



Dietitians of Canada
Les diététistes du Canada

Advancing health through food and nutrition

Best Practice in Promoting Practice-based Evidence in Nutrition and Dietetics



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“For decision support, health personnel need access to evidence-based summaries that clearly communicate an issue from a local context, highlighting available evidence and identifying specific practice and policy implications for each evidence point.” [Dobbins, 2007]

What is *PEN*?

- Web-based, peer-reviewed, practitioner centered, decision support KTT service created and managed by Dietitians of Canada
- A robust practice portal for food, nutrition & dietetics covering over 130 topics (and growing)
- Addresses everyday dietetic practice questions, provides a synthesis & grading of the evidence, distillation of the evidence into key practice points to support decision making and links to the literature
- Integration of consumer and professional tools – the place to go to guide dietetic practice



Adapting knowledge to the local context

- Consultation with KTT experts & technology innovators for advice on best ways to convey knowledge for ease of access
- Assessed other KTT models with similar objectives
- Established an advisory or “champion” committee drawn from the scope of dietetic practice
- Partnership with a provincial dietitian call centre to establish a base of practice questions

.....more



Adapting knowledge to the local context

- Engaged DC members to expand & validate the question base
- Designed the format as knowledge pathways
- Included a synthesis of the evidence graded by level of evidence
- Opportunity to drill down for more detailed information on the evidence
- Integration of practice tools congruent with the evidence

How has PEN been evaluated as a Best Practice Tool in Knowledge Translation





PEN Evaluation Logic Model

A ***logic model*** is a systematic and visual way to share your understanding of the relationship between

- results/outcomes to be achieved– short and longer term
- indicators of success
- methods & data sources

PEN Evaluation Logic Model - Example

Outcomes	Indicators	Methods/Data Sources
Knowledge Transfer – Initial States		
Short Term •Subscribers use PEN to meet their information needs	<ul style="list-style-type: none"> •Frequency of visits •Perceived quality of content •Perceived credibility •Ease of use [speed, navigation, finding info] 	<ul style="list-style-type: none"> •Survey of PEN users/non users [quantitative] •Interviews with key informants [qualitative]
Long Term •PEN is the primary source of knowledge for E-B practice	<ul style="list-style-type: none"> •PEN is the most valid, important, E-B dietetic information source 	<ul style="list-style-type: none"> •Establish baseline of sources used and compare to future

Evaluation Tools for PEN

- Development of two research tools:
 - Web-based survey tool [quantitative]
 - Demographic and quality assurance data
 - Interview questions [qualitative]
 - Evaluate PEN as a medium for KTT and its impact on dietetic practice
- Other web-based measurements [quantitative]



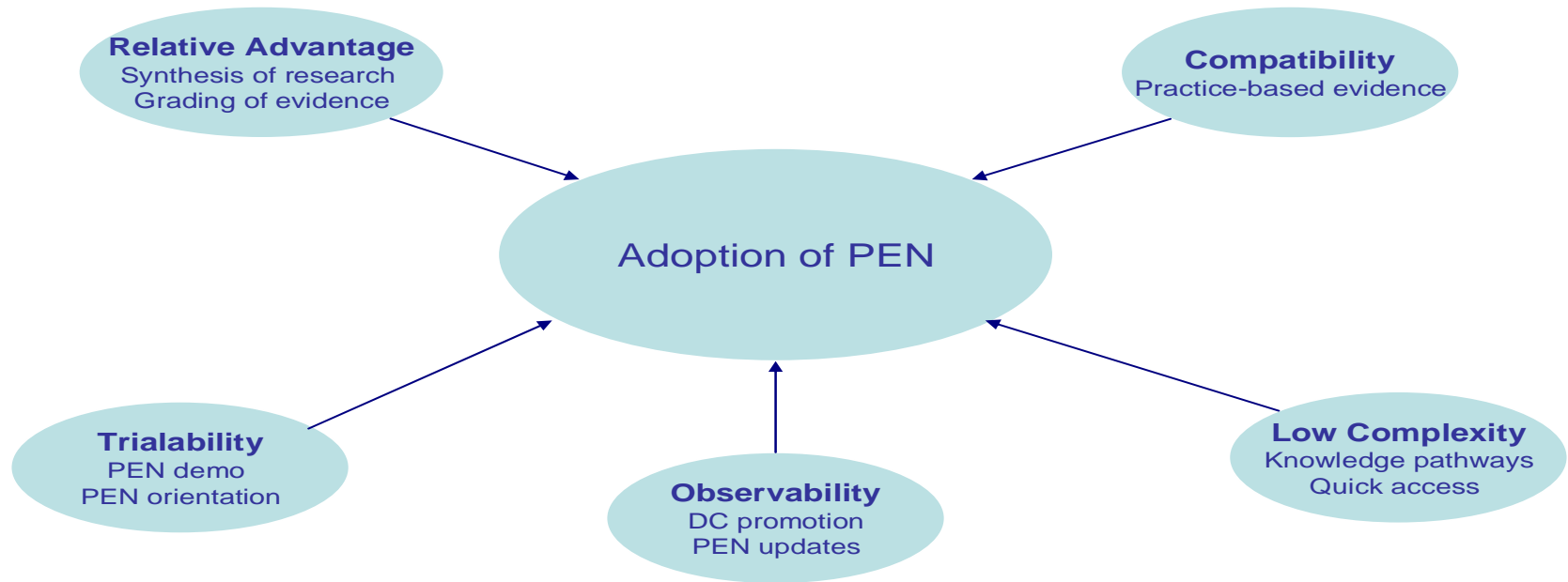
Research Theoretical Frameworks

Rogers' Diffusion of Innovations Theory – characteristics that influence rate of adoption of an innovation

The Pathman Theory of Adult Learning – the four sequential steps leading to behaviour change

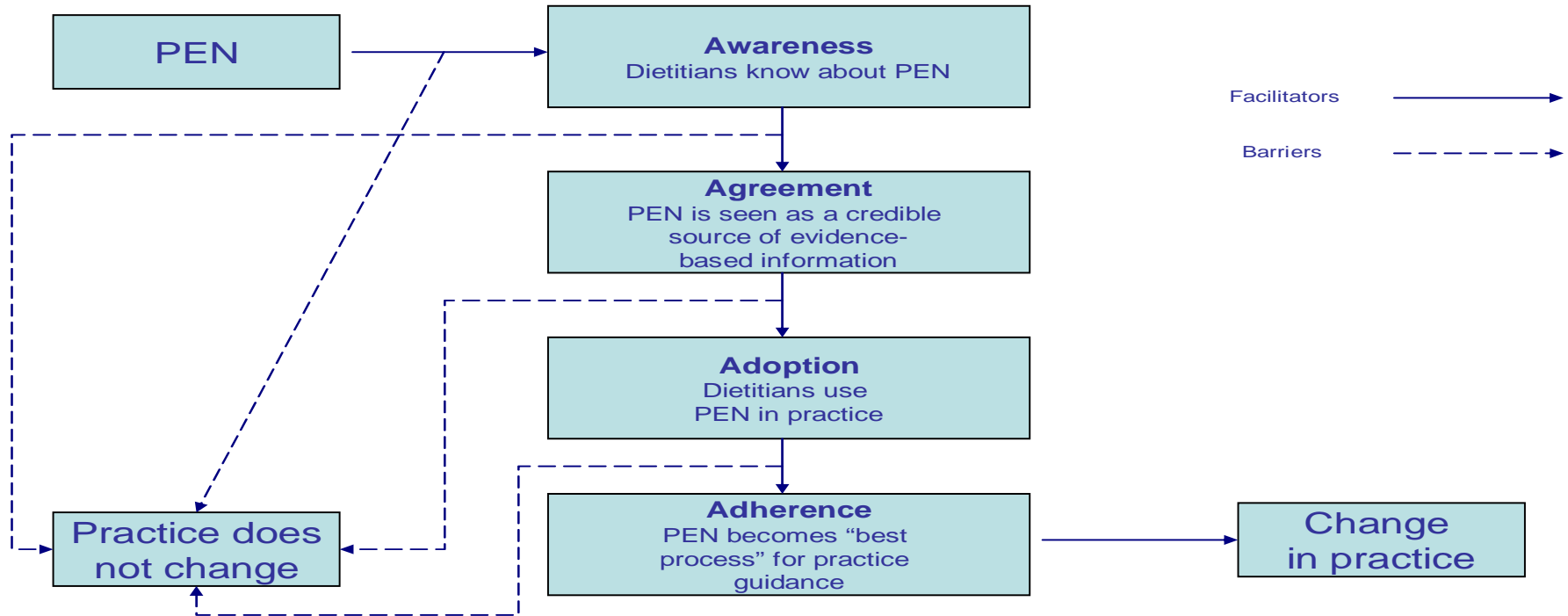
Wenger's Community of Practice Theory – learning is social & people learn in practice by doing and interacting with others

Fig. 1 - Characteristics of PEN that could positively influence its adoption by dietitians¹



¹Based upon Rogers' Diffusion of Innovations Theory in: Rogers EM. Diffusion of innovations 4th ed. New York, NY: The Free Press; 1995.

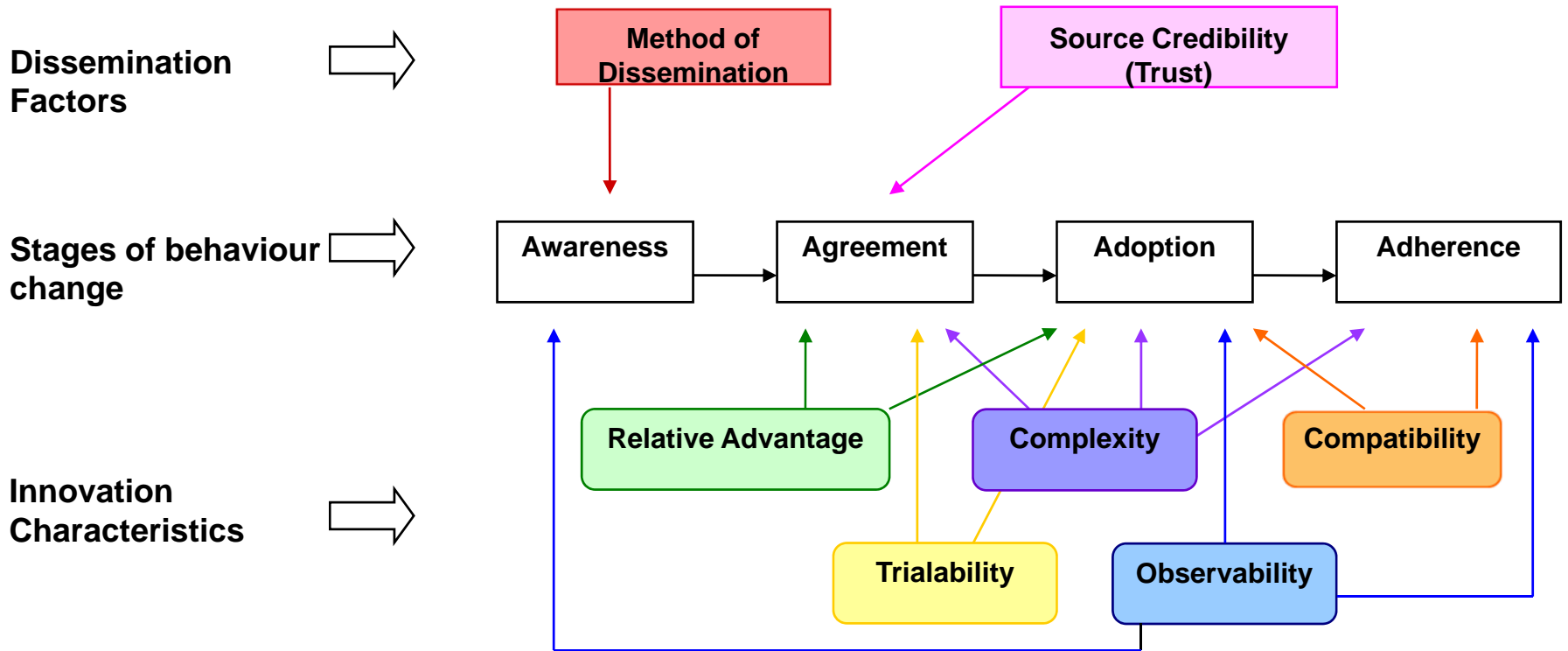
Fig. 2 – KTT and promotion of evidence-based practice¹



¹Adapted from: Freed GL, Pathman DE, Konrad TR, Freeman VA, Clark SJ. Adopting immunization recommendations: A new dissemination model. *Matern Child Health J.* 1998; 2(4):233.



Figure 3 – Combined Model of Awareness-to-Adherence & Diffusion Theory



Adapted from Freed et al. (1998)



Communities of Practice

Three fundamental elements:

- Domain – area of knowledge that brings the community together
- Community – the group of people for whom the domain is relevant
- Practice – the body of knowledge, methods, tools, stories, cases, documents which members share and develop together

An assumption is that PEN is fostering a community of practice that will contribute to and sustain PEN content and fill gaps in knowledge through research



Methods for the Development of Evaluation Instruments

Two expert panels selected by purposive sampling:

- Face & content validation panel for the web-based survey tool
- Delphi panel for interview questions for more in-depth understanding of *PEN* as a KTT tool



Development & Validation of Web-based Survey Tool

- 10 participants - all DC members with detailed knowledge of PEN
- Researcher drafted the survey tool based on
 - Theoretical frameworks
 - Literature review
 - PEN evaluation framework
- “Experts” face & content validated the survey questions (email)
- Pilot tested on random sample of 25 DC members & adjustments made based on responses



Web-based Survey Application

- Participants recruited via an emailed invitation explaining the purpose of the survey, who was involved and ethical considerations
- All PEN subscribers [n=1291] and a random sample of non subscribers [n=1202] were contacted
- Informed consent was presumed to be given by participants when they clicked on the link to the electronic survey and completed the survey



Respondent Profile – Web-based Survey

Response Rate

- 532 [25.2%] - 75% subscribers
- 76% dietitians; 5% nurses; 19% other [KT specialist; professors; food service managers; students]

Age

- 55% between 25-44 years; 42% between 45-64 years

Highest Educational Level

- 70% BSc; 24% MSc; 3% PhD or working towards

Rating of Computer Skills

- 95% rated themselves as intermediate or advanced



Respondent Profile [continued]

Employment Status

- 65% FT; 29% PT; 2% occasional; 1% retired;
2% students

Employment Settings

- 46% clinical practice; 21% public health/community; 8% private practice; 5% administration

Years in Practice

- 61% >10 years
- 16% 5-10 years
- 23% 2-5 years or less

Results

Reach

- Push strategies
- Pull strategies
- Referral

Usefulness

- User satisfaction
- Service quality

Application/Uptake

Collaboration & Capacity Building



Reach

Primary Distribution [Push]

Multi-faceted Communication Channels

- email broadcasts to DC members & Networks
- demonstrations & presentations at national & regional events
- presentations to university students/dietetic interns
- teleconferenced orientations
- electronic newsletter articles [Members in Action]
- standardized communications to administrators and students
- individual students mentored to prepare PEN content + engagement through university courses
- invited articles in national evidence-based newsletters



Reach [continued]

Primary Distribution [Push]

Subscribers

- 07/08 - 25% increase over the past year in individual licenses; 46% increase in group licenses & 6% increase in site licenses

Volunteer authors/reviewers

- 346 engaged



Reach [continued]

Secondary Distribution [Pull]

- increase in visitors to PEN website from launch to present: 29,475 to 65,349 per month
- interactivity of the site: submit a practice question: 433 questions have been submitted
- orientations have reached 1057 participants [49% of respondents in evaluation had participated in an orientation]
- PEN online animated demonstration

Reach [continued]

Referral

- 78% of respondents have recommend PEN to colleagues
- 60% share tools/resources with clients/colleagues
- 16 workshops/conference demos where attendees can try out PEN
- 10/16 accredited University/College libraries recommend PEN be used by students & provide access



Usefulness – User Satisfaction

Rating of Format

- 80% respondents agree that the PEN site is designed to make it easy to find information
- 87% indicate that search results are well organized
- 80% rate PEN as excellent or very good as a practice guidance tool



User Satisfaction [Continued]

Rating of PEN content

- 74% strongly agree or agree that they usually receive satisfactory answers to practice questions

Reporting knowledge gained

- 77% strongly agree or agree that knowledge pathways provide sufficient detail

Reporting that PEN has changed their practice

- 89% strongly agree or agree that PEN is a valuable tool for their practice
- 82% strongly agree or agree that PEN has positively changed the way they work
- 88% strongly agree or agree that PEN enables them to take an evidence based approach to their practice

User Satisfaction [continued]

Product or Service Quality Assessment

- 80% indicate PEN's format is designed to make it easy to find what you're looking for
- 79% seldom or never encounter printing problems
- Success of search results:
 - By Key Words – 44% Always; 52% Sometimes
 - By Table of Contents - 60% Always; 39% Sometimes



User Satisfaction [continued]

Barriers to use [cited by nonsubscribers N-136]

- Cost 30%
- Limited content 30%
- Want employer to subscribe 27%
- Don't perceive that PEN will support their practice 13%
- Retired 7%
- Not familiar with PEN 7%
- No internet/computer access at work 2%



Application/Uptake

How is PEN used

- 79% for answering practice questions
- 66% for answering client/colleague questions
- 68% to find teaching materials for clients/colleagues
- 71% for professional development
- 54% for preparing presentations, developing new resources, defining policy
- 8% for curriculum development
- 10% for mentoring students



Application/Uptake [continued]

How often PEN is used

- 93% are very likely or somewhat likely to consult PEN when faced with a practice question
- 35% use PEN at least once per week
- 35% use PEN at least once per month
- 26% use PEN <once per month



Application Uptake

Increased pride in the quality of PEN

- 94% strongly agree/agree that the information in PEN is typically up to date
- 94% strongly agree/agree that they are confident in the quality of the information PEN provides

Increase % of practice that is based on PEN

- 93% are very likely or likely to use PEN when faced with a practice question



Collaboration & Capacity Building

Collaboration

- 20 partnerships/collaborators involved in the development/funding of PEN
- PEN has been integrated into the academic curriculum in 9 university/internship programs
- Provincial call centres using PEN as their foundational database for evidence-based answers to consumer calls

Capacity Building

- EB Tutorial continues to be a popular means of enhancing critical appraisal skills of dietitians & preparing reviewers to contribute to PEN
- Utilization of gaps in PEN evidence to identify research questions

Qualitative Component of Evaluation Methods

Delphi Process

- Structured process for achieving consensus
- Two or more rounds of questionnaires with feedback between rounds
- Economical and efficient means of gathering opinions from experts who are geographically dispersed



Results

- 19 DC members participated in tape recorded interviews conducted by telephone
- Detailed notes prepared from the taped interviews for analysis
- Participants from all areas of Canada
- Broad scope of dietetic practice areas were represented
- Respondents in practice for > 10 years
- Use of PEN ranged from either several times a day, to monthly



Lessons Learned

Evaluation results indicate that PEN is a success and provides a best practices model for KTT

- Practitioner centred, based on actual dilemmas arising from practice
- Orientations make a difference to how users perceive PEN and improve their success in using it
- Engagement of the profession in planning, developing, implementing & promoting PEN
- Format designed to appeal to different information needs and situations – packaged in multiple ways
- Regular communication to users about new features, growing content



Lessons Learned

- PEN users are still in transition from using traditional resources [text books & manuals] to an online data base
- The majority of users take advantage of PEN for professional development as well as answering practice questions
- Integration of evidence-based client tools and professional resources is a valued feature
- We have enough information in PEN to begin using it to identify gaps in research
- Need multiple strategies to grow content to meet subscribers expectations regarding timely access to current content
- Important to build capacity of dietitians in critical appraisal skills and adoption of evidence-based practices



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Questions??



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