

# Understanding drivers of food choice in diverse and dynamic settings: Conceptual and methodological innovations

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Associate Professor

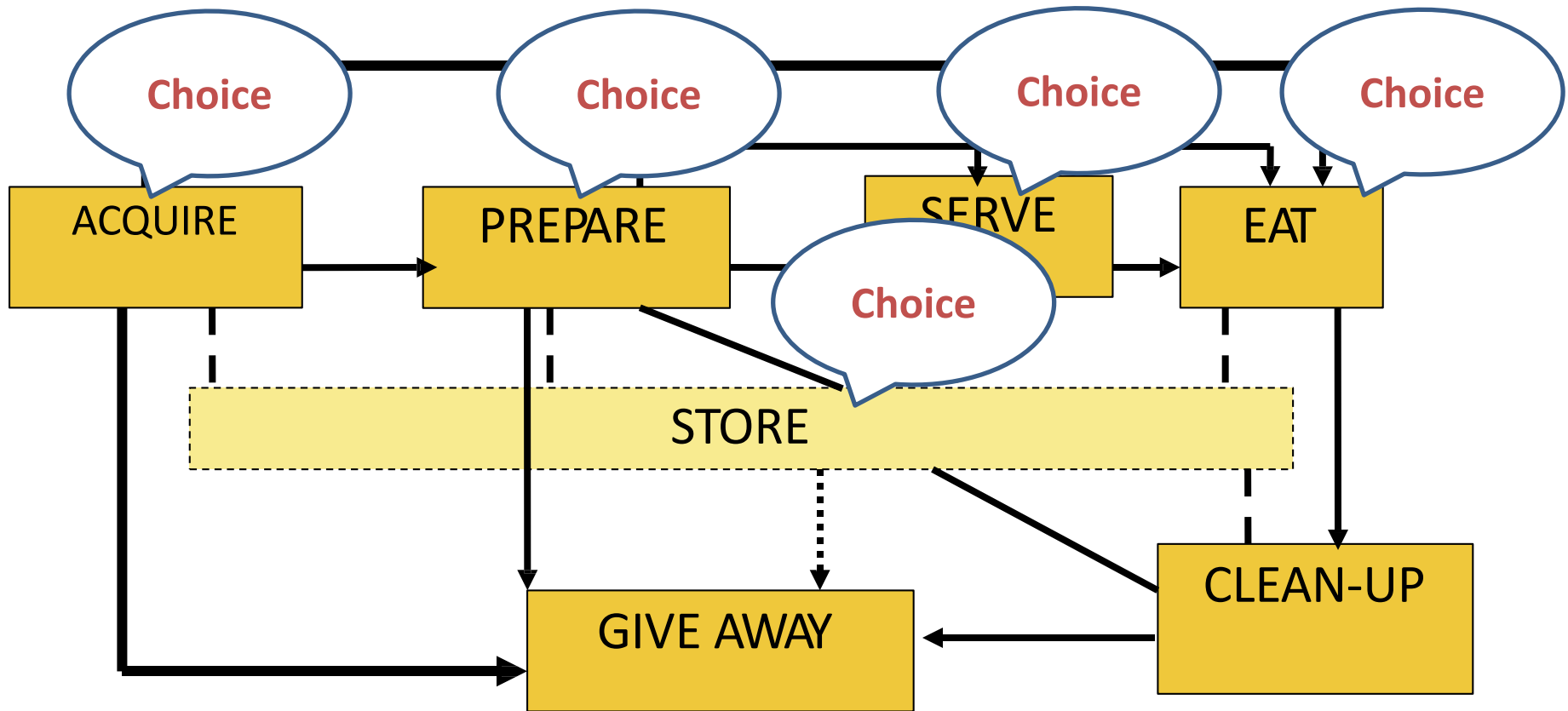


# What is Food Choice?

The overarching question addressed in studies of food choice is, “why do individuals eat the foods they do?”

# Food choice



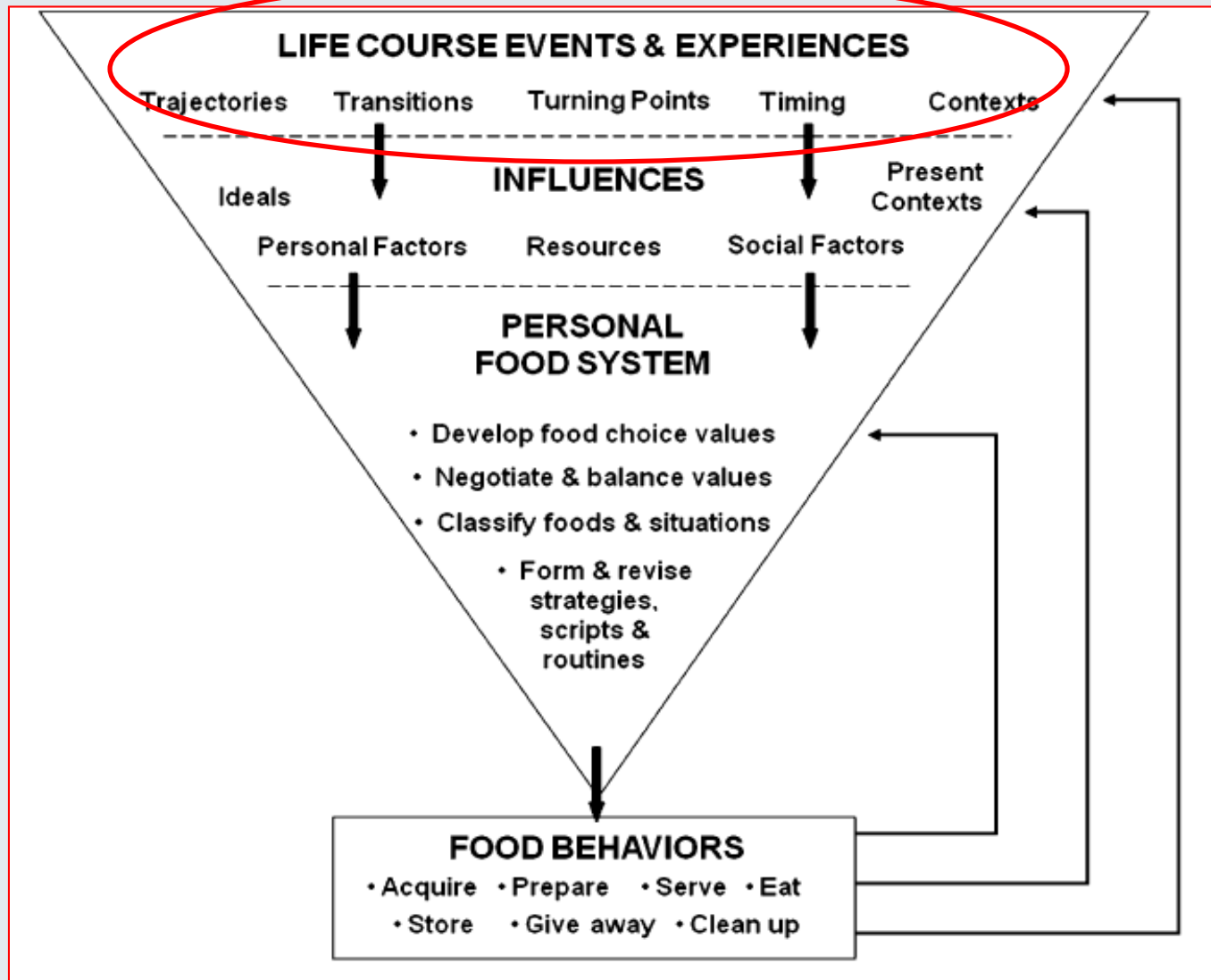


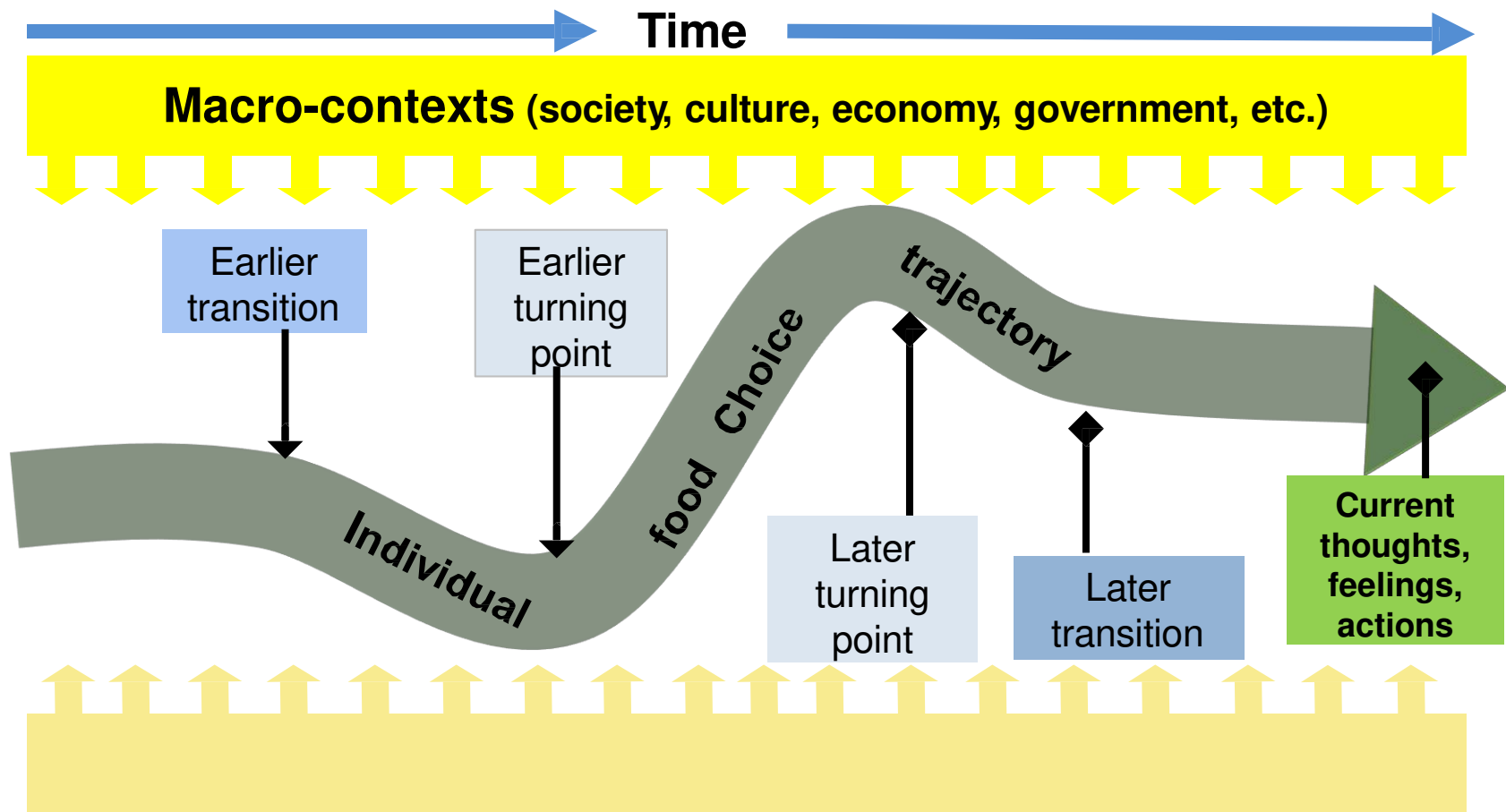
## Conceptual Model of Food Behaviors

A representation of the relationships among the many types of food behaviors that may be involved from the acquisition of food to its consumption and disposal.

**Adapted from:** Sobal J, Bisogni CA. Constructing food choice decisions. *Annals of Behavioral Medicine*. 2009;38 (Supplement 1):S37-S46

# The Food Choice Process Model

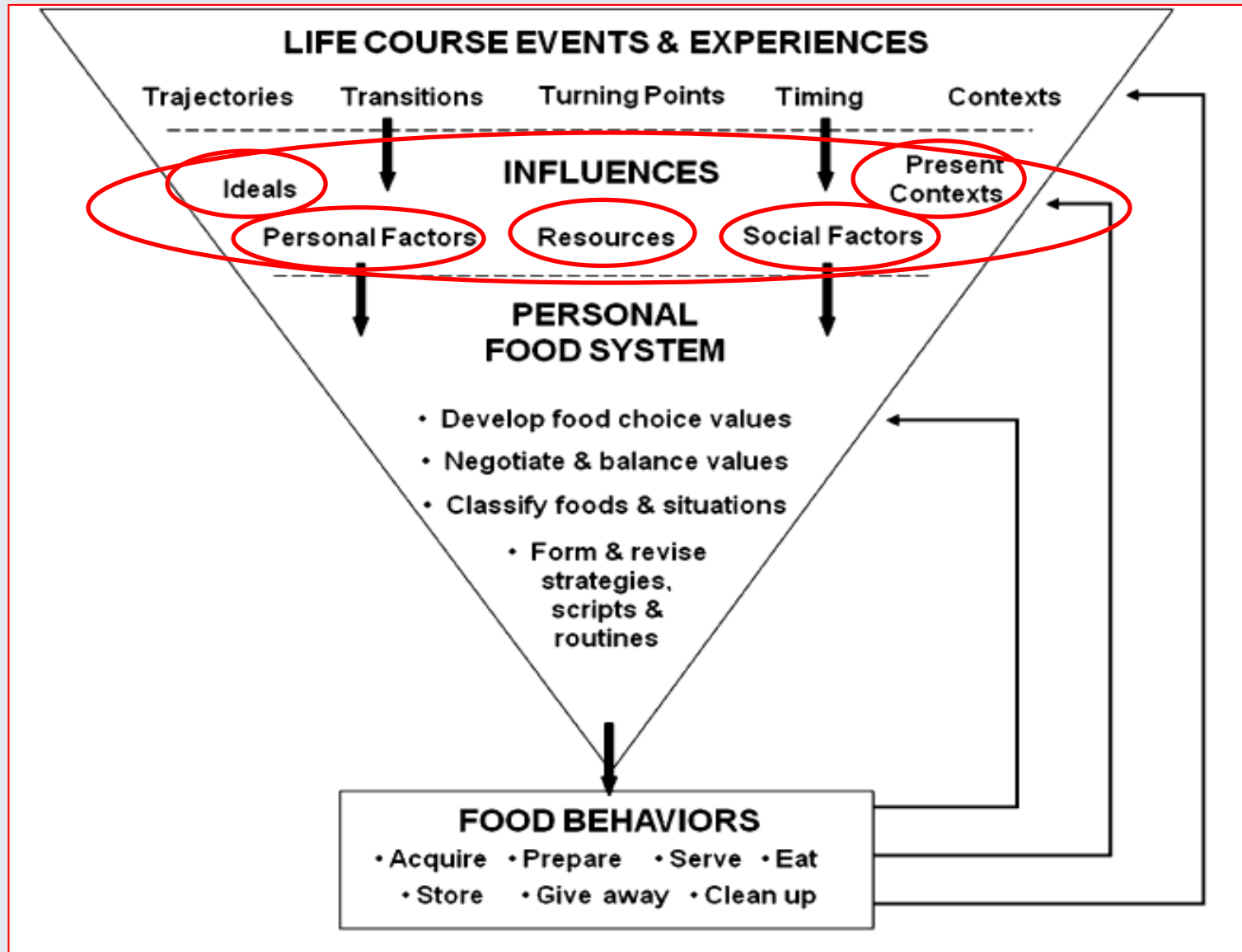




## Food Choice Trajectory

**Adapted from:** Sobal J, Bisogni CA, Devine CM, Jastran M. A conceptual model of food choices over the life course. In: Shepherd R, Raats M. (eds). Psychology of Food Choice. London: CABI Press. 2005, pp. 1-18

# The Food Choice Process Model



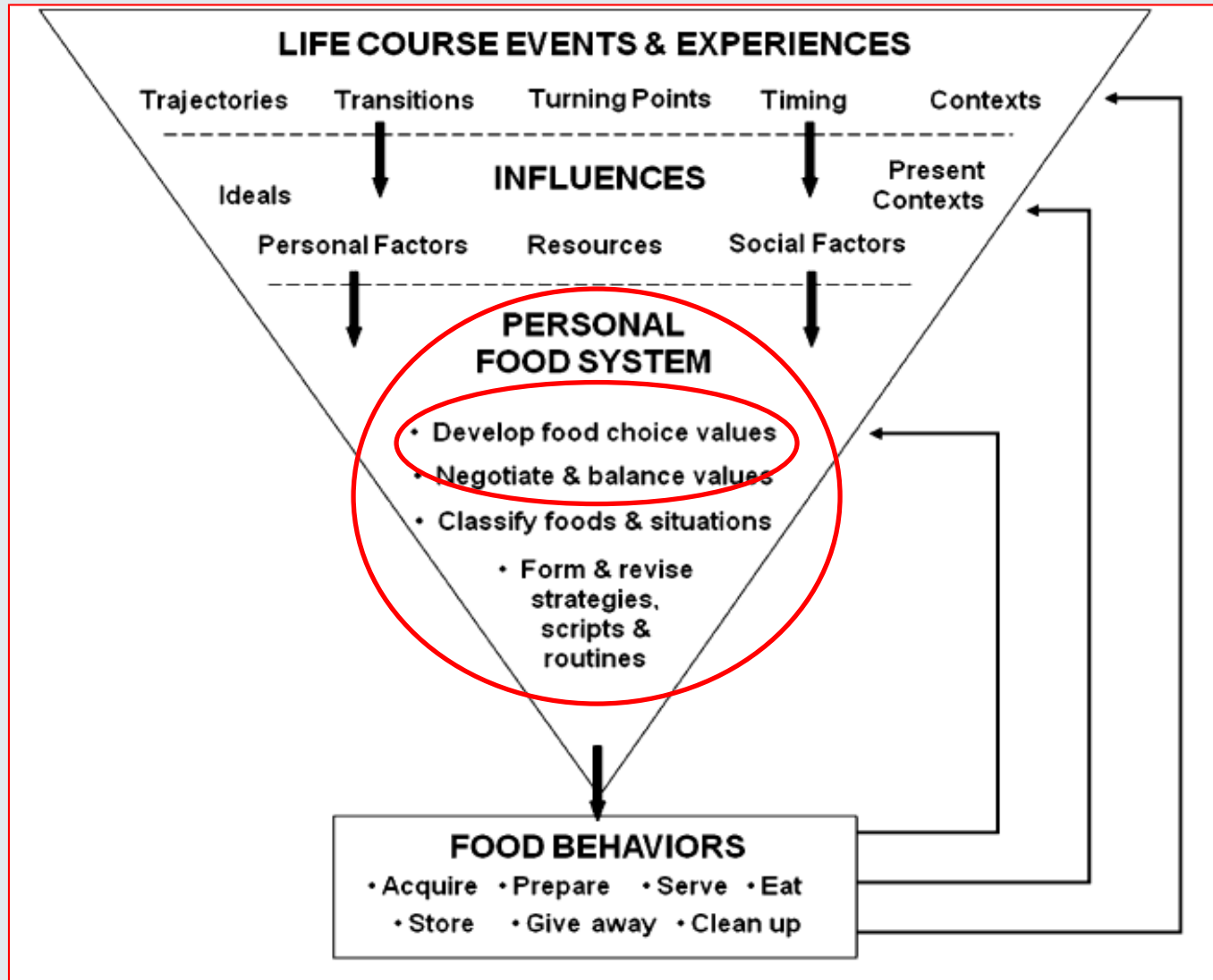
# Understanding food choice

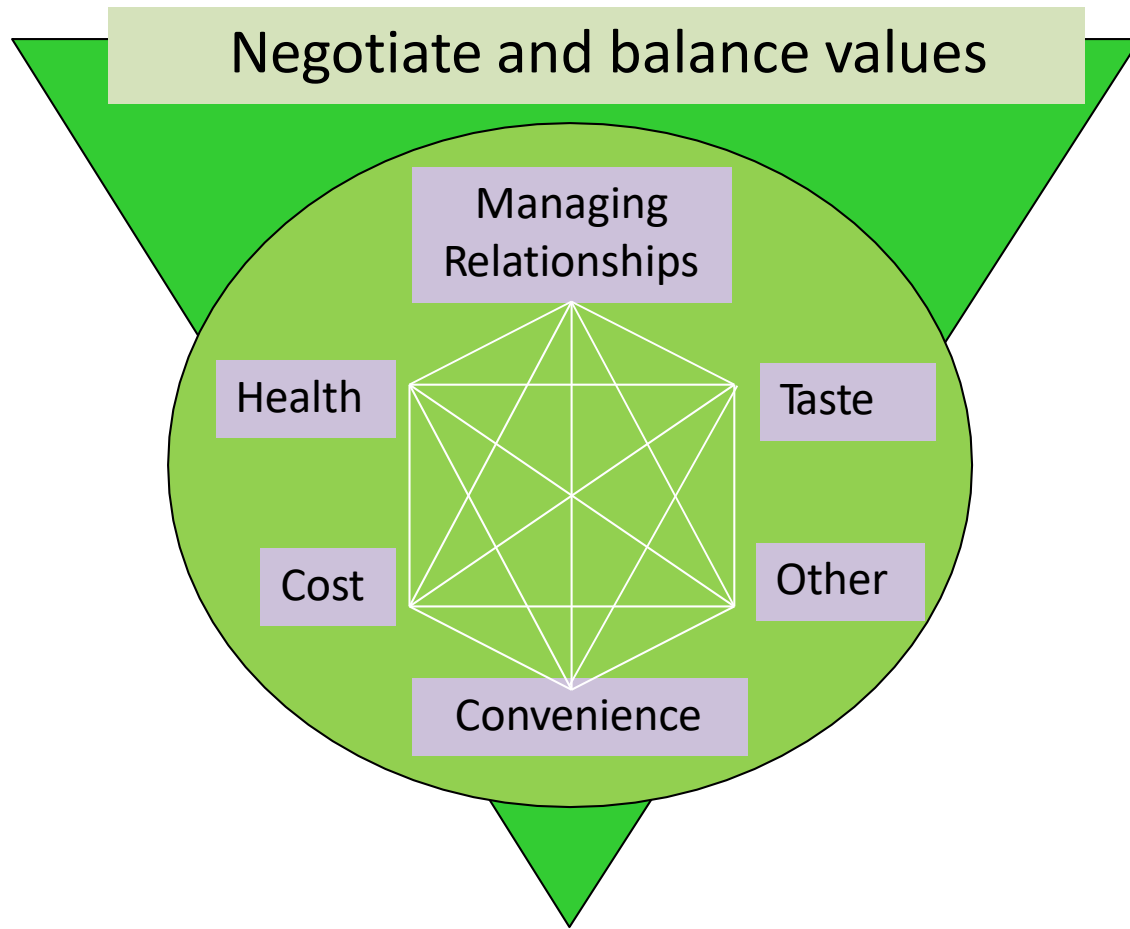
- “If it is not available, it will not be eaten...”
- Behaviour tends to be stable...
- If learning can take place, it probably will...
- Context is as important as content”

David Mela. **Food choice and intake: the human factor**. Proceedings of the Nutrition Society (1999), **58**, 513–521  
Presented at the CAB International *The 3rd French–British Meeting on Nutrition, a joint meeting of the Nutrition Society, Association Française de Nutrition and Société de Nutrition et de Diététique de Langue Française* was held at Nancy, France on 30 September–2 October 1998 as part of the **Symposium on ‘Functionality of nutrients and behaviour’**



# The Food Choice Process Model

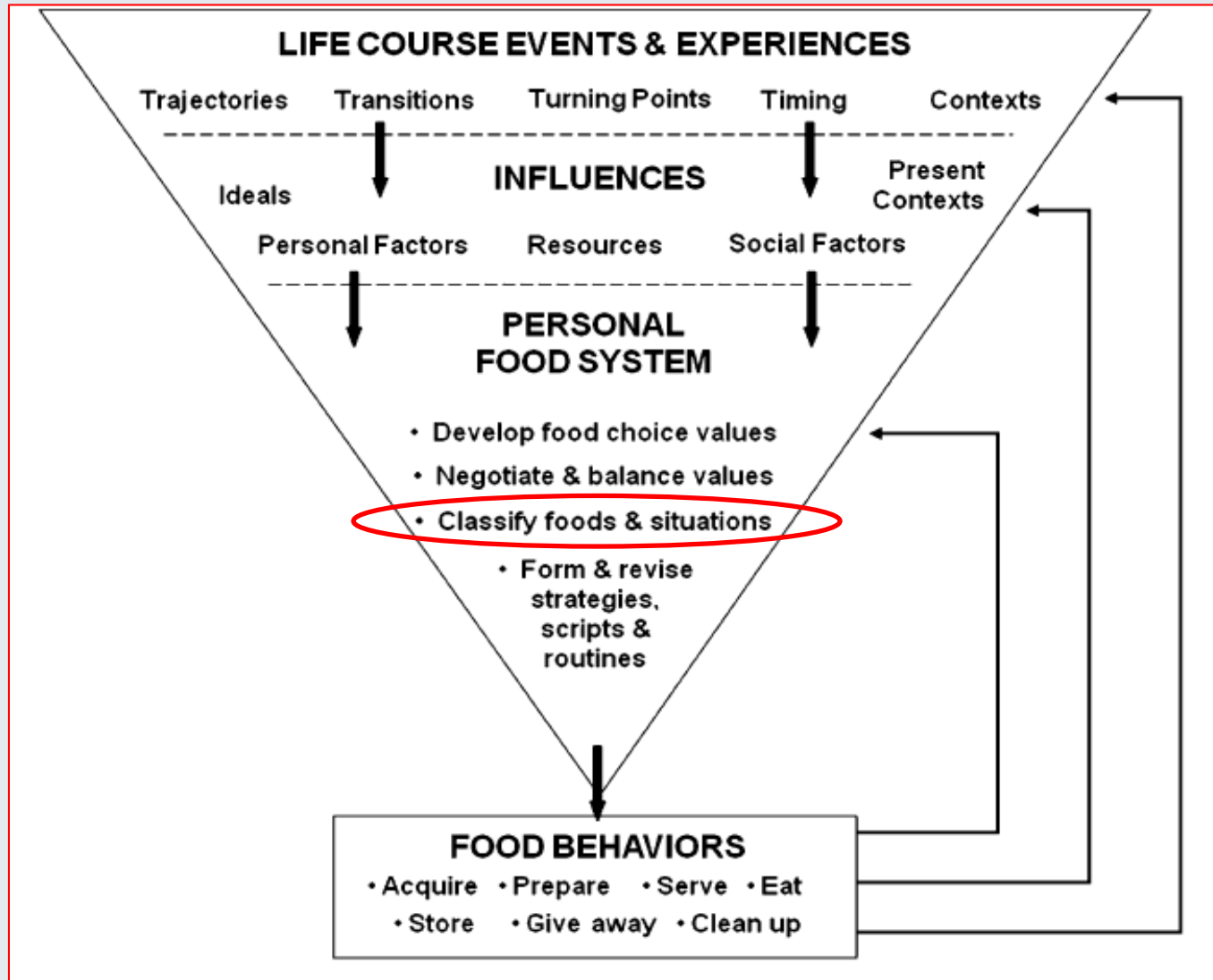




## Food Choice Value Negotiation

Adapted from: NS2450 Social Science Perspectives on Food and Nutrition

# The Food Choice Process Model

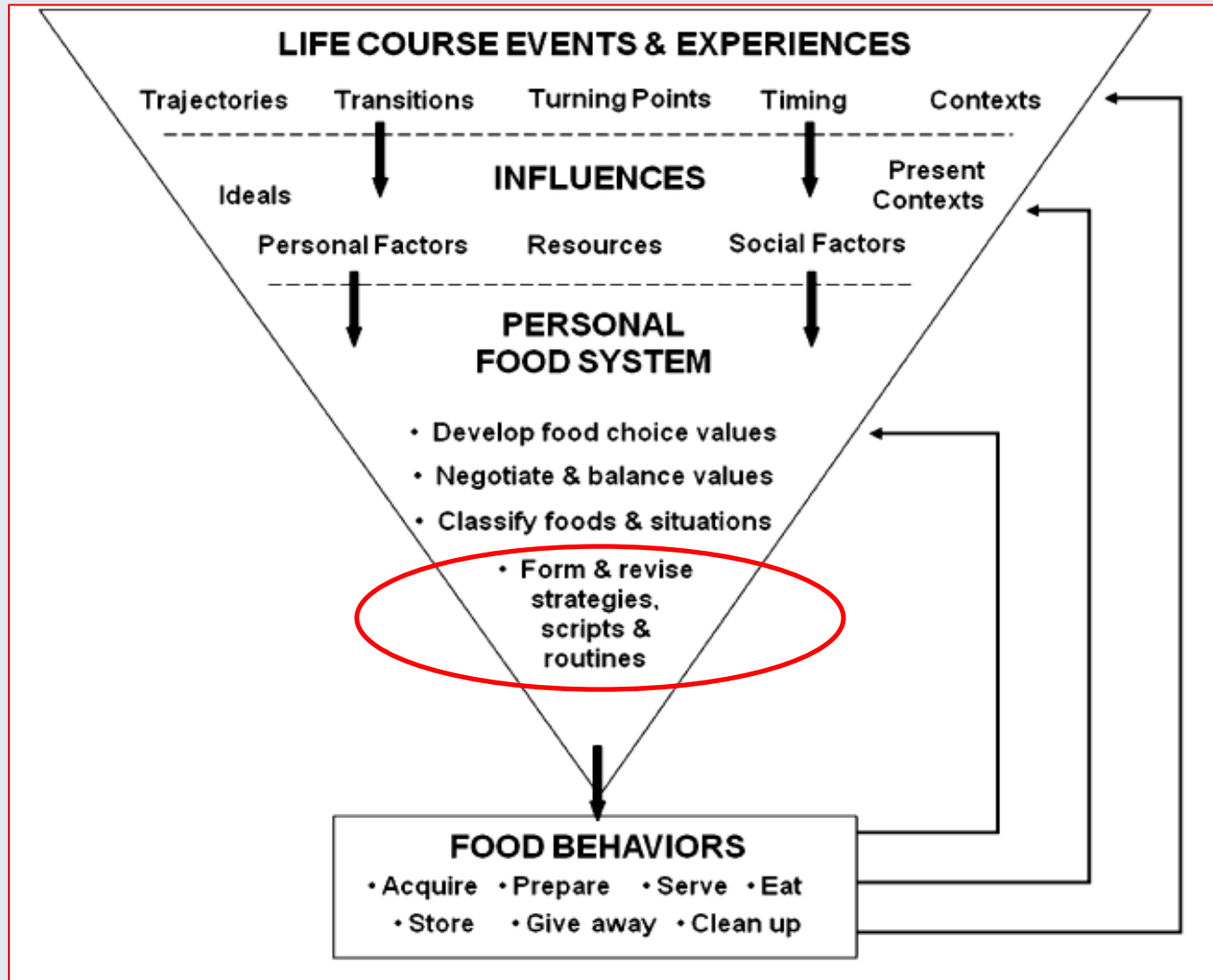


# Classifying foods in contexts: How adults categorize foods for different eating settings

C.E. Blake\*, C.A. Bisogni, J. Sobal, C.M. Devine, M. Jastran

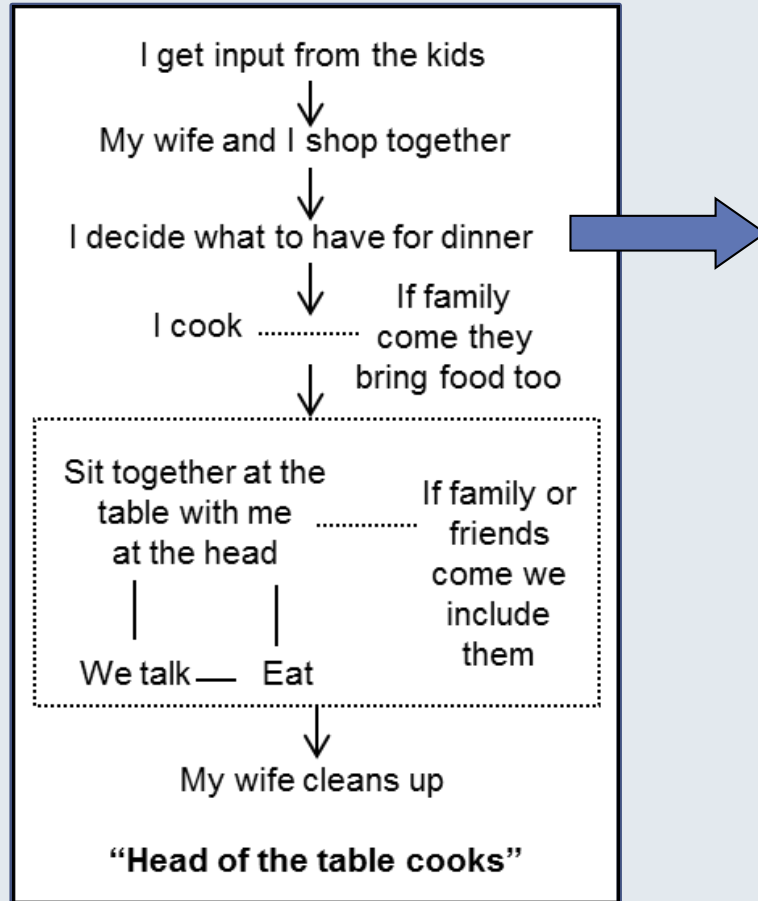
Classification Categories	Food Card Sort Label examples
<b>Personal-Experience-Based</b> Routine Well-being Preference	“I’d eat most often”, “hardly ever”, “once a week”, “staples” “healthy”, “bad for you”, “mood foods”, “allowed on my diet” “favorite”, “I like it”, “I don’t like it”, “I hate”, “treat”
<b>Context-Based</b> Meal/Time Meal component Convenience Person Location Source	“breakfast”, “dinner”, “snack”, “stuff in the evening”, “summer” “main dish”, “side dish”, “condiment”, “goes together” “quick and easy”, “logistically difficult”, “not available” “foods for my child”, “company food”, “my boss’ food” “eat at home”, “at work”, “restaurant food”, “road food” “homemade”, “stop by <b>Food Category Types</b> store and get”, “get out of the machine”
<b>Food-Based</b> Food Group Physical Characteristics Nutrient Composition	“breads and grains”, “vegetables”, “dairy”, “meats”, “candy” “sweet food”, “cooked”, “processed”, “cold”, “finger food” “starches/carbohydrates”, “proteins”, “fats”, “calorie”

# The Food Choice Process Model



# How adults construct evening meals. Scripts for food choice

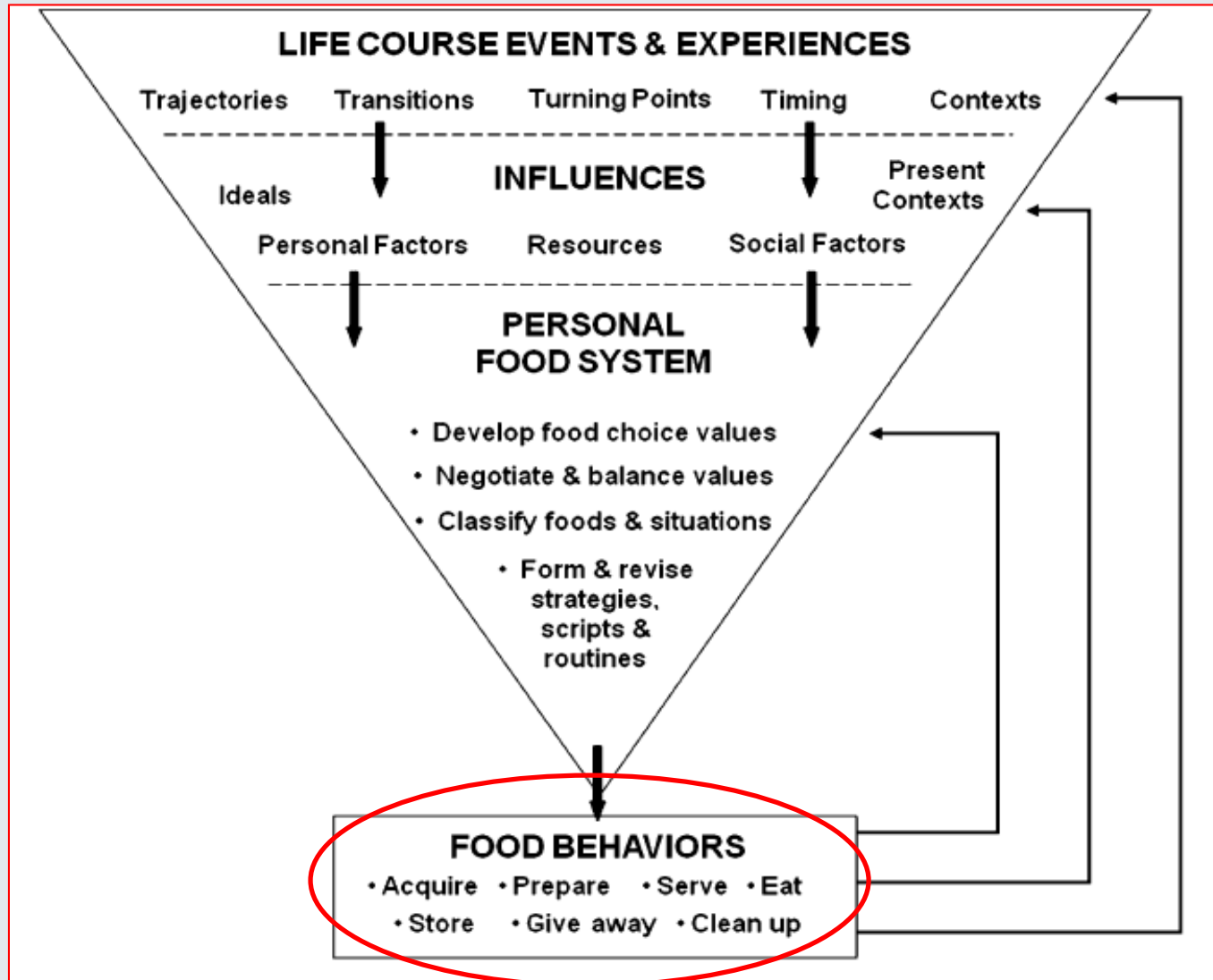
Christine E. Blake<sup>a,\*</sup>, Carole A. Bisogni<sup>b</sup>, Jeffery Sobal<sup>c</sup>, Margaret Jastran<sup>d</sup>, Carol M. Devine<sup>e</sup>



**Strategy:** “[I think] ‘what are we gonna eat and *how can we do it without causing a battle?*’... There’s enough foods out there that all four of us can be happy at the same time...”

“if it’s just, my wife and the boys, we *keep it pretty simple*. we know they’re not vegetable eaters so, we don’t, elaborate on vegetables... *Almost all of our dinners are a protein based meal*....and there’s some fast foods in here, we do eat fast food sometimes.... [protein food] is our main meal. ... *And then we build around it*....Dessert, for us is something that, we do have a couple hours later...beverages varies...”

# The Food Choice Process Model



# Why study food choice?

- Food choice behaviors are integral to social and economic expression of identities, preferences, and cultural meanings and ultimately influence nutrient intake and health
- Understanding the drivers of food choice is imperative for successful programs and policies



# Nutrition in the developing world

- Global commitment to improving nutrition
- Attempts to achieve ambitious goals **hindered by limited knowledge of drivers of food choice** among the poor in low- and middle-income countries (LMIC)

## THE LANCET

The Lancet's Series on Maternal and Child Undernutrition  
Executive Summary



### The problem of maternal and child undernutrition in developing countries

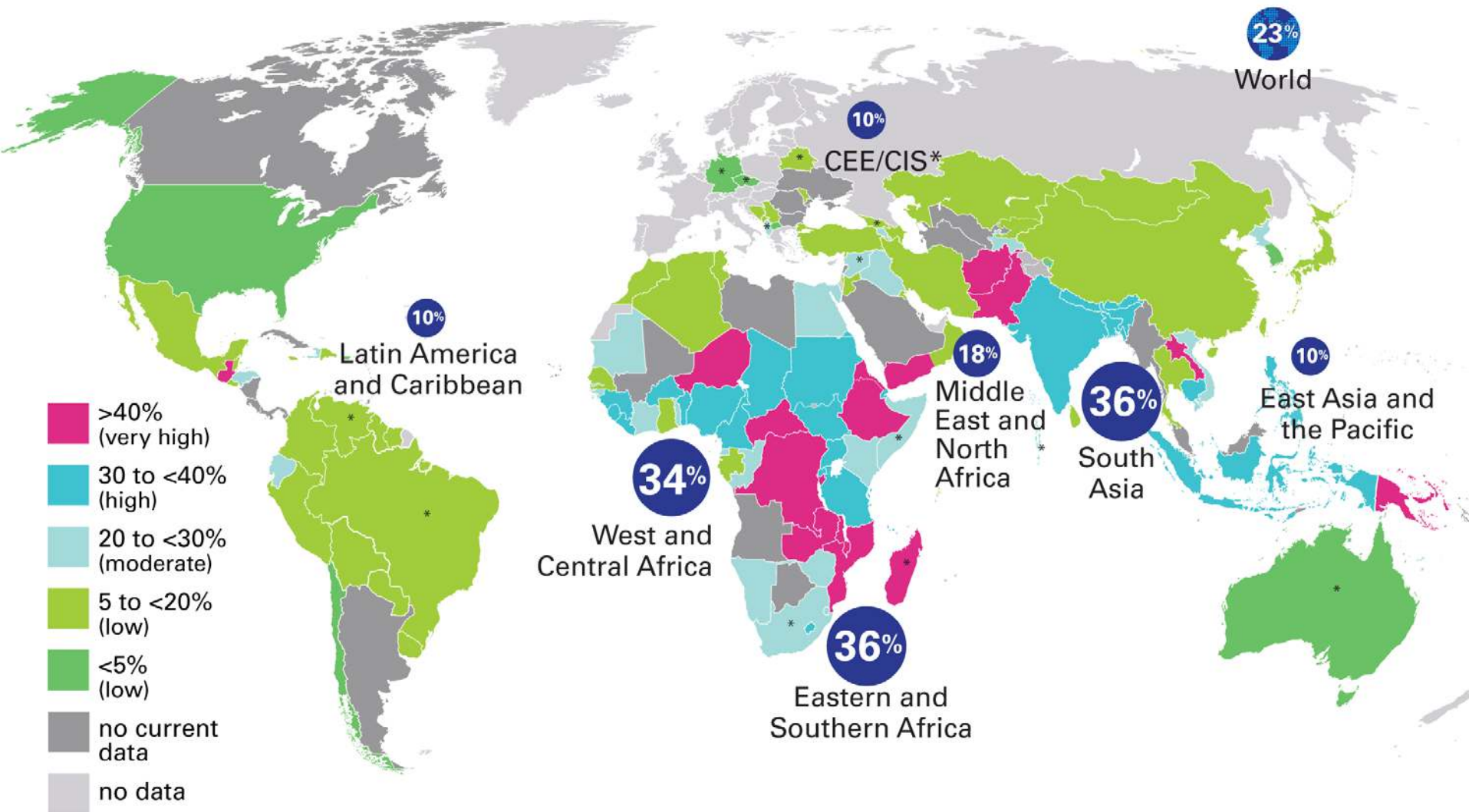
More than 3.5 million mothers and children under five die unnecessarily each year due to the underlying cause of undernutrition, and millions more are permanently disabled by the physical and mental effects of a poor dietary intake in the earliest months of life. By the time children reach their second birthday, if undernourished, they could suffer irreversible physical and cognitive damage, impacting their future health, economic well-being, and welfare. The consequences of insufficient nourishment continue into adulthood and are passed on to the next generation as undernourished girls and women have children of their own.

Undernutrition includes a wide array of effects including *intrauterine* growth restriction (IUGR) resulting

significant in the first two years of life, highlighting the importance of nutrition in pregnancy and the window of opportunity for preventing undernutrition from conception through 24 months of age.

Today, using recent estimates and latest data and standards, it is estimated that 13 million children are born annually with IUGR, 112 million are underweight and 178 million children under 5 years suffer from stunting, the vast majority in south-central Asia and sub-Saharan Africa (figure 1). Of these, 160 million (90%) live in just 36 countries, representing almost half (46%) of the 348 million children in those countries. An estimated 55 million children are wasted, of whom 19 million children are affected by severe acute malnutrition (SAM), defined as a weight-for-height measurement 3 standard deviations below the median.

The Lancet, Volume 382, No. 9890,  
August 2013



**Undernutrition contributes to nearly half of all deaths in children under 5 and is widespread in Asia and Africa:** Percentage of children under 5 who are stunted, 2010–2016

\*Data are the most recent available estimate between 2010 and 2015; exceptions where older data (pre 2010) are shown are denoted with an asterisk(\*)

**Source:** UNICEF, WHO, World Bank Joint Child Malnutrition dataset, September 2016 update

# Undernutrition and Obesity

- Double burden of undernutrition and increasing prevalence of obesity
- 76% of all overweight children live in LMIC
- Maternal overweight
- Improving nutrition across the life course from conception through adulthood is essential for the well-being of families and communities and for successful economic and social advancement



# Nutrition interventions

- Scaling up of successful nutrition-specific interventions
- Delivery requires use of innovative strategies and often relies on the structure of nutrition-sensitive development programs
  - Targeted agriculture programs
  - Social safety nets
  - Early child development
  - Schools/education
- Some evidence for impact of targeted agricultural programs on nutrition outcomes but conclusive evidence lacking
- In part due to **limited understanding of how these programs impact food choice**



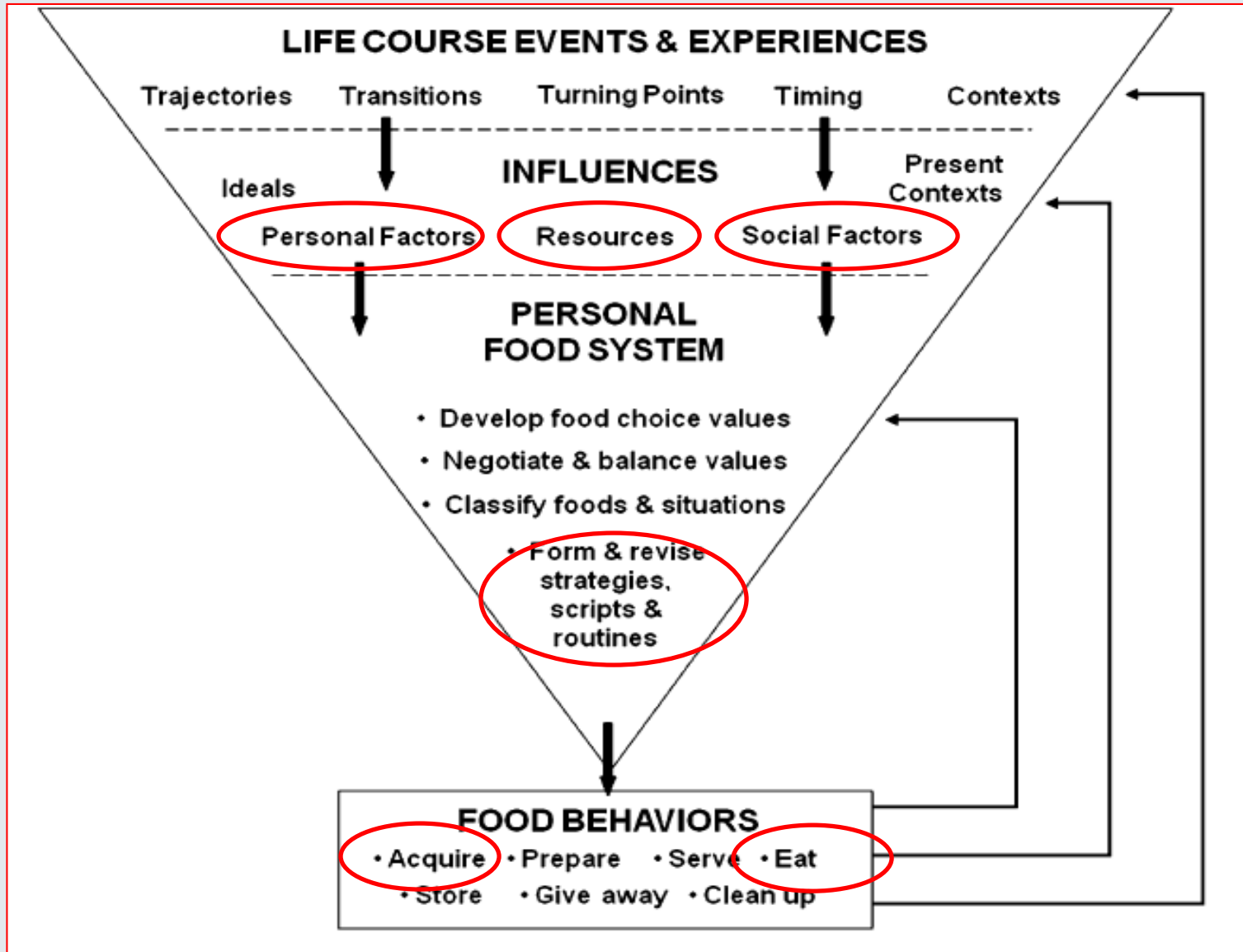


# **Participating in a Food-Assisted Maternal and Child Nutrition and Health Program in Rural Guatemala Alters Household Dietary Choices<sup>1-3</sup>**

Melissa L Jensen,<sup>4</sup> Edward A Frongillo,<sup>5\*</sup> Jef L Leroy,<sup>6</sup> and Christine E Blake<sup>5</sup>

- Food assistance programs may alter food choices
- Factors driving decisions regarding food acquisition, preparation, and consumption in the context of food aid not well understood
- Objective: Understand how PROCOMIDA, a food-assisted maternal and child health and nutrition program in rural Alta Verapaz, Guatemala, altered household food choices
- Methods
  - Semistructured interviews and focus groups with 63 households in 3 participating (n = 32 households) and 3 control (n = 31) villages.
  - Food recall and food-frequency questionnaire

# PROCOMIDA and Food Choice



## **Participating in a Food-Assisted Maternal and Child Nutrition and Health Program in Rural Guatemala Alters Household Dietary Choices<sup>1-3</sup>**

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- PROCOMIDA changed household food choices through
  - providing food resources (with monthly food rations)
  - new and reinforced knowledge and skills related to health and food
- PROCOMIDA families consumed rice, red beans, and oil more frequently than did control families (differences of 2.20 ( $P < 0.001$ ), 2.68 ( $P < 0.001$ ), and 1.64 ( $P = 0.038$ ) times/wk, respectively)
- PROCOMIDA families also ate chicken, local plants, and some vegetables more frequently
- Well-designed behavioral change communication in conjunction with food aid may be important to improve household food choices



## Drivers of Food Choice

Competitive Grants Program

Funded by the Bill & Melinda Gates Foundation  
and UK Department for International  
Development and Managed by Drs. Blake and  
Frongillo at the University of South Carolina,  
Arnold School of Public Health



BILL & MELINDA  
GATES *foundation*





# The DFC Team



- **Dr. Edward Frongillo, PhD**  
**Co-Principal Investigator**  
Professor, Department of Health Promotion, Education, and Behavior, Arnold School of Public Health.



- **Shilpa Vimalananda, MPH**  
**Program Coordinator**  
Research Assistant, Department of Health Promotion, Education, and Behavior, Arnold School of Public Health.

# DFC Technical Advisory Group



**Mandana Arabi**, M.D, Ph.D, Director – Global Alliance for Improved Nutrition (GAIN)'s Business Platform for Nutrition Research

**Moira Dean**, Ph.D, Senior Lecturer - Queens's University Belfast: Institute for Global Food Security; School of Biological Sciences



**Chowdhury Jalal**, MBBS, Ph.D, Senior Technical Officer, Operations and Evaluation Research - Micronutrient Initiative

**Mdu Mbuya**, Ph.D, Associate Director — Zvitambo Institute for Maternal & Child Health Research



**Purnima Menon**, M.Sc., Ph.D, Senior Research Fellow - International Food Policy Research Institute (IFPRI)

**Simeon Nanama**, Ph.D, Chief of the Nutrition Section for UNICEF Madagascar



**Tuan Nguyen**, M.D., Ph.D, Technical Specialist in Measurement, Learning and Evaluation - FHI 360

**Daniel Sellen**, Ph.D, Professor and Associate Dean Research, Dalla Lana School of Public Health, University of Toronto



# Purpose

- Gain a deep understanding of the drivers of food choice among the poor in developing countries in South Asia and Sub-Saharan Africa, **many of which are experiencing rapid urbanization and changes to agriculture and markets**
  - in order to guide on-going and future programs and research activities to improve food and nutrition security in poor countries
  - and to foster a community of practice in food choice research in developing countries

# DFC Competitive Grants Program

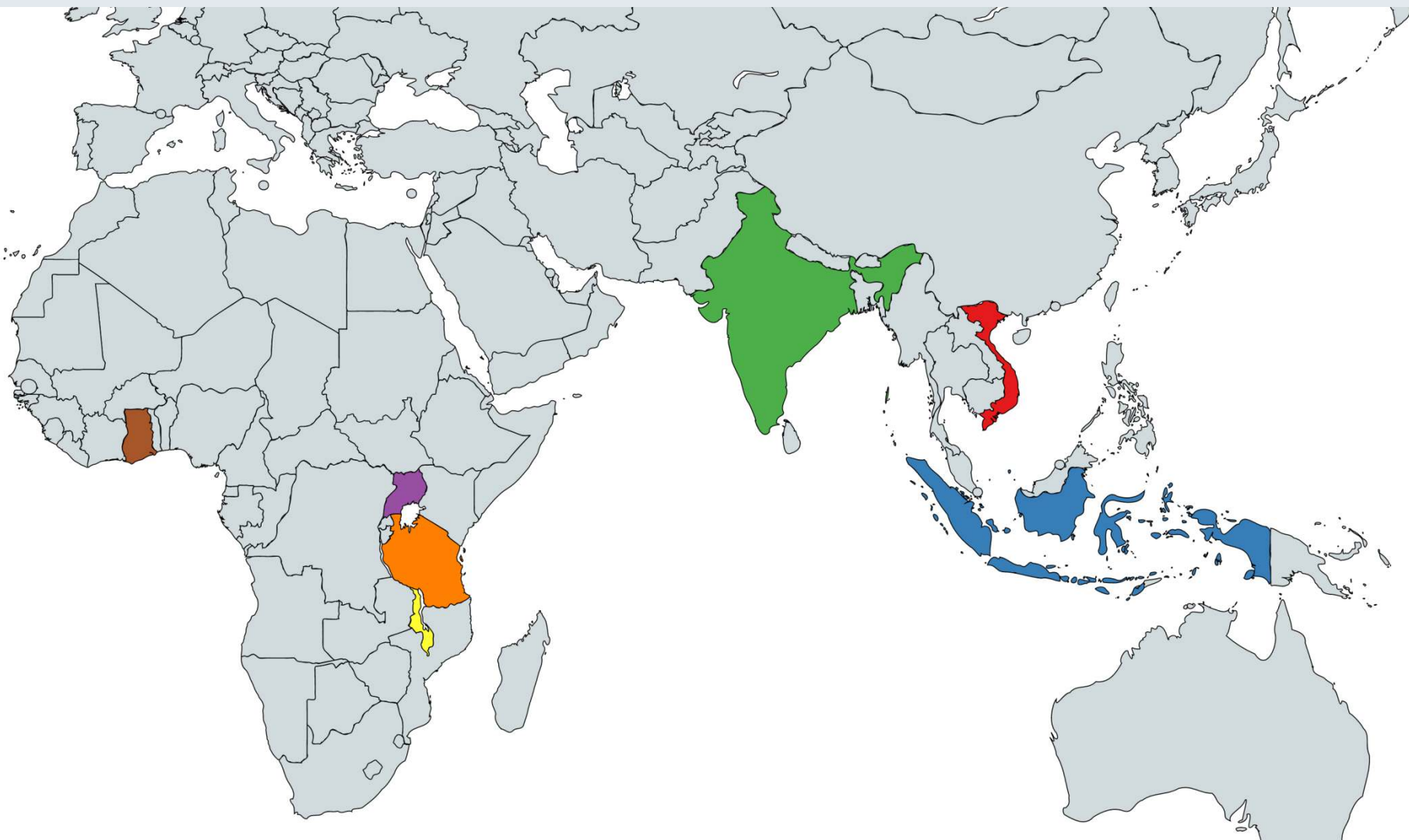
## Priorities Round 1

1. Develop conceptual understanding of factors that influence food choice in lower wealth quintiles to inform policy and practice
2. Investigate how changes to traditional food environments and food systems influence food choice
3. Evaluate of the impact of nutrition-sensitive agricultural interventions on food choice behaviors

# Currently funded projects

- The program will fund up to 15 projects in LMIC pursuing a diverse set of questions about environmental and individual drivers of food choice using both established and innovative methods
- First 8 projects are currently underway...

# DFC Round 1 Projects



# Lead and Partnering Institutions

- London School of Hygiene and Tropical Medicine (LSHTM), UK
- University of Sheffield, UK
- University of London, UK
- Emory University, USA
- Pennsylvania State University, USA
- RTI International, USA
- Wageningen University, Netherlands
- Harvard University, USA
- Loughborough University, UK
- University of Liverpool, UK
- The French Agricultural Research & International Cooperative Organization (CIRAD)
- Trocaire (Uganda), Ireland
- Fresh Studio Innovations Asia Ltd.
- International Rice Research Institute (IRRI)
- Center for International Forestry Research (CIFOR)
- Bioversity International
- KIIT University, India
- Makerere University, Uganda
- University of Malawi
- University of Ghana
- University of Health and Allied Sciences, Ghana
- University of Brawijaya, East Java, Indonesia

# DFC Round 1 Projects

- 3 Rural only
  - Pastoralists changes in livelihood in Tanzania
  - Rapid Agrarian change in Indonesia
  - Land Impermanence in Uganda
- 2 Urban only
  - Transforming urban food retail environment in Vietnam
  - Adolescent EDNP food consumption in urban Ghana
- 3 Urban and Rural
  - Impact of change in agricultural subsidies in Malawi
  - Application of the Gastronomic Systems Framework in India
  - Overweight mothers and/or children in Malawi



# Food Choice Drivers Assessed

- Changes in livelihoods/ agricultural work/ agricultural production
- Changes in agricultural subsidies
- Perceptions of land permanence/ changes in land use policies
- Food systems changes/ Food environments
- Changes in retail environments
- Food access
- Food valuation/ Value chain modification
- Changes in traditional practices
- Intergenerational shifts/difference
- Gender norms/ Gender differences
- Identity
- Cultural views on overweight status of mother or child or both
- Household food providers
- Cultural aspects of meal construction/ Changes in ingredients, meals, foods
- EDNP foods

# Food Choice Behaviors Assessed

- What to grow, gather, sell
- What, where, how much, how often to buy
- How to prepare
- What, how much, and how often to provide to different household members
- What, how much, where, and how often to eat
- Trade-offs

# Retail diversity for dietary diversity: Vietnam

Pis: Sigrud Wertheim-Heck, PhD and Peter Oosterveer, Wageningen University; Gina Kennedy, Bioversity International

## Objectives:

1. Understand how, why, in what way and to what extent transformations in the local food system impact the dietary intake of the urban poor
2. Providing policy recommendations and solutions to improve the inclusiveness of urban food retail systems



# Retail diversity for dietary diversity: Vietnam

- Conceptual Innovations:
  - Food systems transformations and food choice of urban poor
  - Linking food retail infrastructures with food choice behaviors in urban settings
  - Intergenerational perspective on food choice
- Methodological Innovations:
  - Sequential mixed-methods design
  - GIS mapping of food outlet utilization in conjunction with work and home locations
  - Drivers of choice for multiple food choice behaviors across household members and over time
    - Acquire, serve, consume

# Dietary transitions in Ghanaian cities

PIs: Michelle Holdsworth, Uof Sheffield, UK, Amos Laar, Uof Ghana, Francis Zotor, Uof Health and Allied Sciences

## Objectives:

1. To identify how social and physical environments drive consumption of EDNP foods and beverages throughout the reproductive life course
2. To identify, prioritize and encourage scaling up of context-relevant gender interventions to reduce consumption of EDNP foods and beverages throughout the reproductive life course



# Dietary transitions in Ghanaian cities

- Conceptual Innovations:
  - Individual and environmental drivers of choice of EDNP foods
  - Life course approach with adolescents/young women
- Methodological Innovations:
  - Longitudinal qualitative interviews
  - 24-hr situational food recalls to assess drivers of choice
  - GIS data linked to Photovoice on perceptions of the food environment
  - Photography exhibition to advocate for action

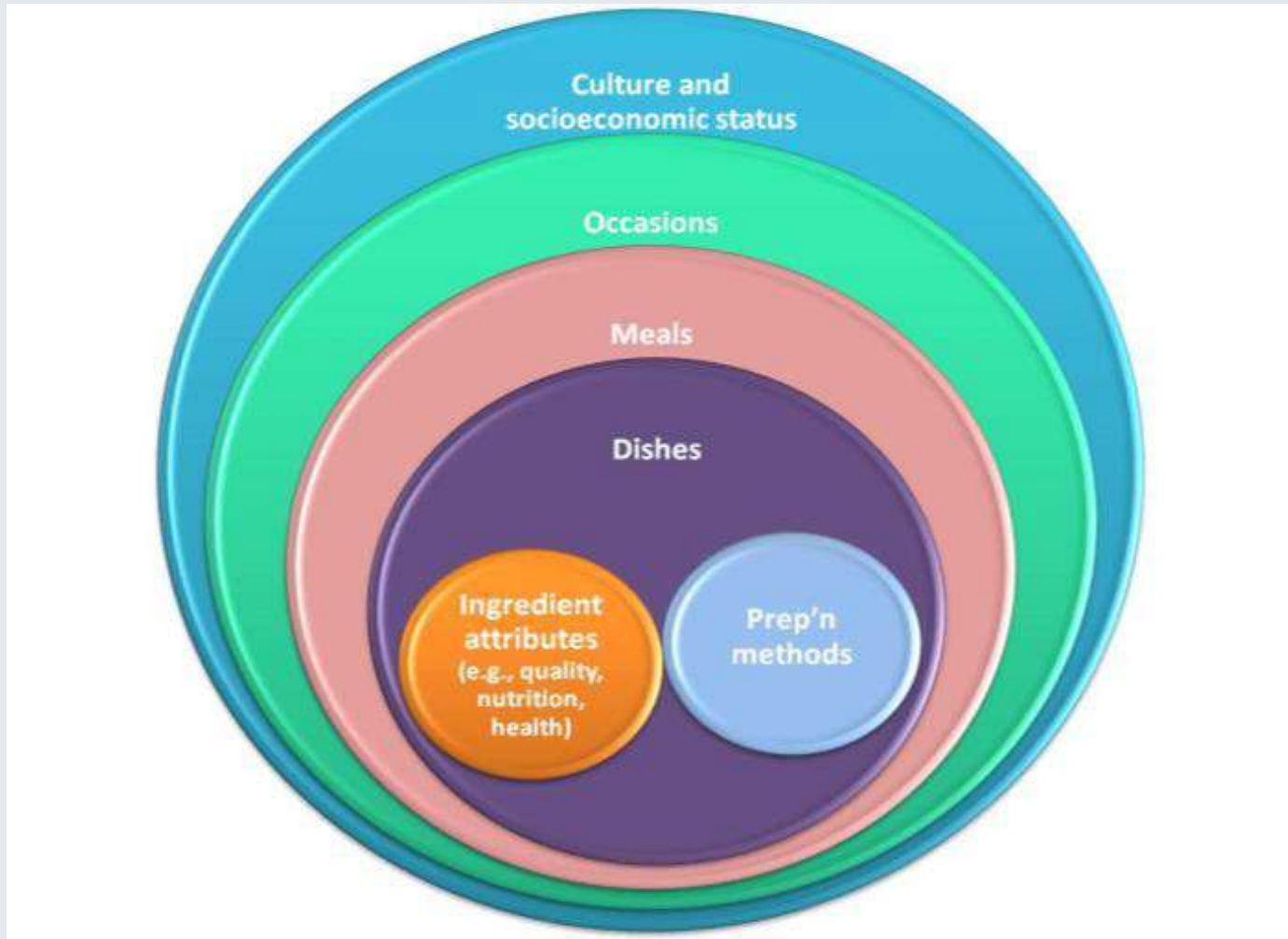
# Behavioral Drivers of Food Choice in Eastern India

PI: Matty Demont, PhD, International Rice Research Institute

## Objectives:

- 1. Providing a thorough understanding of the current drivers of food choice of urban and rural households in lower to middle socioeconomic classes in eastern India
- 2. Testing new *behavioral* drivers that may influence food choice of the target population after nutrition-sensitive interventions designed for the poor
- 3. Assessing the ex ante impact of those nutrition-sensitive interventions on nutrition security and health of the poor in eastern India (Odisha and West Bengal)

# The gastronomic systems research (GSR) framework



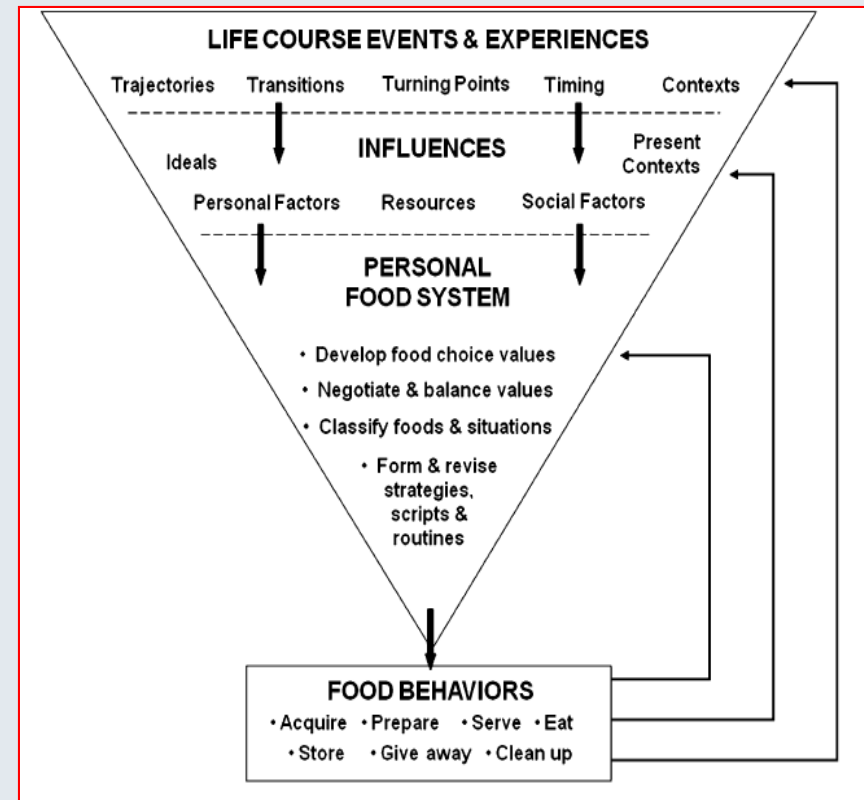


# Behavioral Drivers of Food Choice in Eastern India

- Conceptual Innovations:
  - Application of a context- and culture-specific framework of “gastronomic systems research” to Eastern India
- Methodological Innovations:
  - GSR framework applied through expert elicitation and consumer surveys to obtain detailed information on current food choice
  - Development of an interactive tablet application
  - Behavioral experiments to elicit and study food choice change in response to nutrition-sensitive information and interventions within the GSR framework

# DFC Round 1 Project Summary

- 8 projects in 7 countries in Africa and Asia
- Collaborative teams
- Diverse populations
- Individual to policy drivers
- All aspects of the food choice process model



# Next steps...

## DFC Competitive Grants Program: Round 2

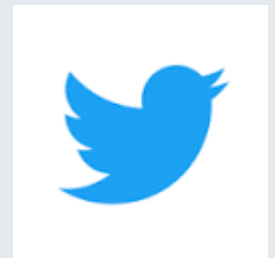
- Same General Research Topics
  1. Develop conceptual understanding of factors that influence food choice in lower wealth quintiles to inform policy and practice
  2. Investigate how changes to traditional food environments and food systems influence food choice
  3. Evaluate of the impact of nutrition-sensitive agricultural interventions on food choice behaviors
- Complementary to Round 1 projects
  - Labeling and retail markets
  - Program and policy relevance
- In-Country Institution Leadership
- RFP to be released in February 2017!

# Next steps...

- Building a community of LMIC food choice researchers
  - Like us on Facebook
  - Follow us on twitter
  - Watch for announcements



<http://www.driversoffoodchoice.org/>





**Drivers of Food Choice**  
Competitive Grants Program

**THANK YOU!!**