Familiarity and Use of MyPlate: An Online Focus Group Exploration Among Midwestern K–12 Teachers

Mary Hastert, MS, RD, LD; Matthew Chrisman, PhD; Patricia Endsley, MSN, PhD, RN, NCSN; Anita Skarbek, PhD, RN; Nicholas Marchello, PhD, RD

ABSTRACT

Objective: To examine teachers’ familiarity and use of MyPlate, including barriers to using it.

Methods: Twenty kindergarten through grade 12 teachers were recruited from 1 urban and suburban school district in the Midwest to participate in virtual focus groups regarding familiarity, use, and barriers to MyPlate. A basic descriptive qualitative approach with thematic analysis was guided by systems thinking. Common categories were coded and agreed on by the authors.

Results: Findings included main categories of individual awareness, use in curriculum, and appropriate facilitators of MyPlate. Awareness and use of MyPlate were mixed. Teachers integrated MyPlate in math, history, and other subjects. Barriers included packed curriculum and cultural issues. The facilitators of MyPlate mentioned were health or physical education teachers.

Conclusions and Implications: Online focus groups successfully collected formative data on teachers’ perspectives toward MyPlate. The technology could be used in future similar research. Enhanced teacher training may improve the integration of MyPlate into schools. School teachers identified major barriers to MyPlate in the classroom, including lack of time and resources. There was mixed feedback on how MyPlate and nutrition may be used in school curricula. Enhanced teacher training may improve the integration of MyPlate into schools.

Key Words: MyPlate, teachers, nutrition education, focus groups (J Nutr Educ Behav. 2022;54:1125–1131.)

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INTRODUCTION

Federal law requires schools receiving funding for the National School Lunch Program to have an institutional wellness policy that integrates nutrition education across grade levels. A strategy to accomplish this mandate is to incorporate the joint US Department of Agriculture and Department and the Department of Health and Human Services Dietary Guidelines for Americans into program planning and course content. To help translate the dietary guidelines into healthy eating practices, MyPlate was developed and promoted as a visual icon to illustrate balanced food group distribution for a single meal setting. Evidence demonstrates that awareness of national nutrition guideline icons is associated with higher diet quality, and MyPlate lesson plans in schools positively impact students’ nutrition and physical activity behaviors. Unfortunately, the use of MyPlate in schools is not well known, and few studies have examined the awareness and use of the current guidelines in school systems. A joint position statement from the Academy of Nutrition and Dietetics, the School Nutrition Association, and the Society for Nutrition Education and Behavior indicates that comprehensive, integrated nutrition education is integral in improving health in American students. Thus, contributing to the need to examine how teachers incorporate nutrition information in the classroom.

Although nutrition is addressed in schools, the type and quality of nutrition messages delivered to students remain unknown. Furthermore, the state of Missouri does not require nutrition as part of the core curriculum in kindergarten through grade 12 (K–12) schools but rather provides grade level expectations to be enforced by local education agencies, which is inconsistent with the Centers for Disease Control and Prevention’s (CDC’s) Healthy Schools, National Health Education Standards. The CDC standards were developed to provide a framework for integrating health education...
instructional resources into K–12 curricula. Because Missouri has a high rate of child obesity in school-aged children aged 10–17 years (19.6%) compared with the national average (16.2%), there is a clear need to address the lack of a comprehensive nutrition education strategy that meets federal and health guidelines in the state.

To develop effective nutrition education strategies or interventions, acquiring teachers’ perspectives regarding central and feasible strategies for integrating nutrition and MyPlate into schools is essential. Since the coronavirus disease 2019 (COVID-19) pandemic compelled schools to turn to virtual learning, which could occur again this upcoming school year because of COVID-19 variants, there is a need to examine how technology can be used to promote and deliver nutrition education, which is consistent with the CDC’s Healthy Schools Standard 2 that affirms the need to analyze how technology influences health behaviors. Although previous research examined the challenges and opportunities for nutrition education implementation in elementary schools, data were collected via survey questionnaires, which do not fully capture the nature of the phenomenon under study. A qualitative approach is needed to acquire a rich, contextual description of complex phenomena.

Systems thinking, which focuses on how interrelated parts interact with one another to contribute to an outcome, is a useful framework to examine teacher perspectives regarding MyPlate and nutrition education integration in schools. Systems thinking involves examining the organizational structure, function, characteristics, behavior, and interconnectedness to catalyze change. Therefore, as guided by systems thinking and via a qualitative focus group approach, the purposes of this study were to assess among K–12 teachers in urban and suburban school districts in Missouri: (1) knowledge and use of the MyPlate model, (2) perceived barriers to using MyPlate in the classroom settings, and (3) proposed strategies to overcome implementation barriers.

### METHODS

This study targeted teachers from 1 urban and 1 suburban school district. Teachers initially completed an online survey and were invited to participate in a focus group interview. This basic descriptive qualitative approach with thematic analysis was conducted to provide further details and open discussion of topics that could not be collected in a self-administered survey. Convenience sampling was employed as teachers were recruited via email sent by their superintendent or local wellness coordinator and through word of mouth (snowball sampling). Because of the underexplored nature of MyPlate in K–12 schools, the desired sample size by grade or school level (eg, elementary, middle, high school) was not set. Rather, 6–8 participants per focus group were targeted, which aligns with focus group studies. Three focus group interviews were held in May 2021, comprising 1 suburban school district broken down into 2 focus group sessions because of the large school district and 1 urban school district. It was agreed on by the investigators that saturation had occurred after the third focus group interview as no new information was provided by the participants. All teachers who participated in the focus group interviews received an electronic $25 gift card. The focus groups were conducted via Zoom video conferencing (Zoom Video Conferencing Inc., version 5.12.2), were recorded, and participants were asked to turn their video cameras off and choose a pseudonym to protect their privacy and confidentiality. Immediately before each focus group session, participants completed a brief online survey to self-report general demographic information. Self-reported demographics were sex (male, female, transgender, nonbinary, other), age, race/ethnicity (White/Caucasian, Black/African American, American Indian or Alaska Native, Asian descent, Native Hawaiian, Hispanic/Latino, other or prefer not to answer), grade level taught (either specific grade or other/multiple), and years spent teaching. The University of Missouri Kansas City Institutional Review Board reviewed all study procedures and approved them as exempt, and superintendents from both school districts provided approval via email to recruit their respective teachers. Given the exempt nature of the study, consent was implied by participation in the focus groups.

A semistructured interview guide was used during the focus groups. The interview guide consisted of 7 questions with potential probes and was developed by the research team. Systems thinking was used in developing this interview guide by ensuring questions and subsequent probes explored different systems within the school environment (eg, the classroom, food service, and administrative systems). Team members, who included experienced researchers in qualitative work and nutrition education, discussed the questions and probes and agreed on the final guide to ensure face and content validity. An example question was “What are some approaches you can use to integrate MyPlate and nutrition into schools and classrooms?” with resultant probes related to systems within the school (eg, administration or food services). A skilled moderator facilitated each session and confirmed participant answers when needed, with 2 other researchers in attendance who served as notetakers. Each focus group was presented with the same judiciously prepared, open-ended questions allowing participants freedom in responding to each question while maintaining focus on the presenting topic, which is consistent with this form of data collection.

Self-reported demographic characteristics were analyzed using SPSS (version 26, IBM, 2019). A thematic analysis was conducted using established trustworthiness criteria by Nowell and colleagues. This includes establishing credibility via data triangulation by the research team, who were all familiar with the data and participated in discussions to develop, name, and agree on the categories of data. Each focus group was recorded and transcribed verbatim by an external transcription service and emailed to the lead
investigator. Transcripts were analyzed individually by the research team to identify relevant responses, recurring language, repeating ideas, concepts, patterns, and exemplars, particularly among the different school systems. Using an iterative process, key statements were combined and organized to allow universal and distinctive categories to emerge and to determine alignment with the research question and different school systems. The categories identified here were discussed and agreed on by all authors.

RESULTS

A total of 20 teachers participated in the 3 focus group sessions. Eight teachers participated in the urban school district focus group, and 12 teachers (6 in 2 focus groups) participated from the suburban school district, which aligns with the focus group composition. 19 Focus group sessions lasted between 45 and 75 minutes. The Table 1 displays participant demographic characteristics.

Briefly, participants were 80% female with a mean age of 48.2 ± 12.0 years, and 90% were White/Caucasian. The following 3 interrelated categories are the focus of this article: individual awareness of MyPlate, integration of MyPlate in the school and classroom, and designation of a proper MyPlate facilitator.

Awareness of MyPlate

When asked to describe their awareness and knowledge of the MyPlate framework and its individual components, feedback from teacher participants was mixed. A small percent of teachers (n = 2; 10%) reported having no knowledge of MyPlate’s existence, with 1 female teacher with 15 years of experience reporting the following when asked what was known about MyPlate: “Nothing …[it] sounds healthy.”

Four teachers were able to accurately articulate the components and use of MyPlate, with 1 male teacher with 5 years of teaching experience reporting,

I know that MyPlate replaced the Food Pyramid and is supposed to show how many portions from each food group … I can’t remember if it’s per day or per meal, but I know it’s supposed to do what the Food Pyramid used to do.

Knowledge of MyPlate was mostly described in relation to previous nutrition education frameworks. Six teachers described MyPlate as the current version of the US Department of Agriculture (USDA) Food Pyramid and My Pyramid used by the USDA between 1992 to 2005.20 A female teacher with 30 years of experience mentioned,

...It shows on a plate so you can see the portion size of each type of food. I think the fruits and vegetables is half of the plate ... it shows carbs and proteins and other fats... it replaced the food pyramid.

Integration of MyPlate in the School and Classroom

Five teachers said they integrated MyPlate into their math, science, and English courses. One female teacher with 4 years of experience stated, “It’s a fantastic idea for curriculum, it would just have to be incorporated into science.” In contrast, 1 female teacher with 4 years of experience mentioned, “I’m a math teacher so I don’t teach all that.” A female teacher with 18 years of experience provided an example of how math could integrate MyPlate by stating,

you could use it in, like when you’re teaching kids fractions and decimals and percentages, and like look at each portion of the plate and see... one of them is a fourth, so what would that be in a percentage? What would that be in a decimal? And things like that.

Multiple teachers also mentioned making MyPlate content interactive and relevant to students’ everyday lives. Several teachers noted the presence of MyPlate posters in their school cafeteria, and others suggested integrating them into topics such as English as a second language, Spanish, history, geography, sociology, or functional skills classes. One female teacher with 18 years of experience discussed,

And so I think that might be a good topic to discuss like how they build, how others, you know, around the world build their plate.

Table 1. Demographics of Teachers Participating in the Focus Groups (n = 20)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4 (20)</td>
</tr>
<tr>
<td>Female</td>
<td>16 (80)</td>
</tr>
<tr>
<td>Age, ya</td>
<td>48.15 ± 12.04; range, 26–69</td>
</tr>
<tr>
<td>Years teaching</td>
<td>16.4 ± 12.75; range, 2–46; median, 15.5</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>17 (85)</td>
</tr>
<tr>
<td>Black</td>
<td>0 (0)</td>
</tr>
<tr>
<td>American Indian/Alaskan</td>
<td>2 (10)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1 (5)</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1 (5)</td>
</tr>
<tr>
<td>5</td>
<td>2 (10)</td>
</tr>
<tr>
<td>6</td>
<td>2 (10)</td>
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<tr>
<td>7</td>
<td>2 (10)</td>
</tr>
<tr>
<td>9</td>
<td>3 (15)</td>
</tr>
<tr>
<td>10</td>
<td>3 (15)</td>
</tr>
<tr>
<td>12</td>
<td>3 (15)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (20)</td>
</tr>
</tbody>
</table>

*aReported as mean ± SD and range and/or median.*
each day, um, based on, you know, what is readily available.

Four teachers reported that MyPlate and nutrition education is presented outside of standard curricula because students frequently pose questions about eating and nutrition during casual conversations with their teachers. For example, one female teacher with 32 years of experience stated,

“They were asking me... ‘How do I eat healthy during this pandemic because we’re not going out’... And I had some students that were really concerned about, ‘you know, like putting on too much weight while staying at home.’

Another female teacher with 4 years of experience mentioned:

I was teaching more than math, you know, because I needed to help in all subjects... I did go into MyPlate and then, you know, like we talked about nutrition and stuff.

Regarding barriers to using MyPlate, 5 teachers reported they had not used MyPlate because of the high volume of required curricula and standardized testing. One female teacher with 4 years of experience stated, “I am subjected to teaching content, content, content... and we are a testing grade so there’s really no way for me to fit it in.” Furthermore, a male teacher with 46 years of experience noted:

...unless you work with your students and younger people in educating them, because of the importance of the testing and the focus of class time devoted to just the basic curriculum that classroom teachers need to teach, if it’s not being taught in some classes, it [MyPlate] will never be covered.

Two perceived barriers to incorporating MyPlate into school curricula were cultural differences among students, perceived challenges, and difficulty presenting MyPlate information and activities across various age groups. For example, 2 teachers described their school environment as inherently diverse in race, ethnicity, and religious affiliation, preventing a one-size-fits-all approach for MyPlate integration. One female teacher with 10 years of experience mentioned, “Some of the things that can make it a little bit difficult are cultural differences... I’ve got a melting pot in my classroom.” Two other teachers stated that teachers who teach higher grade level students might receive pushback from older students who are disinterested in learning about MyPlate. As a female teacher with 9 years of experience stated, “I teach high school. And so, I feel like if I were to use that in my classroom, the kids would be like, why are you using this?” In comparison, teachers who teach lower-grade level students may not appropriately level MyPlate information and activities to younger students. A female teacher with 2 years of experience stated,

...It would be difficult to implement with our kindergarten... it’s going to require more of a lesson to accompany it and you’re looking at time and attention span for that.

Designation of the Proper Facilitator

The teachers provided suggestions as to who they felt would be effective facilitators to promote and support MyPlate integration in school curricula, although there was no clear consensus. Some teachers referred to physical education (PE) or health teachers, with one female teacher with 3 years of experience mentioning, “I can see partnering with the PE teacher...”

Others noted that students tend to receive nutrition education at home, indicating that parents might be the preferred facilitator of MyPlate or nutrition information. One male teacher with 46 years of experience noted,

I’ve asked the students to share the information with their parents, to go shopping with them. And if they can’t go shopping with the parents, if they can help with the grocery list, making sure they’re getting more of the fruits, vegetables, proteins, as opposed to just the candy and the snacks.

DISCUSSION

This online focus group study of K−12 schoolteachers found mixed results related to the teachers’ perspectives on MyPlate and nutrition education, with some awareness and use in school systems and classrooms. Results of this study illustrate that teacher knowledge deficit regarding the MyPlate framework, perceived barriers to incorporating MyPlate into existing packed school curricula, and lack of a consistent facilitator to oversee its integration contribute to inconsistent use and full amalgamation of the framework into K−12 classroom settings. Coded results were analyzed using a systems-thinking approach to align quotes with different systems in the school setting. Systems thinking, which has an application history in education settings,21−23 is holistic and intended to acquire insight regarding the interconnectedness of various constituent components and emerging patterns before attempting to address real-world issues and problems. School-based interventions can benefit from applying this approach, as internal and external constituent subsystems that impact school operations are deliberated, which may lead to proactively identifying specific barriers capable of encumbering intervention and change.24 As such, a systems-thinking analysis approach resulted in categories of MyPlate awareness, integration into curriculum, and facilitator roles.

Awareness

Some teachers knew that MyPlate replaced the prior USDA Food Pyramid and My Pyramid frameworks; some were quite knowledgeable of MyPlate’s uses, whereas others had no knowledge of MyPlate, and no teacher presented the differentiating elements between the 3 nutrition guidelines icons. Others have found low use and knowledge of MyPlate.25 Teachers who expressed knowledge regarding MyPlate taught either PE and/or health education classes or were functional skills/special education teachers. The relative lack of knowledge around MyPlate within this sample hints at a potential solution-increased
emphasized on nutrition education among educators. If primary/secondary school educators were provided additional instruction on MyPlate (perhaps as part of continuing education requirements), this could lead to increased usage within the classroom and increased knowledge acquisition by the students. Fitchett and Heafner et al26 illustrated that elementary teachers who were adept in the subject they taught contributed to positive student learning outcomes. As Yao-Ping Peng, et al27 assert, student knowledge acquisition, and learning outcomes are enhanced when there is robust knowledge transfer from the teacher to the student. Previous studies illustrate that teacher subject-matter knowledge transcends to K–12 student knowledge acquisition in courses such as mathematics and science28, but it is not known if this exists in nutrition education delivery.

Curriculum Integration

Participants described arduous barriers associated with MyPlate education integration into curricula and class activities, such as having a full teaching workload or dealing with student standardized testing requirements, in essence being affected by the school administrators and policy systems. Given that educators experience high rates of burnout that may negatively impact student performance,30 it may not be feasible to expect teachers to integrate MyPlate instruction and activities into their curriculum with a full teaching workload. However, results here indicate some teachers were able to integrate MyPlate effectively while providing numerous suggestions in which nutrition could be integrated. Interestingly, 4 teachers stated that students frequently raised nutrition-related questions with them during noncurricula-related conversations. One teacher perceived that the frequency of these student nutrition questions emanated from COVID-19 restrictions as students were required to eat lunch in their classroom setting instead of the lunchroom. Teachers were undecided if MyPlate could conceivably transfer across student age groups and proposed that MyPlate instruction be appropriately age-leveled and take place through reformatting lesson plans. For example, one teacher suggested that kindergarten instruction should be limited to teaching students about food groups and food selection for each group. Teachers perceived that MyPlate education and activities could further evolve as students’ progress through upper-grade levels. However, the teachers contended that MyPlate instruction in high school should serve a more functional application relative to meal preparation, food selection, and consumption behaviors. Furthermore, discussion ensued that MyPlate education should be modified to acknowledge diverse cultural and religious eating practices.

Facilitators of MyPlate

Teachers had different opinions on who should facilitate MyPlate education but agreed that health and PE classes were natural places to start. Others have found that teachers perceive their role in nutrition education to include being an educator, role model, coach, supporter, and even a wellness champion,31 and all of these roles could include some efforts and duties that include incorporating MyPlate and nutrition education into the school and classroom. Parents were brought up for their roles in teaching nutrition, demonstrating how the home system may enhance learning. Others have suggested that parental involvement and reinforcement would be a worthwhile investment for local education agencies,32 and the CDC encourages parent engagement in school health.33 Additional research is needed to explore this topic to enhance the facilitation of MyPlate in schools, including what role technology may play if any.

Current Use of Nutrition Education in Schools

Our results align with previous findings, which show multiple barriers when implementing nutrition education in schools, particularly lack of time from teachers.11,34,35 Efforts have been made to develop interventions that provide nutrition education outside the classroom, including creating school gardens,36 using visual prompts in the cafeteria,38 sending home materials with parents,39 and farm-to-school programs.38 However, these interventions may not be feasible in low-income schools or those with limited support from the administration. Less is known about training teachers, such as interventions like Team Nutrition through the USDA,39 to facilitate nutrition education in the classroom. Although materials from the USDA exist to help promote MyPlate education in schools, no study has evaluated an intervention for delivery in the classroom.

Use of Technology

Technology was used to: develop the data collection tools, recruit school districts and teachers as participants; schedule and collect data; record, transmit, and transcribe data; then analyze and report results. Given the challenges of the current environment because of the global COVID-19 pandemic, availability of participants to meet with the researcher, along with socioeconomic circumstances that, for example, have led to increased transportation costs, there is a need to develop and implement effective strategies to collect data for a variety of populations that strive to eliminate or reduce participant barriers. The current study effectively navigated those challenges and generated rich descriptive data among a diverse sample of schoolteachers in a large Midwestern metropolitan area. In addition, the use of this study’s technological methodology allowed members of the research team to collaborate on the study from locations in the Midwest and East coast, providing further support that technology is critical to the success of multidisciplinary teams in the promotion of global health and nutrition education.

Our study contained strengths, including member checking and peer debriefing during data analysis. One potential limitation is that the teachers may not have provided fully honest opinions of their knowledge and use of MyPlate; however, using pseudonyms and asking participants to turn their video cameras off provided
some privacy protection in hopes of obtaining honest responses. Given that the teachers taught a variety of grade levels (K–12), additional focus groups are needed to generate results specific to each grade, school setting (urban vs suburban), and type (elementary, middle, and high schools). Others have suggested smaller (eg, 3–4) numbers of participants for virtual focus groups16; however, because of the experience of the research team, we felt it was not necessary and that more robust data would be collected with groups of 6–8 participants.

IMPLICATIONS FOR RESEARCH AND PRACTICE

MyPlate is intended to help individuals across the age spectrum make healthy food choices. The framework intends to transcend cultures and family structures and support good nutritional habits over time. The qualitative data collected from focus groups among K–12 teachers in the Midwest illustrated inconsistent knowledge and implementation of MyPlate and nutrition education, despite the national legislation requiring its use in school curricula. There is a clear need for additional research examining the best strategies to incorporate nutrition and MyPlate in schools.

In this study, commonly reported barriers to implementing MyPlate included lack of room in curricula, difficulties with facilitating nutrition education to culturally diverse classrooms, and accommodating the different educational needs of varying age groups. Research could examine how to overcome those barriers, which, based on findings here, could include integrating MyPlate and nutrition education into a variety of classroom topics, even those with less focus on nutrition and health, such as math, history, and geography. In addition, it was clear that culture was a concern as it relates to teaching nutrition, and there is a need to explore how tools like MyPlate can be made culturally sensitive to various populations. Finally, there is a need to tailor nutrition education and MyPlate use to the student level.

Others have reported how nutrition education strategies could be implemented by differing grade levels. For example, group work or establishing a healthy eating reward system might be preferred strategies at the elementary school level.25 Although teachers in this study suggested school curricula they deemed best aligned with integration with MyPlate education, there is a need to determine who would best serve as the facilitator overseeing the assimilation of MyPlate instruction.

Finally, online and virtual technology formed the basis of this investigation, and a few things should be noted when incorporating these strategies in nutrition studies. First, when using such technology, it is important to consider the technical abilities of participants, including their access and skills with videoconferencing tools. Our research team proactively provided instructions to participants, including calendar invites with associated video conferencing links, tips on creating pseudonyms, reminders for testing equipment before the study, and information on how to “raise their hand” to be called on to speak. Second, Institutional Review Boards have unique privacy and confidentiality concerns associated with using technology in studies like this. Our research was deemed exempt as no greater risks existed beyond normal daily life; however, if more detailed data were needed, additional levels of protection may need to be considered. Our participants were recorded, and we requested their video cameras be turned off to protect identities; however, they could still be identified by voice. This would entail additional measures to ensure abiding by ethical research concerns, including possibly requesting external transcribers sign confidentiality agreements, informing participants they could be identified by voice, and respecting their colleagues’ privacy if they were identified. Finally, one should consider data lost when conducting online research with video cameras instead of in-person assessment. This includes facial expressions and nonverbal cues like nodding one’s head or providing a thumbs up in agreement. Potential ways to account for this when collecting online data are having multiple team members present to take notes and serve as timekeepers, encouraging participants to use emojis, nonverbal functions like raising hands or providing a thumbs up, and chat or text boxes. Furthermore, when using these virtual means of collecting data, it is equally important for notetakers to document changes associated with voice intonation, pace, hesitancy, and eagerness to respond.

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ORCIDs

Mary Hastert: http://orcid.org/0000-0001-9487-6748
Matthew Chrisman: http://orcid.org/0000-0002-2094-7301
Patricia Endsley: http://orcid.org/0000-0002-6221-4894
Nicholas Marchello: http://orcid.org/0000-0003-3144-7617