoolFood, New York City Department of Education. (2013). Programs. <http://www.schoolfoodnyc.org/OurPrograms/breakfast.htm-gardentocafe>. Accessed July 11, 2017.
- Office of English Language Learners, New York City Department of Education. (2013). 2013 Demographic Report. http://schools.nyc.gov/NR/rdonlyres/FD5EB945-5C27-44F8-BE4B-E4C65D7176F8/0/2013DemographicReport_june2013_revised.pdf. Accessed December 1, 2017.
- Ogden CL, Carroll MD, Kit BK, Flegal KM. (2014). Prevalence of Childhood and Adult Obesity in the United States, 2011–2012. *Journal of American Medical Association*, 311, 806-814.
- Porter KJ, Koch PA, Peralta R, Contento IR. (2014). Expanding Nutrition Education Programs in New York City Elementary Schools: Understanding Practice to Inform Policy. Laurie M. Tisch Center for Food, Education & Policy, Program in Nutrition at Teachers College, Columbia University, New York.
- Porter K, Koch P, Contento I. (2017). Why and How Schools Make Nutrition Education Programs “Work.” *Journal of School Health*, 88: 23-33.
- Pucher KK, Boot NMWM, & De Vries NK. (2012). School Health Promotion Interventions Targeting Physical Activity and Nutrition can Improve Academic Performance in Primary- and Middle School Children. *Health Education*, 55(5), 372–391.
- Snyder T & Musu-Gillette L. (2015). Free or Reduced Price Lunch: A Proxy for Poverty? *National Center for Educational Statistics*. <https://nces.ed.gov/blogs/nces/post/free-or-reduced-price-lunch-a-proxy-for-poverty>. Accessed December 5, 2017.
- Story M, Nannery M, & Schwartz M. (2009). Schools and Obesity Prevention: Creating School Environments and Policies to Promote Healthy Eating and Physical Activity. *The Milbank Quarterly*, 87(1), 71–100.

Appendix A: Organizations and Nutrition Education Programs Included in this Study

Allergic to Salad	Butter Beans Inc.	Coqui the Chef
Cooking 101	After-School Cooking Class	Cooking with Coqui the Chef
Core Book-to-Cook: Literacy and Cooking	Food and Garden Summer Camp	Cornell University Cooperative Extension
Kitchen Community: Family Cook Night	In Classroom Workshop	Expanded Food and Nutrition Program (EFNEP)
Seed-to-Plate	The Children's Aid Society	Eat REAL
Spanish Language Immersion Cooking	Food Justice	<i>Provided information on one program, but did not provide the name of the program</i>
Steam Cooking Immersion	Gardening	Edible Schoolyard NYC
The Battery Conservancy	Go! Chefs	Edible Schoolyard Demonstration Schools
<i>Provided information on two programs, but did not provide the names of these programs</i>	Go! Healthy Eat Smart	Edible Schoolyard Network Schools
Beecher's Pure Food Kids Foundation	Go! Healthy Meals	Edible Schoolyard Professional Development
Pure Food Kids Workshops	Go! Kids	Food Bank For New York City
BFC Enterprises	City Growers	CookShop Classroom for After-School
Funny Food Workshops	Beansprouts After-School Program	CookShop Classroom for Elementary School
Bronx Health REACH	Brooklyn Environmental Exploration Scholars (B.E.E.S.) After School Program	FoodCorps
Creating Healthy Schools & Communities (CHSC)	Rooftop Farm Workshops and Farm Intensives at Brooklyn Grange	FoodCorps New York
Food Corps	School Garden Workshops	FoodFight
Newman's Own Foundation Bronx Health REACH Healthy Bodega Initiative	Summer in the Soil Camp	<i>Provided information on two programs, but did not provide the names of these programs</i>
Partnerships to Improve Community Health (PICH)	Urban Roots Youth Leaders High School Internship	GrowNYC
Racial and Ethnic Approaches to Community Health (REACH)	City Harvest, Inc.	Green Beetz
Brooklyn Botanical Garden	CATCH	Greenmarket Outreach Education Youth Market and Student Tours
BASE Garden Crew	Cooking Matters for Adults	Grow to Learn
Children's Garden Programs	Cooking Matters for Family	Learn It Grow It Eat It
Garden Apprentice Program	Cooking Matters for Kids and Teens	Seed-to-Plate
Junior Botanist and Plant Investigator Program	Just Say Yes to Fruits and Vegetables	Harlem Grown
Bubble Foundation Limited	Produce Education Program	Food and Farm
Bubble EATS	Coalition for Healthy School Food	Saturday Enrichment
Bubble GROWS	Cool School Food	Summer Camp
Bubble MOVES	Food Unearthed: Uncovering the Truth About Food in New York City	
	Visiting Vegan Chef Series	
	Common Threads	
	Cooking Skills and World Cuisine	
	Small Bites	

Appendix A: Organizations and Nutrition Education Programs Included in this Study *(continued)*

Hospital for Special Surgery Super Nutrition Education for All Kids to East Right (SNEAKER)	New York Presbyterian Hospital Choosing Healthy and Active Lifestyles for Kids (CHALK)	Stone Barns Center for Food and Agriculture Stone Barns Center High School Education Program Stone Barns Center Summer Institute
Ingredients for Education KickinNutrition.TV Digital Interactive Health-Nutrition and Wellness Program	Red Rabbit Bite Size Lab Cooking Lab Gardening Lab	Teens for Food Justice <i>Provided information on one program, but did not provide the name of the program</i>
Learning through an Expanded Arts Program Middle School Culinary Arts Clubs Student Athlete Health and Nutrition Club	Seeds in the Middle Hip2B Healthy	The South Bronx Farmers Market <i>Provided information on two programs, but did not provide the names of these programs</i>
New York Botanical Garden Children's Gardening Program-Crafters Children's Gardening Program-Sprouts Dig Plant Grow Gardening Workshops	Slow Food NYC Urban Harvest at Ujima Farm Urban Harvest in Schools	The Veggiecation Program Veggiecation
New York City Department of Education SchoolFood Garden to Café Garden to Café Student Farmer Project	Snug Harbor Cultural Center and Botanical Garden Snug Harbor Farm Tour	Wellness in the Schools Cook for Kids
New York City Department of Education SchoolFood Garden to Café Garden to Café Student Farmer Project	Spoons Across America Agriculture Literacy Week The Dinner Party Project Farm to Book Partnership Programs Spoons Recipe Days Take a Taste with Spoons	The Youth Farm <i>Provided information on one program, but did not provide the name of the program</i>
New York Common Pantry Dig In Eat Well Keep Moving		

Appendix B: Steps to Integrate Nutrition Education into Schools

The following are practical evidence-based steps for helping schools to adopt and sustain nutrition education programs.

1: Build motivation for nutrition education

- Emphasize that nutrition education programs can directly impact the foods children eat, not just improve student's health. Principals and school community members want to be able to help their students in ways they perceive as tangible and timely.
- Frame nutrition education programming as fitting into a whole child approach to education. Nutrition education programs can contribute to a school's desires to provide holistic education to their students.
- Support nutrition education programming as a means to strengthen school identity and pride. A culture that clearly supports nutrition and wellness activities can set a school apart.
- Cultivate motivation during nutrition education program initiation and implementation. Continuous motivation helps schools maintain and grow nutrition and wellness activities or programs.



2: Choose nutrition education programs

- Understand how each school perceives its mission as an educational institution. Schools, even within the same district or system, may have different philosophies that influence their decisions as much as the specific details about classroom implementation.
- Include the principal and other school community members when presenting specific nutrition education programs to the school. The principal may make the ultimate decisions but others can influence the principals and will lead the program moving forward.
- Be flexible with aspects of program implementation. In order to be implemented in various schools, nutrition education programs must be able to adapt to the differences in structures, schedules, and resources that vary across schools.



3: Expand school's capacity for nutrition education

- Engage the principal and another school community member as leaders from the start. While principals are vital when starting a program, they often take a supportive role during implementation so a secondary leader is necessary.
- Develop interested school community members to be champions for your program. Successful schools have champion teams.
- Establish clear operating procedures for how the nutrition education program(s) will be managed in the school. Routinization and standardization can reduce time to prepare for program delivery and management.
- Set clear roles of who does what to make nutrition education programs run in the school. Having delineated roles can help the school and program better implement a program.
- Coordinate with other nutrition and wellness activities in the school. These connections can help maximize the resources available within the school as well as enhance the impact of health messages.
- Connect the school with other resources to help them maintain existing nutrition education programs or bring in more nutrition and wellness activities. Your program can use its expertise and knowledge to link school staff to grants, related nutrition education efforts, and other community resources so they can maintain and/or grow their efforts.



4: Sustain nutrition education

- Engage all members of the school community in active roles in nutrition and wellness activities. The more people with a tangible and personal connection to these programs; the more central they are to the culture, identity, and functioning of the school.
- Work with school personnel and staff from other programs to weave nutrition education and other nutrition and wellness activities across a school's curriculum. Coordinating efforts across subjects and/or grades establishes a consistent and intentional presence of nutrition and wellness in a school.
- Make your nutrition education program a rite of passage for students. Integrating a program tightly into a specific grade can make it an important and expected part of the student experience in a school.

