A Review of Healthy Kids Challenge® Educational Resources Using GENIE: A Guide for Effective Nutrition Interventions and Education

Description of GENIE
GENIE, designed by the Academy for Nutrition and Dietetics is a rigorously validated tool for designing, modifying or comparing nutrition education programs. It is created for nutrition education program planners, program reviewers and funders. GENIE identifies nine categories with 35 quality criteria to include in planning effective nutrition education programs

Healthy Kids Challenge uses the most current evidence-based information in the design of resources for comprehensive school nutrition education; food education and food literacy for after school and community youth programs. Training and resources support multiple environments (school classrooms, food service, community youth programs) and scope (from a full comprehensive curriculum to nutrition activities).

All **Balance My Day™** *curricula include* ***MyPlate*** *and are based on Dietary Guidelines for Americans.* Classroom lessons are aligned with HECAT - HE (Centers for Disease Control Health Education Analysis Tool-Healthy Eating) standards and integrate math, science and language arts. Every classroom lesson also has a **Move and Learn** activity that connects nutrition and physical activity. Other curriculum activities and resources round out a comprehensive approach:

- Optional ***Taste and Learn*** enhancement activities are included after each unit. These activities that offer kids hands on preparation of simple recipes work great in or out of the classroom.
- A school nutrition services section with activities and promotions strengthens the connection between the cafeteria to classroom learning and supports the HealthierUS School Challenge.
- Reproducible parent tip handouts reinforce classroom learning. To strengthen the parent connection and promote family meals, the same "*Taste and Learn*" recipes kids prepare are formatted for family serving sizes and available as reproducible pages in a downloadable format.
- Healthy eating and physical activity are promoted to build positive attitudes for healthy choices.

Schools and youth programs receive support to identify and adapt tools according to their needs and resources. As an example,

- HKC has and is in the process of training, support, and providing resources for local and major statewide education initiatives (TEAM Nutrition and University Extension).
- HKC has given training and support to help community libraries support health messages.

The following information, presented in the GENIE framework, identifies the concepts, strategies, and alignment based on standards identified in health education analysis tools.

GENIE Category 1:

Feasible

The content is designed to be adaptable based on time and staff availability. As a comprehensive nutrition education curriculum, it is preferable to teach the thirty – 20 minute classroom lessons consecutively once or twice a week. The content has been adapted by physical educators, with less time available. Each lesson has defined components: a) presentation and discussion of knowledge based information; b) a hands on activity; c) a *Move and Learn* Activity. Community afterschool programs have demonstrated they can easily implement one of these components each time the class or group meets until the lesson is completed.

Well-timed

The content is designed to make learning and practicing skills for healthy eating choices appealing and fun for kids in multiple settings.

Novel

The content is designed for comprehensive interventions, from classroom *Move and Learn* activities to hands on *Taste and Learn* activities that connect basic food preparation with nutrition education and beyond the classroom to school nutrition services connected lessons.

Target Group, intended audience for intervention

The primary HKC target audiences are childcare providers, school nutrition staff, classroom teachers (K-8) and community youth leaders. In the community, HKC target audiences extend beyond youth organizations to leaders who are organizing events for families of children. Examples of these highly motivating educational events are Explore MyPlate and Ready, Set, Cook and Eat.

The content, for the use by these target audiences, is designed for all kids from Pre-K through 8th grade, regardless of weight. Studies show that most kids do not eat in a way to maintain good health

Health Literacy

The content is designed for health literacy. At the younger age levels images are incorporated for better literacy. *Parent Tips* are generally written at a six to eighth grade level and are available in English or Spanish. Classroom activities are written to be inclusive of all socio-economic groups. A glossary of words and subject matter background information are provided for reference by those leading the lessons. The content is aligned with CDC Health Education Analysis Tool (Healthy Eating) standards, Dietary Guidelines for Americans, and MyPlate.

Related Research

Learning strategies are founded on effective health behavior education and environmental change models, i.e., social cognitive theory and the socio-ecological model. HKC incorporates a **HEAR – SEE – DO – approach** (Kids HEAR a healthy message; SEE how to make healthy choices; and DO – have hands-on practice of healthy habits) based on.

Social cognitive theory. Components of the social cognitive theory have been widely applied and tested among community and school-based interventions designed to promote health behaviors in children and adolescents (Botvin, Eng, & Williams, 1980; Perry, Kelder, & Klepp, 1994; Perry, Killen, Telch, Slinkar, & Danaher, 1980).

Self-efficacy (confidence in being able to achieve wellness goals) and self-regulatory skills. An extensive body of research has documented that self-efficacy is an important mediator of health behavior (e.g., Colleti, Supnick, & Payne, 1985; Condiotte & Lichtestein, 1981; Holman & Lorig, 1992; Strecher, DeVellis, Becker, & Rosenstock, 1986). Thus, although the model itself is difficult to test (Fisher & Fisher, 2000), empirical support for components of the model and the usefulness of the model in designing health promotion programs is well documented.

The curriculum is designed for kids to practice self-regulatory skills such as recognizing hunger and choosing balance between eating and physical activity. Developing self-efficacy skills is incorporated by having children understand realistic goal setting[1] and rehearse or practice the behaviors that lead to the ability to practice health promoting behaviors.

[1]Goal Setting References

Cullen KW et al. Goal Setting is Differentially Related to Change in Fruit, Juice, and Vegetable Consumption Among Fourth-Grade Children. Health Educ & Behav, 2004; Vol. 31, No. 2, 258-269

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Best Practices

As guided by the CDC best practices set forth by HECAT-HE[1], Coordinated School Health[2], and Characteristics of Effective Health Education Curriculum[3], supporting resources and the curriculum

- Focus on clear health goals and related behavioral outcomes. Instructional strategies and learning experiences are directly related to the behavioral outcomes.
- Content is research-based and theory-driven. Instructional strategies and learning experiences built on social cognitive theory that has effectively influenced health-related behaviors among youth. The curriculum goes beyond the cognitive level and addresses health determinants, social factors, attitudes, values, norms, and skills that influence specific health-related behaviors.
- Addresses social pressures and influences. The curriculum provides opportunities for students to analyze personal and social pressures such as media influence and peer pressure.
- Builds personal competence, social competence, and self efficacy by addressing skills, including communication, refusal, assessing accuracy of information, decision-making, planning and goal-setting, self-control, and self-management — that enable students to build their personal confidence, deal with social pressures, and avoid or reduce risk behaviors.
- Provides functional knowledge that is basic, accurate, and directly contributes to health-promoting decisions and behaviors.
- Uses strategies designed to personalize information and engage students. Lessons are student-centered, interactive, and experiential including group discussions, cooperative learning, problem solving, role playing, and peer-led activities. Instructional strategies and learning experiences include methods for addressing key health-related concepts that are age and developmentally appropriate. Learning is relevant and applicable to daily lives.
- Content is free of culturally biased information.
- Provides adequate time for instruction and understanding of key health concepts and repetition for practicing skills.

- Provides opportunities to reinforce skills and positive health behaviors. It builds on previously learned concepts and skills and provides opportunities to reinforce health-promoting skills across health topics and grade levels.
- Provides opportunities to make positive connections with influential others by engaging peers, parents, families, and other positive adult role models in learning.
- The curriculum includes teacher information. Workshops provide professional development and training that enhance effectiveness of instruction and student learning. Staff and personal wellness plans develop teachers who have a personal interest in promoting positive health behaviors, believe in what they are teaching, are knowledgeable about the curriculum content, and are comfortable and skilled in implementing expected instructional strategies. Ongoing support is available for professional development and training for helping teachers implement a new curriculum or implement strategies that require new skills in teaching or assessment.

[1]CDC, HECAT-HE http://www.cdc.gov/healthyyouth/HECAT/index.htm?s_cid=tw_eh443
[2]CDC, Coordinated School Health http://www.cdc.gov/HealthyYouth/cshp/
[3]CDC, Characteristics of Effective Health Education Curriculum
http://www.cdc.gov/healthyyouth/SHER/characteristics/index.htm

Needs assessment

It is well documented that healthy eating and physical activity behaviors are key to prevention of chronic diseases including diabetes, heart disease, high blood pressure and stroke. According to CDC Coordinated School Health, "The healthy development of children and adolescents is influenced by many societal institutions." and "The health of young people is strongly linked to their academic success, and the academic success of youth is strongly linked with their health. Thus, helping students stay healthy is a fundamental part of the mission of schools." (Centers for Disease Control and Prevention http://www.cdc.gov/healthyyouth/health_and_academics/index.htm)

GENIE Category 2

Goal- the purpose: proximal, intermediate and distal

The goals (purpose) and objectives are well-defined by HECAT-HE which includes changes in knowledge, attitude, behavior, actions, and decisions (self-reported and observable). Examples: By grade 5, students will be able to explain why breakfast should be eaten every day; and By grade 5, students will be able to choose healthy food or beverage option when making a decision related to healthy and safe eating practices.

Measurable goals

Goals are measurable and include knowledge goals, attitude, and behavior (self-reported). The following tools are used for measurement:

- A pre and post survey
- Worksheets for every lesson that measure knowledge; require decision making; and set goals
- A self-assessment checklist at the end of each of the (K-5) units
- Logs

GENIE Category 3

Model/Frameworks. The socio-ecological framework provides a method for examining the multiple effects and interrelatedness of social elements that contribute to poor eating habits. According to the socio-ecological model, health behaviors arise and are maintained through four interacting levels of influence: individual factors, relationships, the community and societal factors such as social and cultural norms; health, economic, educational and social policies that help to maintain economic or social inequalities between groups in society. The socio-ecological model focuses on changing environments and policies at social levels rather than focusing solely on changing individual behavior to have greatest impact. The HKC curriculum addresses and builds as assesses decision making skills related to factors such as the impact of media, the influence of family and peers, influence of the availability and type of food sources (such as fast food) sources.

Readiness for change is measured through pre and post survey questions and lesson work sheet activities related to attitude and goal setting.

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- Townsend N, Foster C. Developing and applying a socio-ecological model to the promotion of healthy eating in the school- Public Health Nutrition 2013 - ncbi.nlm.nih.gov.
- Herrera HR, et.al. Using the socio-ecological model to assess the factors involved in getting preschool children to consume fruits and vegetables. FASEB Journal, 2011; 25:989.16.

GENIE Category 4

Setting- the time, place and conditions. Recognizing the time limitation challenges that schools and some after school and community youth programs, the curriculum is designed to be adaptable different environments and time frames.

GENIE Category 5

Techniques to promote learning teach and new ideas, skills and behaviors are used throughout the curriculum. For example

The curriculum is designed for educators to integrate with other core curriculum. Math, spelling, communication and science skills are practiced or can be added to many lessons. Development of higher skill levels advance with grade levels. At the 6-8 grade levels, emphasis on practice with building and using skills, using reliable sources of information, and advocating to others increases.

The curriculum is written with strategies and content that supports the connection between academic performance and healthy eating and physical activity. Together, healthy eating and physical activity create balance. The curriculum and support for teaching kids and families that they C.A.N. (**c**onnect **a**ctivity and **n**utrition), include:

- Incorporating a *Move and Learn* activity in every nutrition curriculum lesson.
- Emphasizing healthy balance with *Active Play*, as one of the healthy 6 habits.
- A collaborative partnership with SPARK, evidence based PE programs.
- Integrating physical activity into every workshop and event.

Taste and Learn Activities incorporate food preparation and tasting and reinforce nutrition knowledge found in lessons.

As noted in Category 3, the Socio-Ecological Framework: The social and physical environment impacts choices including media, peers and family.
Problem-solving scenarios, role play, surveys and goal setting relate assessment and decision making to real life and "in time" situations. In addition to encouraging goal setting with parents and family, **Parent Tips** developed for each unit provide knowledge content and potential behavior changing strategies.

Techniques to promote and motivate behavior change: Logs, "challenges", group work, surveys, and individualized, realistic family goal setting and support inspire participation and behavior change.

The number of lessons is not directly provided by HECAT-HE. However the number of identified HECAT-HE standards, in addition to a need for consistent repetition to achieve understanding and application of knowledge based information formed the number and length of lessons.

GENIE Category 6

Content: Fundamentals

- All foods fit with healthy balance
- The focus is on healthy habits rather than weight
- Goal setting is individualized and realistic
- MyPlate is a teaching resource tool
- Dietary Guidelines for Americans provides the foundation for basic messages

Six evidence based healthy behaviors are the content cornerstone for developing skills for healthy eating choices.

1. **Eat a healthy breakfast (Breakfast GO Power)**
   Nutritionally and academically, breakfast is an important meal. Studies show eating breakfast helps maintain a healthy weight and improves concentration at school or work.
2. **Fill half your plate with fruits and veggies (Fruits & Veggies - Every Day the Tasty Way)**
   The Centers of Disease Control and Prevention identifies fruit and veggie intake as one of the most important health behaviors. With plenty of vitamins, minerals and fiber, they are one of the answers to a healthier weight and disease prevention.
3. **Make healthy no added sugar, low fat beverage choice (Drink Think)**
   Beverages high in sugar and fat are more available and popular than ever before, making Drink Think increasingly important.
4. **Choose healthy portion sizes (Smart Servings)**
   Portion distortion abounds in foods. Healthy balance is dependent on choosing appropriate portion sizes.
5. **Balance eating with physical activity (Active Play, Balance My Day)**
   Physical activity through the day improves academics and health. Every classroom curriculum lesson includes a "Move and Learn" activity.
6. **Choose less of snack foods high in fat, added sugar and sodium. (Snack Attack)**
   Snacks high in added sugar, salt and fat have been a norm. Curriculum lessons help build skills and solutions for healthier snack habits and balanced choices.

[1]Six Healthy Behaviors (Healthy6) References

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Expert/Key Informants

The following professionals were critical in the collaboration and development of the curriculum: registered dietitian educators, community health registered dietitians, teachers (at all grade levels), school social work, school psychology, physical educators, and Spanish translators.

Content was determine by governmental and health society guidance including HECAT-HE, MyPlate, USDA Dietary Guidelines for Americans, Centers for Disease and Prevention, School Nutrition Association, U.S. Department of Agriculture, TEAM Nutrition, HealthierUS School Challenge, American Heart Association, CDC Coordinated School Health, Fruits and Veggies More Matters, Academy of Nutrition and Dietetics, and Society for Nutrition Education and Behavior.

GENIE Category 7

Materials used in the program: MyPlate poster and images, food card images, worksheets (1-2 per lesson), parent tips. Fat and sugar visuals, measuring implements (cups, spoons, etc), paper plates, hula hoops, juggling scarves, colored cones, and (occasionally) index cards.

Relevancy to culture, living environments, household status, food insecurity, and food/diet needs: The curriculum content is universal and is designed to be used across multiple environments. Each lesson which includes educator led student discussions provides opportunities to give greater relevancy to societal and cultural factors. Parent Tips are available in Spanish.

Food/Diet needs: Curriculum *Taste and Learn* activities provide safe food handling guidelines and food allergy cautions.

Learning styles: The curriculum is designed to accommodate a variety of learning styles; these include group discussions, lesson work sheets, and skill practicing activities. Every lesson has an activity that reinforces knowledge content and integrates physical activity (*Move and Learn*). Optional *Taste and Learn* activities are not required to meet standards, but enhance learning.

Format – method of curriculum delivery: The curriculum can be delivered based on time availability. Each classroom lesson has the following components:

- Group discussion –
- Group or individual learning activity to apply the knowledge information
- A worksheet for the child to apply and the educator to assess learning
- A "*Move and Learn*" learning enhancement

In addition

- "Taste and Learn" activities allow for simple food preparation and tasting with a simple learning activity.
- School nutrition service activities allow for that important connection with the cafeteria as a "learning lab".
- SPARK physical education activities compliment the nutrition content.
- Parent tips facilitate the connection with family and home.

GENIE Category 8

Evaluation Tools and Outcomes.

Note: Curriculum outcomes are dependent on a wide-range of variables, including the school administration/district/state support of comprehensive nutrition education and training of educators; the educator's commitment; and the planning for time availability and frequency.

Student Outcomes

Measurable objectives that address Health Education Curriculum Analysis Tool (HECAT) – Healthy Eating Standards include knowledge attitudes, skills, and behaviors. Measurement tools include: A pre and post curriculum survey, lesson worksheets, logs, and a self assessment checklist, and goal setting.

Process - Educator Outcomes

Teacher survey data is captured during curriculum training and in subsequent support. Teachers report the HKC tools provide great new strategies for teaching core curriculum. Youth leaders are using activities and ideas in multiple ways.

The following testimonials and outcome data are from both school and community based programs.

Testimonials

"HKC shared awesome techniques at trainings that made it easy to incorporate the resources into all activities to make it fun and simple to present powerful messages to children." *Michelle Lock-Gooch, RD, LD*

"Wonderful ideas and lessons to help children understand and value the importance of nutrition and fitness" *Teacher Corinth Elementary School, Corinth, MS*

The Healthy Kids Challenge nutrition training for K-8 classroom teachers and physical education teachers has been a valuable and exciting tool to help our students understand the importance of good nutrition and the role it plays in a healthy lifestyle. Teachers report that the nutrition lessons require very little prep time can easily fit into a busy school day, and best of all - the students enjoy them! *RU-Fit Education Coordinator, Dickinson, ND*

"Healthy Kids Challenge curriculum is so much fun! It allows students to develop their nutrition knowledge and practice healthy behaviors at the same time. Students love the hands on opportunity to create a healthy snack and share it with their family. Healthy Kids Challenge curriculum, training, and distance assistance have provided us with the tools to help our students make healthy choices!" *PEP Project Manager, YMCA of Metropolitan Fort Worth*

The Balance My Day curriculum is exactly what our school was looking for. It contains lesson plans that are easy to teach from and easily retained by the students. The content is interdisciplinary and had a scientific approach that helped the students grasp the concepts. I also enjoyed the activities that went along with the lesson plans. The idea of giving the students wiggle and move activities to engage them was terrific! I look forward to using the program again this year. Thank you for providing an easy to teach and balanced nutritional program! *BSN RN Health Instructor, Trinity School of Frederick*

Outcomes

HKC's comprehensive approach is demonstrated by success after HKC intervention in a Florida 20 school district:

- 64% of the schools started or enhanced (or expanded) a wellness teams
- 57% started or expanded a staff wellness plan
- 86% started or expanded staff participation in wellness actions
- 71% started or expanded healthy eating options (classroom, vending, school store, etc.)
- 64% added minutes of physical activity to the day
- 64% started or expanded school food service actions (i.e., marketing to increase participation)
- 86% started or increased nutrition education

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In a survey of 34 community youth program leaders participating in a 2-3 year socio-ecological framework interventions (including staff wellness) to support healthy eating and physical activity:

- 4 programs reported decreased employee absences and/or health insurance costs
- 20 programs reported change in daily practices
- 13 programs reported environmental changes to support healthy eating/physical activity

The same community youth program survey also identified the level of commitment for using Healthy Kids Challenge lessons and sustaining socio-ecological model interventions to support healthy eating and physical activity:

Community youth leader's commitment to sustain actions for healthy eating:

- 26% - exceptionally high
- 28% - very high
- 29% - high
- 6% - good

Community youth leader's commitment to sustain actions for physical activity:

- 29% - exceptionally high
- 35% - very high
- 26% - high
- 6% - good
- 3% - somewhat okay

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A 400 student Virginia elementary school with a USDA Fruit and Vegetable grant that chose HKC lessons and support to focus education and outcome measures specifically on fruit and vegetable intake and classroom minutes of motion demonstrated the following success.

Teacher Training

Survey of the teachers following HKC training:

- 99% felt that they would be able to make some changes in their classroom using the new information they had learned. This included incorporating more movement in the classroom and integrating more health and wellness messages and lessons throughout the day.
- Each recorded a personal wellness goal/change they would like to make for themselves
- Each set a wellness goal/change they would like to make for their classroom
- Each completed a survey that captured their comfort level, challenges and ideas for making changes for healthy eating and physical activity.

Healthy Eating

- At the beginning of the school year students were neutral to hesitant about having fruits and vegetables for snacks during the school day. At the end of the year 95-100% of students were excited about receiving them at snack times.
- Following intervention, students continued to demonstrate more positive attitudes about trying the unfamiliar fruits and vegetables. When asked to name a variety of snacks, students name fruits and vegetables primarily.
- Parents reported to school staff that their children were trying more fruits and vegetables at home.
- School food service used the data to identify preferences and find alternate ways of serving the fruits and vegetables that did not receive high preference ratings.
- 9 of13 teachers interviewed reported at least a 50% increase in the amount of healthy food sent in response to healthy suggestions; 4 of the 9 reported a 70% improvement.

Surveys [pre-(n=96) and post-(n=79)] indicated positive trends with student-family interactions:

- 62.5% -pre-survey compared to 70.9%-post survey of 4th and 5th graders said that in the last week they had asked a family member to be physically active or do a sport with them.
- 62.5%-pre-survey compared to 72% post-survey of 4th and 5th graders said that in the last week they had asked a family member to prepare a fruit or vegetable for a meal.

Classroom Minutes of Motion

9 of 13 classroom teachers posted survey results:

- Importance of providing physical activity opportunities: 100% rated this as 4-important (22%) or 5-very important (78%)
- Feasibility of providing classroom opportunities for physical activity: On a scale of 1-5
    - 5-Very feasible: 44%
    - 4: 22%
    - 3: 11%
    - 2: 11%
    - 1-Not feasible: 11%
- Reported strategies used by respondents:
    - 89% integrated movement into classroom lessons
    - 56% used brain breaks
    - 67% used physical activity as a reward
    - 22% used other strategies

In another 471 student Elementary School in VA, staff reports classrooms are getting more physical activity and learning more about nutrition. Over a 1 year period

- 100% of classroom teachers integrated nutrition into the core curriculum.
- 100% of classroom teachers added 5-15 minutes of physical activity per day. That added up to 25-75 extra minutes of physical activity each week!
- Over 32% of teachers increased their own steps goals by walking before school each day.

GENIE Category 9

Elements that may increase program's expectation to continue existing resources, stakeholder buy-in, target group adoption include.

- Healthy Kids Challenge provides training and support to adapt implementation to multiple environments and availability of resources.
- Training includes staff wellness for stakeholder buy-in.
- The curriculum provides the educator with background information for concepts and talking points.
- Trivia at the beginning of each K-5 unit provides content for fun school or program wide "messaging".
- Nutrition lessons are interactive, hands on, fun and have "real life" application. In addition lessons integrate or are very adaptable to integrating application of other core curriculum.
- Group questions and discussions facilitate students' current level of learning and so progress with the learning and skill development.

About Healthy Kids Challenge®

Healthy Kids Challenge® (HKC) is a 501c3 nonprofit led and staffed by registered dietitian educators with more than 20 years of experience working with schools, youth programs and communities.

Healthy Kids Challenge® trains and provides resources, including nutrition curriculum and activities, to teachers and youth leaders. HKC's unique approach of "Hear – knowledge based information; See-see how to make and then practice decision making skills; and Do (set and meet goals for healthy behaviors) has helped make a healthy difference for kids across the United States.

Healthy Kids Challenge® resources align with the Healthy Out-of-School Time Framework. The curriculum, *Balance My Day*, aligns with both the recommendations set forth by the Academy of Nutrition and Dietetics' GENIE tool (A Guide for Effective Nutrition Interventions and Education) and the Centers for Disease and Prevention Health Education Analysis Tool – Healthy Eating (HECAT-HE).

Healthy Kids Challenge® (HKC) resources have been assessed and recommended by recognized nutrition education agencies such as Illinois NET (Nutrition Education Training), the Los Angeles Unified School District, and Indiana TEAM Nutrition. HKC has also been on the advisory board for the development of the CDC Health Education Analysis Tool (HECAT) – Healthy Eating and provided consultation and development of resources for the Cooper Institute's Nutri-Gram and the Fuel Up to Play 60 program.

In addition, collaborative work is in progress with Ohio State University Extension in implementing and evaluating a comprehensive nutrition education approach (environment, education, policy) in the classroom, after school, and summer programs.

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