

Allowing and Using Foods of Low Nutritional Value in Elementary School Classrooms: The Implications of Teachers' Beliefs

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ABSTRACT

Objective: To investigate elementary teachers' behavior toward allowing and using foods with low nutritional value in the classroom.

Design/Setting: A survey guided by the *Theory of Planned Behavior* was administered in fall, 2012 in 10 schools.

Participants: Elementary public school teachers in grades pre-kindergarten through 6.

Main Outcome Measures: Teachers' behavior and beliefs regarding allowing and using foods with low nutritional value in the classroom and *Theory of Planned Behavior* determinants.

Analysis: Pairwise correlation coefficients and multivariate linear regression to assess relationships between theory determinants and descriptive statistics.

Results: All 3 determinants, Attitude Toward the Behavior ($t = 4.04$; $P < .01$), Subjective Norms ($t = 3.78$; $P < .01$), and Perceived Behavioral Control ($t = 5.19$; $p < .01$), were statistically significant predictors of behavior. The majority of teachers (94%) allowed foods of low nutritional value for celebrations at least some of the time, and 75% stated that they had control over what foods they allow.

Conclusions and Implications: Discussions among teachers and school health professionals should ensue to improve nutritional content of foods allowed in classrooms. School policies can be developed and evaluated for effectiveness to have a positive impact on childhood obesity and school nutrition environments.

Key Words: energy-dense foods, teachers, school policies, *Theory of Planned Behavior* (*J Nutr Educ Behav.* 2015; ■:1-7.)

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INTRODUCTION

In Mississippi, the Child and Youth Prevalence of Obesity Surveys found that 23.9% of Mississippi children are classified as obese and 18.5% as overweight. More specifically, in elementary schools, 24.1% of Mississippi students were classified as obese and 17.7% as overweight.¹

Because school-aged youth consume nearly half their daily nourishment at

school,² the school setting can provide a unique opportunity to have a positive impact on students' eating patterns, contributing to a healthier life.^{3,4} Whereas the Healthy, Hunger-Free Kids Act of 2010⁵ brought the school food environment to the forefront by strengthening nutrition regulations for school meals and setting the first nutritional standards for competitive foods, little attention was given to foods allowed and/or

used in the classroom. This is of particular concern because of findings that foods consumed in the classroom can affect students' nutritional intake negatively.^{2,3,5} Although the use of food for classroom rewards, incentives, and fundraising is discouraged by national health organizations,^{6,7} the practice continues to be prevalent in many schools.⁷⁻¹¹

The classroom teacher is a stakeholder affected by policies regulating foods allowed in the classroom for parties, celebrations, and fundraisers. Research has shown that teachers believed it was important to have a healthy school food environment, but they still used candy as a student incentive or reward in the classroom.^{8,12,13} One approach that may be used to investigate teachers' attitudes and intentions further regarding the use of food in the classroom is the *Theory of Planned Behavior* (TPB). The TPB is a

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theoretical framework used to explain and predict attitudes and behaviors based on the premise that an individual's intention to perform a given behavior is a strong indication of how likely he or she will perform the behavior.¹⁴ Measures used for 3 determinants of behavioral intention are identified as follows: Behavioral beliefs, weighted by their outcome evaluations, form an indirect measure of an individual's attitude toward the behavior. Normative beliefs, weighted by the motivation to comply, form an indirect measure of subjective norm. Control beliefs, weighted by perceived power, comprise an indirect measure of perceived behavioral control (PBC).¹⁵ Individuals are more likely to perform a behavior they believe is positive (behavioral beliefs and outcome evaluations) if people important to them think they should (normative beliefs and motivation to comply) and they have the ability to do so (control Beliefs and perceived power).¹⁶ The TPB determinants have been used successfully to design interventions targeting beliefs in a wide variety of health behaviors and healthy eating.¹⁵⁻²⁰

Whereas studies have reported practices of using food in the classroom,^{3,4,8,11} the authors could find no theory-based research regarding teachers' attitudes and intentions regarding these practices. The TPB has been efficacious in explaining teachers' intentions and behaviors in the classroom toward educational strategies and use of classroom technology,^{15,21-24} which lead to successful strategies in developing teacher in-services. Therefore, the authors decided to use the TPB as a framework to examine teachers' behavior. The objectives were to (1) describe teachers' agreement with beliefs regarding allowing foods of low nutritional value (LNV) to be brought into the classroom by students (ie, celebrations); (2) describe teachers' agreement with beliefs regarding using LNV foods in the classroom for celebrations, incentives, and rewards; and (3) identify which, if any, theoretical determinants of behavioral intention contribute significantly to teachers' behavior regarding allowing and using LNV foods in the classroom.

METHODS

Participants

The researchers recruited a convenience sample of 10 public elementary schools (grades pre-kindergarten to 6) in 3 northern Mississippi school districts to participate. These grades were selected because of previous research identifying the prevalence of LNV foods being used in the classroom.^{3,11,25} Teachers who taught a single grade, a combination of grades, and/or specialized subject (music or gym) were included. School district 1 was the largest, averaging 788 students and employing 137 teachers. School district 3 was the smallest, averaging 288 students and employing 72 teachers. The majority of teachers in all school districts were white females (Table 1). Districts 1 and 2, where surveys were distributed through teacher in-services, had the highest response rate, with 127 (93%) and 108 (83%), respectively. District 3, where surveys were delivered through teachers' mailboxes, had a response rate of 42 (57%). Twenty-one of the 277 returned surveys (8%) contained ≥ 1 missing values. Missing values were checked for randomness and were filled with imputed values if the probability of a missing value was determined not to be random and to depend on observed data. Seventeen surveys with values missing completely at random were dropped, which resulted in 260 surveys for final analysis (96%). The sixth grade had the fewest teachers because only 1 school had a sixth grade. The Combined category included teachers responsible for ≥ 2 grades in the same classroom and the Other category included areas such as special education, music, and phys-

ical education. Most teachers (93%) had > 1 year teaching experience (Table 2). Gender and race are included only for schools districts' demographics and were not captured for teachers on the survey instrument. The study was approved by the University of Mississippi's Institutional Review Board before data collection.

Instrumentation

Guided by *Constructing Questionnaires Based on the Theory of Planned Behavior: A Manual for Health Services Researchers*²⁶ and measures gleaned from Ajzen,¹⁴ and Glanz et al,¹⁶ the researchers designed survey items to measure theoretical determinants of behavioral intention. Before administration, the survey was piloted with 10 graduate student teachers, who were asked to evaluate the survey instrument for clarity of instruction, definition of terms, readability, and content of items. Input resulted in some rewording and rearrangement of item placement. Reliability of each determinant was calculated using Cronbach alpha procedures, and all scales were found to have acceptable internal consistency ($\alpha \geq .07$).²⁷ A total of 46 items were used to measure teachers' behavioral intentions. Items included behavioral beliefs (3), behavioral outcomes (15), normative beliefs (12), motivation to comply (4), control beliefs (6), perceived power (3), and actual behavior (3). Forty-three of the items used a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree). The 3 behavior items used a 4-point Likert-type scale from 1 (never) to 4 (always). Finally, teachers were asked what grade they taught and the number of years they had taught.

Table 1. Characteristics of Teachers in Participating School Districts

Demographics	District 1 Teachers, n (%)	District 2 Teachers, n (%)	District 3 Teachers, n (%)
Gender			
Female	66 (92)	127 (98)	133 (97)
Male	6 (8)	3 (2)	4 (3)
Race			
White	41 (57)	113 (87)	129 (94)
Black	31 (43)	17 (13)	5 (4)
Other	0	0	3 (2)

Note: District 1 teachers, n = 72; District 2 teachers, n = 130; District 3 teachers, n = 137.

Table 2. Teachers' Grades and Years Taught (n = 260)

Characteristic	n	%
Grade currently taught		
Pre-kindergarten	29	11
1	24	9
2	34	13
3	37	14
4	35	13
5	35	13
6	3	1
Combined	25	10
Other	38	15
Years taught		
< 1	19	7
1–5	51	20
6–10	51	20
11–15	52	20
16–20	33	13
≥ 21	54	21

Procedure

Researchers were given permission by school principals to distribute surveys during a teacher in-service in the 2012–2013 academic school year. The purpose of the study, informed consent, and maintaining confidentiality was reviewed with teachers. Teachers who did not wish to participate could enclose an uncompleted survey in the envelope for collection. In 1 school district, the teachers' in-service was cancelled. Therefore, surveys with an envelope and instructions for completion were placed in each teacher's mailbox and retrieved 1 week later. As an incentive, all teachers who returned a survey-enclosed envelope were eligible to win 1 of 3 \$25 gift cards.

Data Analysis

The authors analyzed data using Stata (version 12.1, StataCorp LP, College Station, TX, 2012). The sum of the products of each behavioral belief and its outcome evaluation were obtained as indirect measures of attitudes toward the behavior, subjective norm, and perceived behavioral control. Frequencies, percentages, and Cronbach α were obtained to describe the variables. Shapiro-Wilk was estimated to test for normality of data. Pairwise correlation coefficients and multivariate linear regression were used to assess the relationships between variables in the TPB model.¹⁵

RESULTS

Theory of Planned Behavior Determinants

The researchers conducted an item consistency reliability analysis for 7 measures for the 3 TPB determinants using Cronbach α . All scales were in the ranges of acceptable internal consistency ($\alpha \geq .76$ – 0.95).²⁷ The TPB models assume that determinants predicting behavior are correlated. Pairwise correlations among all determinants were positive and statistically significant at $P < .01$. In analyzing predictive power, a regression model showed at least 1 of the determinants influenced behavior ($F_{3,262} = 42.56, P < .01$). The analysis revealed that all 3 determinants, Attitude Toward the Behavior ($t = 4.04; P < .01$), Subjective Norms ($t = 3.78, P < .01$), and Perceived Behavioral Control ($t = 5.19; P < .01$), were statistically significant predictors of behavior. Together, these 3 determinants accounted for 32% of the variance in behavior. Before estimating the regression model, the authors conducted a diagnostic test to make sure that the variable Behavior was normally distributed. Shapiro-Wilk test yielded $W = 0.99$, which was not significant at $P < .05$ and confirmed that the variable did not differ from normality at .05.

To assess the relative importance of each determinant, β estimates from the regression model were used (Figure). Of the 3 determinants, PBC had the most substantial impact ($\beta = .30$) on behavior, producing a .30-unit change in behavior for each

unit change in PBC. Impacts of attitude toward the behavior ($\beta = .23$) and subjective norm ($\beta = .23$) were slightly less important than PBC but also statistically significant.

Behavior and Beliefs

As shown in Table 3, the majority of teachers (93%) reported that they allowed students to eat LNV foods *always* to *some of the time* for classroom celebrations but less often for rewards (80%) and incentives (70%). The majority of teachers (89%) reported the belief that they should allow students to eat LNV foods for celebrations. To a lesser extent, teachers believed that they should use LNV foods for rewards (53%) or incentives (40%). The outcome evaluation of those beliefs showed that the majority of teachers (60%) agreed that it is the right decision to allow students to eat LNV foods for celebrations and that it is common practice among teachers (71%). In addition, less than one fourth of teachers shared the belief that allowing LNV foods for celebrations encourages poor eating habits (21%) or hinders the overall healthy school nutrition environment (22%).

Fewer teachers believed that using LNV foods for rewards (25%) and incentives (25%) is the right decision. Yet, < 30% of teachers believed that using LNV foods for rewards and incentives encourages poor eating habits or hinders an overall healthy school nutrition environment.

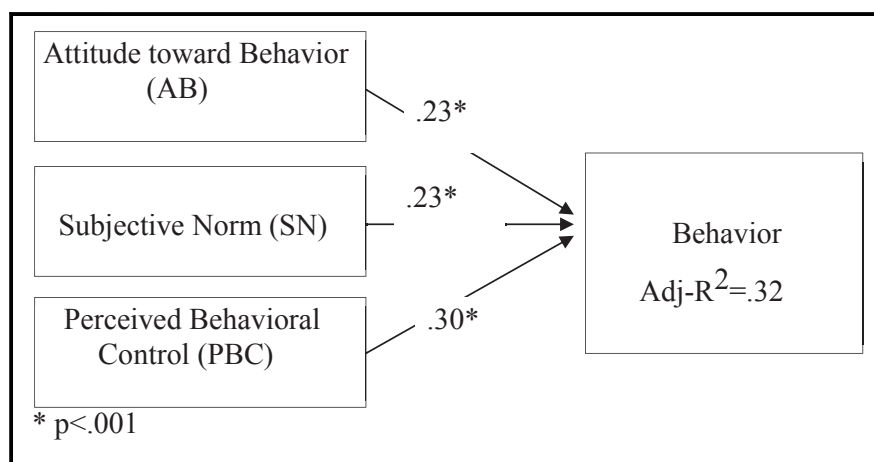


Figure. Path diagram of Theory of Planned Behavior model. Adj-R² indicates adjusted multivariate coefficient. The numbers on the arrows reflect the standardized regression coefficients.

Table 3. Elementary School Teachers' Behavior and Beliefs Regarding Allowing and Using Low–Nutritional Value Foods in the Classroom for Celebrations, Rewards, and Incentives

Determinants	Always	Often	Some	Never
Behavior				
<i>Currently I allow students to eat LNV foods for</i>				
Birthday parties or special occasions like holidays	40	23	30	7
Rewarding students' academic achievements	8	19	53	20
Incentives for influencing students' behavior	10	17	44	30
	SA/A	Neither	D/SD	
Behavioral beliefs				
<i>I believe I should allow students to eat LNV foods in my classroom for</i>				
Birthday parties or special occasions like holidays	89	5	6	
Rewarding students' academic achievements	53	23	25	
Incentives for influencing students' behaviors	40	22	38	
Outcome evaluations				
<i>Allowing students to eat LNV foods in my classroom for birthday parties or special occasions such as holidays</i>				
Is the right decision	60	30	10	
Is a common teaching practice	71	18	11	
Encourages poor eating habits	21	33	47	
Promotes positive student behavior	36	41	23	
Hinders an overall healthy school nutrition environment	22	32	46	
<i>Using foods of LNV in my classroom for rewarding students' academic achievements</i>				
Is the right decision	25	43	32	
Is a common teaching practice	62	22	17	
Encourages poor eating habits	29	34	37	
Promotes positive student behavior	46	30	23	
Hinders an overall healthy school nutrition environment	27	37	36	
<i>Using LNV foods in my classroom for influencing students' behavior</i>				
Is the right decision	25	40	35	
Is a common teaching practice	60	22	17	
Encourages poor eating habits	28	34	38	
Promotes positive student behavior	45	30	24	
Hinders an overall healthy school nutrition environment	26	36	39	
Normative Beliefs				
<i>I believe my principal thinks I should allow LNV foods in my classroom for</i>				
Birthday parties or special occasions such as holidays	50	33	17	
Rewarding students' academic achievements	23	49	28	
Incentives influencing students' behaviors	21	48	32	
<i>I believe the majority of other teachers at my school think I should allow LNV foods in my classroom for</i>				
Birthday parties or special occasions such as holidays	69	20	10	
Rewarding students' academic achievements	50	30	20	
Incentives influencing students' behaviors	47	30	23	
<i>I believe the majority of my students' parents think I should allow LNV foods in my classroom for</i>				
Birthday parties or special occasions such as holidays	79	14	7	
Rewarding students' academic achievements	28	26	16	
Incentives influencing students' behaviors	52	29	19	
<i>I believe the majority of my students think I should allow LNV foods in my classroom for</i>				
Birthday parties or special occasions such as holidays	93	3	4	
Rewarding students' academic achievements	87	6	7	
Incentives influencing students' behavior	84	9	7	
Motivation to comply				
<i>My decision on what foods to allow students to eat in my classroom is influenced by what I think</i>				
My principal believes I should do	63	25	12	
The majority of other teachers believe I should do	23	40	37	
The majority of my students' parents believe I should do	41	32	28	
The majority of my students believe I should do	27	36	37	

(continued)

Table 3. Continued

Determinants	Always	Often	Some	Never
<i>There are policies and procedures in place regarding the types of foods allowed in the classroom for</i>				
Birthday parties or special occasions such as holidays	48	30	22	
Rewarding students' achievements	45	33	23	
Incentives influencing students' behaviors	43	33	24	
Control beliefs				
<i>It is important to me that my administration allows me to decide what foods I allow students to eat in my classroom for</i>				
Birthday parties or special occasions such as holidays	75	21	4	
Rewarding students' academic achievements	69	24	7	
Incentives influencing students' behavior	68	25	7	
Perceived power				
<i>My administration allows me to decide what foods I allow students to eat in my classroom for</i>				
Birthday parties or special occasions such as holidays	75	16	8	
Rewarding students' academic achievements	66	24	10	
Incentives influencing students' behaviors	65	24	11	

D/SD indicates disagree/strongly disagree; Neither, neither agree nor disagree; LNV, low nutritional value; SA/A, strongly agree/agree.

The largest percentage of teachers neither agreed nor disagreed that using LNV foods for rewards (43%) and incentives (40%) is the right decision.

Individuals important to teachers' normative beliefs included their principal, peer teachers, their students' parents, and their students. Just over 50% of teachers agreed that their principal thinks they should allow LNV foods in the classroom for celebrations; 63% agreed that their principal influences (motivation to comply with) their decision. Fewer teachers agreed that their principal thinks they should use LNV foods as a reward (23%) and even fewer agreed that their principals think they should use LNV foods for incentives (21%). However, the largest percentage of teachers responded that they have no opinion on what their principal believes about using LNV foods in the classroom for rewards (49%) or incentives (48%).

Teachers believed that other teachers (69%), parents (79%), and students (93%) want LNV foods to be allowed for celebrations and that the majority of parents and students would like them to use LNV foods for incentives and rewards.

In reporting control beliefs, 75% of teachers acknowledged that it is important to them to have autonomy to decide what foods are allowed in the classroom for celebrations. Teachers also want the authority to decide

what foods are used for rewards (69%) and incentives (68%).

DISCUSSION

As represented by the TPB model (Figure), all 3 primary determinants (behavioral beliefs, normative beliefs, and control beliefs) contributed significantly to teachers' behavior for allowing and using LNV foods in the classroom; control beliefs had the greatest contribution. These results showed that teacher practices regarding LNV foods in the classroom are a multifaceted issue with many contributing factors.

Based on this study, allowing LNV foods in the classroom is a common practice among elementary school teachers and is premised on beliefs that this practice does not affect students' health or the school nutrition environment. However, 1 study showed that this practice can represent 20% to 35% of students' total daily estimated energy needs.³ It has also been shown that allowing LNV foods during classroom celebrations has the potential to lead children to associate these foods with celebrations beyond the school environment.³

Whereas teachers have shown support regulating or even excluding foods they perceive as LNV foods from school meals, a la carte, vending, and school stores,^{9,28} little investigation

has occurred into teachers' support for regulating or eliminating LNV foods in the classroom. In this study, the prevalence of teachers using LNV foods for rewards and incentives at least some of the time, when only one fourth believe it is the right decision, gives impetus to other beliefs contributing to this behavior. Those beliefs could stem from teachers' experiences that students prefer LNV foods as rewards and that this practice is effective.⁹

There may be little encouragement to change classroom food practices when teachers' normative beliefs reflect an expectation from the administration, other teachers, parents, and students to engage in the practice. The principal had the greatest influence on teachers' decisions to allow LNV foods in the classroom. However, a large percentage of teachers reported not knowing whether the principal had an opinion about types of foods used for rewards or incentives. This may be because the principal had not formulated and/or communicated a strong position regarding LNV foods in the classroom. This would lend support to teachers' responses that they have autonomy on this issue. Because principals have a substantial role in how school policies are received and implemented,^{29,30} they could be a catalyst in helping to establish and support policies addressing healthier food offerings in the classroom. However, it was reported in academic year

2010–2011 that only 2% of students in public school districts nationwide had strong policies governing classroom parties and only 12% had strong policies restricting food as a reward.³¹

The ambivalence shown in the large percentage of teachers' responses indicating that they have no opinion regarding whether using LNV food for rewards and incentives is the right thing to do may reflect a lack of school policies and/or guidance in addressing foods in the classroom. As seen in state evaluations of school wellness policies, policies addressing foods used for celebrations, rewards, and incentives tend to be the weakest and least comprehensive.^{32–34}

As indicated by TPB, control beliefs were the largest contributing factor to teachers' behavior. To preserve teacher autonomy regarding nutrition policies, they should have a voice as active members on school health councils and in establishing overall school health policies. In schools with strong policies prohibiting use of food as a reward, teachers are significantly more likely not to use food as a reward, compared with schools with weak or no food policies.⁸ However, the potential benefits of any policy will remain unrealized unless effective policy implementation and evaluation occur and the policy engenders commitment from the school community.^{29,35}

The primary strength of this research was that it incorporated TPB as a guide to measuring teachers' beliefs and behavior regarding foods in the classroom. Identifying beliefs that lead to behaviors provides insight into developing more effective educational programs.¹⁵ A limitation of this study is that only a small percentage of elementary teachers were surveyed. Teachers in specialized areas such as physical education and music were included in the survey sample, which may bring a perspective different from that of teachers in an academic home-room. Additional demographics of schools, such as socioeconomic status, were not obtained and might have been helpful in understanding the cultural climate of the school. Also, within the TPB, there may be additional beliefs contributing to behavior that were not captured owing to limitations found

with survey research methods, as opposed to more in-depth focus group research methods.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Foods in the classroom may be one of the last frontiers in addressing the school nutrition environment and need further exploration on the impact to students' health. The 3 TBP determinants in this study accounted for 32% of variance in behavior. Additional research is needed to investigate other factors and influences contributing to teachers' actions and decisions regarding foods allowed and used in the classroom. For classroom food practices to change, teachers' behavioral, normative, and control beliefs need to be understood better. By identifying beliefs about a teaching practice, guidance can be given to nutrition educators and school health professionals in developing teacher training programs that target these beliefs and raise awareness of the negative impact classroom food practices can have on student health.

The best venue in facilitating change may be through school health councils, which would allow teachers to have a significant role in establishing classroom food policies that affect them directly. If teachers believe they have the autonomy to decide what foods or nonfood rewards are used in their classroom, they can be the change agent in establishing alternative, healthier classroom practices. In addition, school health councils are required to include various members such as school administration, physical education teachers, school nutrition personnel, students, parents, school health professionals, and public members.⁵ Strong collaboration among school health council members will allow all voices to be heard and contribute to efforts in developing and implementing strong classroom food policies that all can support.

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REFERENCES

1. Molaison EF, Kolbo JR, Zhang L, et al. Prevalence and trends in obesity among Mississippi public school students, 2005–2009. *J Miss State Med Assoc.* 2010;51:67–72.
2. Briefel RR, Wilson A, Gleason PM. Consumption of low-nutrient, energy-dense foods and beverages at school, home, and other locations among school lunch participants and nonparticipants. *J Am Diet Assoc.* 2009;109:S79–S90.
3. Isoldi KK, Dalton S, Rodriguez DP, Nestle M. Classroom “cupcake” celebrations: observations of foods offered and consumed. *J Nutr Educ Behav.* 2012;44:71–75.
4. Grubliauskiene A, Verhoeven M, Dewitte S. The joint effect of tangible and non-tangible rewards on healthy food choices in children. *Appetite.* 2012;59:403–408.
5. US Department of Agriculture Food and Nutrition Services. Healthy Hunger-Free Kids Act of 2010. http://www.fns.usda.gov/cnd/governance/legislation/cnr_2010.htm. Accessed October 6, 2015.
6. Keyte J. Nutrition standards for foods in schools: leading the way toward healthier youth. *Matern Child Nutr.* 2009;5:377.
7. Centers for Disease Control and Prevention. Six approaches to improving student nutrition. <http://www.cdc.gov/healthyyouth/mih/approaches.htm>. Accessed October 6, 2015.
8. Turner L, Chriqui JF, Chaloupka FJ. Food as a reward in the classroom: school district policies are associated with practices in US public elementary schools. *J Acad Nutr Diet.* 2012;112:1436–1442.
9. Kubik MY, Lytle LA, Story M. Soft drinks, candy, and fast food: what parents and teachers think about the middle school food environment. *J Am Diet Assoc.* 2005;105:233–239.
10. O'Toole TP, Anderson S, Miller C, Guthrie J. Nutrition services and foods and beverages available at school: results from the School Health Policies and Programs Study 2006. *J Sch Health.* 2007;77:500–521.
11. Hoffmann KF, Huff JD, Patterson AS, Nietfeld JL. Elementary teachers' use and perception of rewards in the

- classroom. *Teach Teach Educ.* 2009;25:843-849.
12. Kubik MY, Lytle LA, Hannan PJ, Story M, Perry CL. Food-related beliefs, eating behavior, and classroom food practices of middle school teachers. *J Sch Health.* 2002;72:339-345.
13. Arcan C, Hannan PJ, Himes JH, Fulkerson JA, Rock BH. Intervention effects on kindergarten and first-grade teachers' classroom food practices and food-related beliefs in American Indian reservation schools. *J Acad Nutr Diet.* 2013;113:1076-1083.
14. Ajzen I. From intentions to actions: a Theory of Planned Behavior. In: Kuhl J, Beckmann J, eds. *Action Control.* Berlin, Germany: Springer; 1985:11-39.
15. Lee J, Cerreto FA, Lee J. Theory of Planned Behavior and teachers' decisions regarding use of educational technology. *Educ Technol Soc.* 2010;13:152-164.
16. Glanz K, Rime BK, Viswanath K. *Health Behavior and Health Education: Theory, Research, and Practice.* 4th ed. San Francisco, CA: Jossey-Bass; 2008.
17. Conner M, Norman P, Bell R. The theory of planned behavior and healthy eating. *Health Psychol.* 2002;21:194.
18. Dennison CM, Shepherd R. Adolescent food choice: an application of the theory of planned behaviour. *J Hum Nutr Diet.* 1995;8:9-23.
19. Blanchard CM, Fisher J, Sparling PB, et al. Understanding adherence to 5 servings of fruits and vegetables per day: a Theory of Planned Behavior perspective. *J Nutr Educ Behav.* 2009;41:3-10.
20. Lien N, Lytle LA, Komro KA. Applying theory of planned behavior to fruit and vegetable consumption of young adolescents. *Am J Health Promot.* 2002;16:189-197.
21. Zacharia Z. Beliefs, attitudes, and intentions of science teachers regarding the educational use of computer simulations and inquiry-based experiments in physics. *J Res Sci Teach.* 2003;40:792-823.
22. Chen C-C. Factors affecting high school teachers' knowledge-sharing behaviors. *Soc Behav Personal Int J.* 2011;39:993-1008.
23. Crawley FE. Intentions of science teachers to use investigative teaching methods: a test of the theory of planned behavior. *J Res Sci Teach.* 1990;27:685-697.
24. Kriek J, Stols G. Teachers' beliefs and their intention to use interactive simulations in their classrooms. *South Afr J Educ.* 2010;30:439-456.
25. Baxter SD. Are elementary schools teaching children to prefer candy but not vegetables? *J Sch Health.* 1998;68:111-113.
26. Francis JJ, Eccles MP, Johnston M, et al. Constructing questionnaires based on the theory of planned behaviour. *Man Health Serv Res.* 2004;2010:2-12.
27. Santos JRA. Cronbach's alpha: a tool for assessing the reliability of scales. *J Ext.* 1999;37:1-5.
28. Rossiter M, Glanville T, Taylor J, Blum I. School food practices of prospective teachers. *J Sch Health.* 2007;77:694-700.
29. Belansky ES, Cutforth N, Delong E, et al. Early impact of the federally mandated local wellness policy on physical activity in rural, low-income elementary schools in Colorado. *J Public Health Policy.* 2009;30:S141-S160.
30. Shahid B. A study of school principals and the promotion of nutritional health in middle grade schools. *Education.* 2003;123(3).
31. Chiqui J, Resnick E, Schneider L, et al. School district wellness policies: evaluating progress and potential for improving children's health five years after the federal mandate. Brief report. Vol 3. February 2013. <http://eric.ed.gov/?id=ED540415>. Accessed May 8, 2015.
32. Barnes SP, Robin L, O'Toole TP, Dawkins N, Khan LK, Leviton LC. Results of evaluability assessments of local wellness policies in 6 US school districts. *J Sch Health.* 2011;81:502-511.
33. Gaines AB, Lonis-Shumate SR, Gropper SS. Evaluation of Alabama public school wellness policies and state school mandate implementation. *J Sch Health.* 2011;81:281-287.
34. Lucarelli JF, Alaimo K, Belansky ES, et al. Little association between wellness policies and school-reported nutrition practices. *Health Promot Pract.* 2015;16:193-201.
35. Agron P, Berends V, Ellis K, Gonzalez M. School wellness policies: perceptions, barriers, and needs among school leaders and wellness advocates. *J Sch Health.* 2010;80:527-535.

CONFLICT OF INTEREST

The authors have not stated any conflicts of interest.