

Why Don't Ontarians Eat Enough Vegetables?

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Motivation of Research

- Current state of vegetable consumption
 - Consumption of vegetables in Canada has been stagnant, and has declined for the past 3 years (StatCan, 2009)
 - Few (~8%) Canadians currently achieve the recommendations of Canada's Food Guide
- Why is this a problem?
 - Increasing healthcare costs
 - Ontarians' well-being and productivity
 - Missed out sales opportunities for Ontario vegetable growers and distributors

Motivation of Research (Cont.)

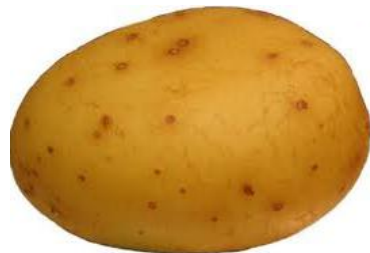
- Why do Ontarians not eat more vegetables?
 - Knowledge of health benefits?
- Then why not? Guess...
 - Knowing (facts) vs. Doing (cooking/eating)
 - Best intentions vs. preparation skills and dinner table dynamics

Previous Research



- Nutritional or health concerns are less important than..
 - Taste, cost and convenience of preparation (Glanz et al., 2008)
 - Bitter and non-sweet taste of vegetables
 - “It’s time-consuming!”
- Study of vegetables as one big category
 - Perception of vegetables is diverse! (Drewnowski, 1996)
- Adverse psychological effects of “healthy” label
 - Stereotypic beliefs: Foods labeled as “healthy” are believed as “not tasty” (Wardle & Huon, 2000)

Our Focus



Research Objectives

- To assess psychological barriers to the purchase of vegetables produced and available in Ontario
- To assess the degree of variance in consumer perception of a variety of vegetables available in Ontario
- To assess the degree of discrepancies between perceived healthiness of vegetables and purchase frequency
- To explore the range of meals prepared with vegetables in Ontario households and to identify socio-cultural and ethnic variances in the way vegetables are consumed

Three-part project

- Year 1: In-depth interview
- Year 2: On-line survey
- Year 3: Field study

Methods

- In-depth interview
- Sampling
 - 60 main food preparers living in southern Ontario (20 interviews conducted as of December 2011)
 - at least 1 child (age: 6-12 years)
 - Recruitment
 - The Guelph YMCA-YWCA
 - Flyers posted near local grocery stores and public bulletin boards

Preliminary Results I

- Substantial variance in preference of vegetables
- Discrepancies between perceived healthiness of vegetables and liking

← Generally Liked Mixed Generally Disliked →
Perceived as healthier



Preliminary Results I (cont.)

- Commonly mentioned preparation methods for vegetables
 - Carrots, celery and cucumber were most frequently consumed raw, in salad or snack;
 - Tomatoes were most often consumed raw in salads and snack (e.g., cherry tomatoes), while it was common to use tomatoes to make sauces;
 - Potatoes were most often consumed in the boiled, mashed, and roasted form.
 - Broccoli was mostly consumed raw in a salad or steamed with sauce/cheese;
 - Brussels sprouts and mushrooms were often consumed hidden in soups;
 - Asparagus were among the least consumed vegetables, although BBQ or roasting was mentioned by frequent asparagus eaters;

Preliminary Results II

- Lack of Culinary skills
 - Most claim having good food preparation and culinary skills
 - Further probing suggested **otherwise**:
 - a limited range of vegetable dishes (e.g., home fries, mashed potatoes, stir-fried vegetables)
 - Going beyond one's usual preparation methods was rare for many
 - Intention to eat more vegetables is not followed through for many
 - Why?
 - Busy (esp. for full-time working mothers)
 - Feeling of demoralization
 - Time and effort associated with finding tasty, easy-to-follow recipes for vegetable-rich dishes

Preliminary Results II

- A small number of “vegetable-committed moms”
 - Willing to take on unfamiliar vegetables
 - Habitually searching for and trying out new recipes for vegetable-rich dishes
 - Sharing recipes with friends and relatives
 - Checking out cookbooks
 - Searching for recipes on the web

Preliminary Results III

- Familial and ethnic background issues
 - Early exposure to diverse vegetables
 - Southern European and Mediterranean origin
 - Shared beliefs of “eating well”
 - Actively trying to expose their children to a wide array of vegetables
 - Familial and ethnic background associated with low vegetable intake
 - Limited range of vegetables served
 - Cooking as a “drudgery”
 - Even adults do not enjoy eating vegetables

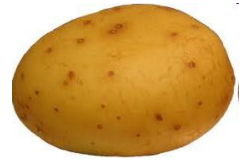
Preliminary Results IV

- Perception of local, organic, pre-washed, and frozen vegetables
 - Local and organic vegetables
 - Believers: “healthier and fresher”
 - Distrusters: “a hype”
 - “Pricy”: more likely to be purchased in in-seasons
 - Pre-washed vegetables
 - Spinach and lettuce vs. mushrooms and peppers
 - Fresh vs. frozen vegetables
 - Perception of nutritional values was similar
 - Gut feelings toward frozen vegetables were not as favorable as fresh vegetables
 - Fresh vegetables were preferred to frozen vegetables, except for winter months
 - This tendency was esp. strong for households with small children

In a



- Not all vegetables are created equal
 - Preference for specific vegetables vary substantially.
- Discrepancies between perceived healthiness of vegetables and liking
 - Emphasize taste as well as healthiness
- Culinary skills
 - A major barrier to implement the intention to eat more vegetables
 - Availability of tasty, easy-to-follow recipes at the “right” moment
- Early exposure to diverse vegetables is important
- Grow positive attitudes toward cooking and eating vegetable-rich dishes



KTT idea

- How to make vegetable eating accessible in consumers' mind *at the right moment?*
 - “What to cook for dinner?”
 - “What to buy for next week?”
- How to make recipes for vegetable-rich dishes readily *available at the right moment?*
 - Recipes “on the go”

How to implement this idea?



- Smart phone app
 - Always on the go
 - Real time transmission of recipes and dinner ideas
 - Feedback can be solicited instantly
 - Adoption of smart phones is rapid
- Website for vegetable recipes
 - CRM-based “Recipes you’ll love”

Smart phone app



- Providing recipes for tasty, easy-to-follow vegetable-rich dishes at the right time (i.e., late afternoon hours)
 - Generation of “**Recipes You’ll Love**” based on previous search and ratings of recipes
- Facilitating consumers’ use of weekly meal plans by offering vegetable dish ideas for each meal
- Automatically tallying all the ingredients that are necessary to prepare meals for the upcoming week
- Providing prices and deal information for vegetables (especially Ontario-produced ones) available at the participating grocery chain
- Reminding consumers of the chosen meal ideas and recipes on the select day via beeping them 1-2 hours ahead of meal time
- Helping consumers monitor their daily and weekly vegetable intake
 - Enabling them to click whether they actually prepared the chosen meal for each day

Say Mmm

SIGN UP

What's for dinner?

Don't say Hmm... Say Mmm!



SIGN UP

Its Free

Mon 10/4	Lemon chicken, L : Ham sandwich, a B : Cereal, banana
Tue 10/5	Beef stroganoff, Bob and Jenny are cc

Plan meals with ease

Easily decide what to eat with all your ideas at your fingertips and an easy to use calendar.

Breads & Grains
<input type="checkbox"/> Bread
<input type="checkbox"/> Spaghetti
Dairy
<input type="checkbox"/> Cheese
<input type="checkbox"/> Milk

Shop smart

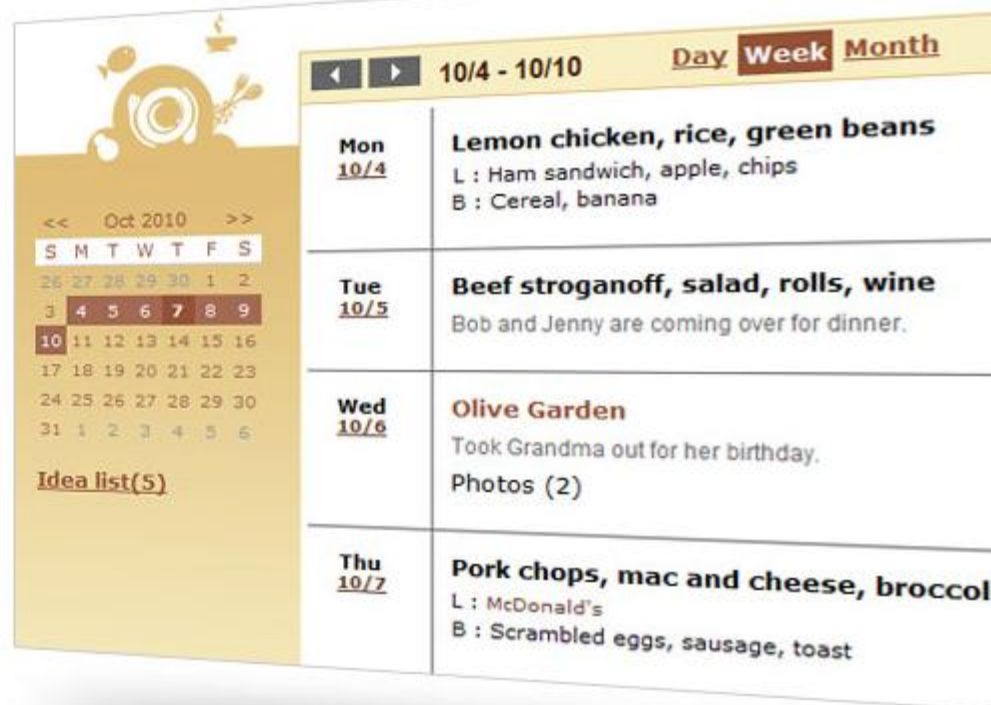
Save time and money with smart grocery lists that you can print out or view from a phone.

Chicken Carbonara

Ingredients
2 teaspoons extra virgin olive oil
6 ounces pancetta in 1/4 inch slices
3 cloves garlic, finely chopped

Organize your recipes

Save all your recipes and ideas in one place, organize them as you like and get new ideas daily.



10/4 - 10/10 [Day](#) [Week](#) [Month](#)

Mon <u>10/4</u>	Lemon chicken, rice, green beans L : Ham sandwich, apple, chips B : Cereal, banana
Tue <u>10/5</u>	Beef stroganoff, salad, rolls, wine Bob and Jenny are coming over for dinner.
Wed <u>10/6</u>	Olive Garden Took Grandma out for her birthday. Photos (2)
Thu <u>10/7</u>	Pork chops, mac and cheese, broccol L : McDonald's B : Scrambled eggs, sausage, toast

Video - [See how it works](#)

Smart phone app: Benefits



- Ontario consumers
 - Instant availability of vegetable recipes and reminder
 - Grocery shopping made easier
 - Monitoring of vegetable intake
- Vegetable growers and processors
 - Higher demand for vegetables grown and processed in Ontario
- Participating grocery retailer
 - Increased sale of vegetables in the store
 - Opportunity to grow customer loyalty (less switching)
 - Can be used as a device for managing customer relations (e.g., special deals for loyal customers)
- OMAFRA and Ontario Government
 - Increase in consumption and production of vegetables in Ontario
 - Lower health care and long-term care expenses in the long-term

Website for vegetable recipes

- Current state
 - General recipe websites are light on vegetable recipes
 - E.g., Recipe.com
 - Vegetable recipes are scattered
 - Grower association websites
 - OGVG, Mushroom Canada, etc.
 - Grocery store websites
 - Longos, Zehrs, Highland Farms, etc.
 - Foodland Ontario website
 - Others
 - Canadianparents.com; vhfqfoods.ca; etc.
 - One-way transmission of recipes is common

Website for vegetable recipes

- Collection of a wide range of vegetable-rich dishes in one place
- Weekly update to accommodate seasonality of vegetables available in Ontario
- Interactive format is a must
 - Recipes presented in video as well as text format
 - CRM-based “Recipes you’ll love”
 - Consumer reviews and ratings of recipes
 - Consumer uploading of own recipes
 - Facilitation of weekly menu planning and automatic generation of grocery list
- A transition to the smart phone app idea

KTT idea:



- How to make “eating vegetables” accessible in consumers’ mind *at the right moment?*
- How to make recipes for vegetable-rich dishes readily *available at the right moment?*

Thank you!

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