



Learning Concepts in Workforce Development of Public Health Professionals: A Literature Review

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Key Take Home Messages

- Rogers Innovation and Diffusion Theory best describes the process for behavioural professional practice change
- Public health evidence is lacking on the effects of educational interventions for workforce development, however several medical research interventions are applicable
- Consideration of Adult Learning principles, such as ensuring continuous professional development meetings are structured with didactic and interactive components, is essential
- Utilize printed resource materials as key reference messages for public health staff experiencing practice change
- Ensure external educational specialists are available as key resource person(s) in supporting staff for practice change
- Ensure there is a supportive learning environment with adequate time and support for public health staff undergoing a practice change, as change is a process and not an end result.

Executive Summary

Overview of research question posed:

The issue examined is whether literature suggests a theoretical model or approach that Peel Public Health can use to direct the style and method of professional development.

Context:

The question stems from the need to evaluate current Evidence Informed Decision Making training for Peel Public Health staff. A literature search was used to determine a theoretical base on which to devise a comprehensive evaluation plan. As well, policy and practice may benefit from key literature results, as future educational workshops may be structured uniformly in all divisions, and all staff will be consistently supported in continuing professional development and practice change.

Methods:

The first approach to the search strategy consisted of searching OVID MEDLINE, psychINFO and EMBASE for a variety of terms within the question. This yielded an extremely high number of results. Meeting with Peel Public Health's library consultant provided direction to narrowing search results to the Cochrane Library of Effective Practice and Organisation of Care (EPOC) Review register. Further, consultation with University of Toronto's Ontario Institute of Education department further narrowed down the search to commonly used adult learning theories for professional development. The literature selected for critical appraisal included three systematic reviews from the Cochrane EPOC register, one randomized control trial, and three qualitative studies.

Synthesis of Key Findings:

Key findings suggest that elements of adult learning principles can assist individual learning, including a combination of didactic and interactive educational initiatives as being the most effective method in initiating practice change for health care professionals. In combination with this strategy, providing printed educational materials is a beneficial reference tool to assist in skill development. Also, an internal or external expert can support health care professionals who require more assistance. Moreover, the literature findings suggest evidence based practice is a complex skill and process, requires support from the organization, and acceptance from health care professionals undergoing the practice change. Rogers Theory of Innovation and Diffusion provides a useful theoretical foundation for health care professional behaviour change that includes adaptation of new material, buy-in for the practice change, and subsequent support for skill development.

Conclusion:

The key findings provide direction for the current EIDM training evaluation plan, as well as suggest future program and policy development on how professional development for public health staff should be structured to initiate an sustain practice change.

Issue:

The question is whether literature supports a particular theoretical model or approach that should be used when formulating training programs for workforce development. The issue arises as we develop an evaluation plan for the current EIDM training for Peel Public Health staff. The evaluation plan is to determine the effectiveness of current training modules in facilitating a

practice change to evidence informed decision-making. Additionally, we seek to determine which other, if any, educational initiatives should be included in the current EIDM training plan.

Context:

Peel Public Health has provided EIDM training for staff for the last several years in partnership with McMaster University. Bev Bryant, Manager of Education and Research and the workforce development lead, was concerned with the flow of EIDM training activities. The training is offered in an opportunistic and ad hoc method as there is no overarching strategy or framework setting current EIDM training activities. If a framework was used to structure workforce development, why shouldn't EIDM training be included? The issue provided the perfect opportunity for a Master of Nursing (MN) student project to uncover a conceptual theory to structure EIDM training. In addition, the MN student practice objective is to evaluate the current EIDM training process at Peel Public Health and develop an evaluation plan to determine if the current EIDM training is effective in professional practice development. Identification of a theoretical model will assist in the direction of the evaluation plan; as well provide a foundation to determine if current training methods promote professional practice change. As well, conducting a literature review will demonstrate the use of evidence informed decision-making in itself.

Uncovering a theoretical model that can be used in effective workforce capacity enhancement can influence future policy development at Peel Public Health. Historically, educational workshops with a practice change focus have been conducted in large didactic sessions. Some workshops had opportunity for small group activity, but if the educational session was limited to

half a day, then a lecture format was likely the delivery mode. Also at issue is the fact each Division employs their own educational strategy for knowledge transfer. This depends on the weight of the practice change, time allotment and budget availability. A full day educational workshop may have been devised, or simply included in the Divisional Meeting agenda. Therefore, the use of a theoretical model may assist in formulating policy at Peel Public Health that future educational workshops targeting practice change are conducted in the same mode as evidence suggests.

It is unclear how extensive past evaluations of educational workshops revealed the recipients' ability to apply this new knowledge into practice. Past evaluations may have focused on the quality of the delivery, and not the knowledge translation. At times, the new information was passed along at a Divisional Meeting, and minimal feedback on the knowledge transfer can be obtained from this process. Moreover, most evaluations are structured to ask whether learners found the information helpful, what they liked and disliked about the educational session. Often there is no subsequent assessment for measurable changes in clinical practice.

In summary, Peel Public Health's current learning methodology geared at practice change and knowledge transfer is not evidenced based. This mishmash of teaching styles is likely unsupportive of new skill development and long term outcomes are not evaluated. The search for evidence will help us understand what theoretical approach is most appropriate for Peel Public Health workforce development, assist in formulation of an evaluation plan for current EIDM training modules and support future policy development to optimize the learning culture for Peel Public Health.

1 Literature Review

Clinical Problem Question:

What theoretical/ conceptual model of learning would be most helpful in understanding and designing workforce capacity development initiatives for public health professionals? A conceptual learning model was created to assist in the problem formulation. (Appendix A)

P- Public health professionals/ staff

I-Theoretical learning models/concepts

C-No comparison group

O-Workforce capacity development

1.1 Search Strategy:

The search strategy was a challenging process, as the PICO question yielded too many results. Search terms were modified from the original question to narrow results. (Appendix B) Search terms included public health staff, public health professionals; learning theories, learning models, learning strategies, continuing education and staff development, staff capacity building, capability and skill development. Ovid MEDLINE, PsychINFO and EMBASE were used to facilitate the search. (Appendix B) The inclusion criteria entailed English only literature, health care professionals, workforce/staff development, establishment of a learning theory or concept and limited to quantitative, qualitative studies or systematic reviews as part of the hierarchy of evidence model. Exclusion criteria eliminated student populations and grey literature such as written reports, descriptive articles or commentaries on workforce development. Meeting with

the Peel Public Health librarian consultant ensured the search strategy was thorough and all avenues were explored. A suggestion was made to search the Cochrane Register of Systematic Reviews, specifically the Effective Practice of Organizational and Care (EPOC) register for obtaining the best evidence for my PICO question as the search yielded too many results. In the end, a total of seven studies were critically appraised, three are systematic reviews from the EPOC register, one randomized control trial (RCT) and a qualitative study generated from the RCT, and the final two consisted of qualitative studies found in the original search strategy from MEDLINE.

1.2 Critical Appraisal and Synthesis of Findings:

The Critical Appraisal Skills Program (CASP) tool was used to appraise each of the studies and synthesized into a data extraction table. (Appendix C)

The first systematic review appraised by Forsetlund et al. (2009) Continuing education meetings and workshops: effects on professional practice and health care reforms from *Effective Practice and Organizational Care (EPOC) Register* from the *Cochrane Register of Systematic Reviews*.

The review provided an assessment on the effects of educational meetings on professional practice and health care outcomes. The population studied was broadly defined as health care professionals, both in acute care and community practice settings. The inclusion criteria consisted of RCTs previously used in an EPOC review dated 2003, as well as any additional RCTs not registered searched in Scopus and EMBASE databases. The intervention was defined as either didactic or interactive style of educational meetings. The quality of the review was assessed by two authors and categorized by the type of educational meetings, as well by

intensity, population size and frequency. The results concluded a median risk difference of 6% of educational meetings influencing professional practice. They found health care professionals attending a combination of didactic and interactive educational format as the most effective in influencing professional practice. The authors noted the results were not statistically significant, particularly the effect on professional practice in the comparison of interactive versus didactic meetings. However, multi-faceted educational meetings, such as didactic and interactive format versus didactic alone resulted in a power ratio of 0.90. As well, they noted large educational meetings have true positive effects on professional practice and rarely have negative effects. The authors caution these improvements cannot change complex behaviours effectively without other forms of intervention. No firm conclusions were made as to what structure of educational meeting are most effective, nor how organizations should design their educational meetings to address specific clinical problems.

The second systematic review by O'Brien, M. A. et al. (2008) Educational outreach visits: effects on professional practice and health care reform is also from the *EPOC Register of Systematic Reviews* from the *Cochrane library*. The question posed in this review is to assess the effects of Educational Outreach Visits (EOV) on professional practice and health care outcomes. The authors describe EOV as trained individuals that attend the health care professional's practice setting to provide information and support to assist in the professional practice changes. The population studied are unspecified health care professionals from a variety of sites including acute care hospitals and community settings. RCTs from the EPOC register are in the inclusion criteria, as well as a search strategy from the databases MEDLINE, CINAHL and EMBASE to include any RCTs that may have been missed by the EPOC register. Two reviewers were used to

assess for bias, and each of the studies assessed were given a high, low or moderate bias rating. 69 studies were included and measured whether EOV and an educational intervention versus EOV alone made any improvements on the health care professional's practice. The authors discuss the median risk difference of 8.8% of improvement in the professional practice with EOV intervention versus without. They particularly discovered that if the EOV is part of a continuous outcome, meaning the EOV intervention is over a period of time, the improvement in skill development can be high as 20 percent as compared to groups involved in an EOV with a dichotomous outcome. Further, the reviewers were unable to calculate a confidence interval and the power level is not statistically significant. The population studied in this review is primarily physicians and their prescribing practices, but the authors suggest that there can be applicability in the small effect an EOV can have on professional practice. No recommendations are provided on the type of professional used in EOV that may provide the maximum benefit for the health care professional, and what the cost benefits of using an EOV to change professional practice. The authors do suggest however, the use of an EOV may assist in diffusing barriers and provide support to professional practice change.

The final systematic review critically appraised is by Farmer et al. (2009) on Printed educational materials: effect on professional practice and health care outcomes in *EPOC Register of Systematic Reviews*. The review explored the effects of Printed Educational Materials (PEM) in improving professional outcomes and the effect of the PEM characteristics, which influence professional practice. Printed Educational Materials were identified as bulletin or newsletters geared to health care professionals, articles published in high impact journals or disseminated information from clinical practice guidelines. PEMs used in conjunction with multi-faceted

educational interventions were compared to the use of PEMs alone. RCTs from the EPOC register dated July 2006 were used in the review, as well as a search on MEDLINE, EMBASE, CINAHL and CAB health databases for missed RCTs in the registry. Five reviewers assessed for bias and a scoring system was developed outlining PEM characteristics and complexity of the targeted behaviour. The population reviewed were almost all family practice physicians or community practices led by physicians. The authors were unable to determine a confidence interval, and results yielded no measures of statistical significance. However, the results suggest PEM made a small effect on practice and should be considered as a form of education intervention for health care professionals. Further, recommendations suggest that PEM use, with its low cost and ability to reach a wide audience makes it a worthwhile intervention despite little statistical significance. Further, PEM distributed to a large number of health care professionals can disseminate knowledge awareness, and a favourable attitude to the PEM that may improve professional practice. Moreover, features of the PEM should be considered including its source, credibility and the channel delivered. There was no evidence from the systematic review on the use of PEMs in improving patient outcomes, or how to optimize the use of PEMs to improve professional practice. The limitations consisted of data based on hand delivered printed material distributed to health care professionals only, email and electronic distribution and other than printed sources were excluded in this review.

The randomized control trial study critically that was appraised was by the same author from the first systematic review, Forsetlund et al. (2003), titled Randomized control trial of a theoretically grounded tailored intervention to diffuse evidence based public health practice, in *BMC Medical Education*. The population studied was a group of public health physicians in Norway, and their

use of evidence based research in their decision-making. The study used Rogers theory of Innovation and Diffusion to frame the study's objective, whether increased evidence based practice training can influence practice change. The population details were unclear. The study did not indicate whether these physicians were publicly funded, or if they practiced as general practitioners. The power calculation generated at 80 percent and a required sample of 62 per intervention and control group. The sample was randomized blindly by a computer generated program based on respondents to an invitation letter to participate in the study with the offer of free library services for one year if the participants agreed to attend a workshop on critical appraisal of research and a search strategy orientation led by a librarian. The intervention group began with a total of 73 participants and the control consisted of 75. Data collected was based on data from participation in an online discussion group, a survey mailed to each of the study participants, completion of a hypothetical assignment and a self reported journal based on search strategy and critical appraisal results. The study resulted in small groups due to high attrition rates; only 49 of the intervention group and 53 of the control were used in their data analysis. They were unable to show a statistical significance of evidence use in their decision-making, as the data was unable to yield any changes in professional practice. As well, the authors analyzed the participants' self-reported searches made in Cochrane and MEDLINE databases and found the number of searches may have been overestimated. The self reported analysis did show statistical significance in the intervention group as to their use of Cochrane database. The study participants were accessing Cochrane database more frequently than the MEDLINE database. The authors concluded the study failed to support any significance in practice change of evidence used in clinical decision-making. As well, the study results offered no firm conclusions as it failed to yield any changes in evidence based clinical decision-making.

The first qualitative study appraised was a response by the previous RCT study's author, Forsetlund et al. (2003), "Many a slip between cup and lip: process evaluation of a program to promote and support evidence based public health practice" in *Evaluation Review*, to analyze the RCT's failure to show any practice change for evidence based practice despite the extensive interventions provided. Data from semi-structured interviews were collected utilizing Rogers's theory of Innovation and Dissemination as the foundation for question formulation. A medical student not involved in the original RCT study interviewed a total of 40 sample participants to eliminate bias. The sample was purposely selected based on the participation in the online discussion, those who participated in the evidence based practice workshops and their participation of self reported journals and surveys in the original RCT were included. Coded data was classified by two reviewers, the authors of the qualitative study, and the interview data was categorized in contrast to Rogers's theoretical elements. Negative cases, those outside the norm, were also coded and classified. Interviewing ceased when data was saturated.

The data analysis was not rigorous and was not included in the study's discussion. The end result suggests not all public physicians will be skilled at searching and appraising evidence. The findings articulate that the physicians did not have the time to do the extensive search and critical appraisal despite the free use of the library, and that not all physicians had access to the Internet. The recommendations suggest a system should be developed to ensure consistent access to research, perhaps someone of a specialist capacity to assist with the search and appraisal of evidence, and then the public health physicians would have the capacity to implement the evidence into clinical decision making.

The second qualitative study appraised by Baker, E.A. et al. (2009) “Examining the role of training in evidence-based public health: a qualitative study” in *Health Promotion Practice*. The study’s inquiry was to identify the effectiveness of a public health course held in Missouri on public health professionals of incorporating evidence-based practice. This narrative analysis included open-ended evaluations pre and posttest of the 3 day course. The authors mailed 246 survey participants who attended the evidence based public health course from 2001 to 2004. 107 responded and 20 percent were selected to be interviewed. This was a purposeful selection as the survey respondents agreed to participation in an interview if contacted. The telephone interviews consisted of open-ended questions on their comprehension of evidence-based public health, the facilitators and the barriers for use the course material into their practice. Two authors reviewed data, as well as two additional authors were identified as the auditors of the data coding and classification. The findings suggest the course provided participants a fundamental base for use of evidence in their clinical decision-making, especially when making program and policy recommendations. The study results offer suggestions; including learning styles may vary for diverse cultural groups and should be considered in the design, considering multiple and complementary modes of knowledge delivery and providing regular training opportunities to maximize practice change.

The final qualitative study appraised was by Ward, C. & McCormick, B. (2000), “Creating an adult learning culture through practice development in *Nurse Education Today*. This action participation research study includes an undefined population of nurse managers and project specialists in an acute care hospital setting. The aim of the study was to develop a learning

strategy and cultural learning environment for staff nurses as a support for professional and organizational development. The inquiry was fuelled by a nursing practice audit based on the Quality of Patient Care Scale, as well as complaints of poor nursing care. Action research was used in this study to interact within an existing system to gain insight and facilitate changes in nursing practice. The study examines how the application of adult learning concepts were used to establish the most appropriate method of ensuring personal learning and favourable organizational outcomes. The recruitment strategy consisted of garnering participation from the unit managers to develop a learning culture based on three selected learning models; Knowles Adult Learning Theory, Jarvis' Behavioural, Cognitive, Humanistic and Social Aspects of Learning, and Rogers Experiential Learning. Personal journals, field notes and interviews collected by the author were used to determine the evidence of the learning culture environment. The data analysis was not described clearly other than the planned evaluation strategy. The evaluation plan was focused into two themes; improvement in patient care and a shift towards an organizational learning culture. The evaluation plan involved patient care audits and the anticipation of improved patient care. The authors suggest the evaluation of learning behaviour is difficult to gauge. The evaluation plan outlined learning development outcomes for nursing staff by encouraging use of problem solving in clinical practice with evidence and improvements in patient care standards. No actual results of improved patient care data was discussed, however, there was evidence of a cultural shift to a more supportive learning environment. The project leaders were utilized as guides in the literature review process and in data interpretation by managers. The results considered the importance of an organizational shift to a learning environment to improve clinical practice outcomes.

2 Adaptation and Transferability

The applicability and feasibility of this literature review report using the National Collaborating Centre for Methods and Tools (NCCMT) “Assessment of Applicability and Transferability” (Buffet, Ciliska and Thomas). Little literature is available to determine the most effective method for maximizing the complex behavioural and practice changes in public health professionals’ practice; however, some of the evidence points to incorporating multi-faceted educational meetings, which include didactic and interactive components complemented with printed educational materials and other sources of support to assist with the behavioural practice changes. Adult learning principles, use of didactic and interactive designs in educational workshops, providing reference notes to learners and the support from a practice specialist will enhance public health workforce development. The current EIDM training supports these interventions, as current training structure is similar to literature results.

The evidence will likely be widely accepted by Peel Public Health staff as the suggested training format can appeal to a variety of learning styles and support the practice change process. Particularly, Rogers’ Diffusion and Innovation Theory act as a guide to help in the practice change process to comprehend the barriers and facilitators of change. According to Forsetlund et al. (2003) the first stage of Rogers’ Theory involves the individual gaining knowledge of the innovation and then forms an opinion about it. If the individual feels that they can conform to the innovation, they accept it and adopt the interventions. Moreover, use of a change agent is essential to support individuals with the innovation and/or decision making. Communication is a

vital component of how the innovation is dispersed, how many people are involved in the decision making process, and the effectiveness of the change agent.

As well, divisions would welcome a training standard to take out the guesswork on how to introduce a new practice concept to the public health staff. Currently, EIDM training utilizes key elements identified in the literature for practice change including the multifaceted educational interventions, mix of didactic and interactional workshops, providing reference material for learners and the use of external educational specialists. Any new sessions developed should continue to build on these principles. Lastly, these findings can provide an opportunity for the Manager of Education and Research to formulate a training standard for Peel Public Health.

Resources, including cost and in kind staff resources can be calculated for training initiatives. This will allow divisions to predict the cost of educational workshops. As well, a training template can account for hidden costs, such as the need for an educational consultant or knowledge broker to support staff with the practice change. As a result, fiscal accountability is created with a training standard. Current EIDM training at Peel Public Health is done in collaboration with certain staff at McMaster University. The upcoming work on the PHSI grant with Maureen Dobbins and EXTRA fellowship recently awarded to Bev Bryant will further build upon this work.

Organizational expertise is building as we continue to implement EIDM training. The EIDM training is still in its early stages and the excitement is building. A small cohort of public health professionals has had experience in this training process, and more are identified to participate in

the upcoming months. Those who have gone through the training process and those who were part of the development in the EIDM tools can act as leaders and cheerleaders for this groundbreaking initiative.

2.1 Recommendations:

Despite the lack of strong literature, the results described in this review have the same consensus. Combinations of didactic and interactive workshops best develop the necessary knowledge and skills. Providing the learning participants with printed educational materials as a reference tool and providing support by an educational specialist or subject matter expert will facilitate the practice change and direction for EIDM. Preliminary evaluation findings suggest the McMaster Critical Appraisal course, the Qualitative Critical Appraisal workshop and health.evidence.ca support skill development for the EIDM process. Also an evaluation plan will be developed to further assess the current EIDM training strategy and determine long term effectiveness on practice change outcomes.

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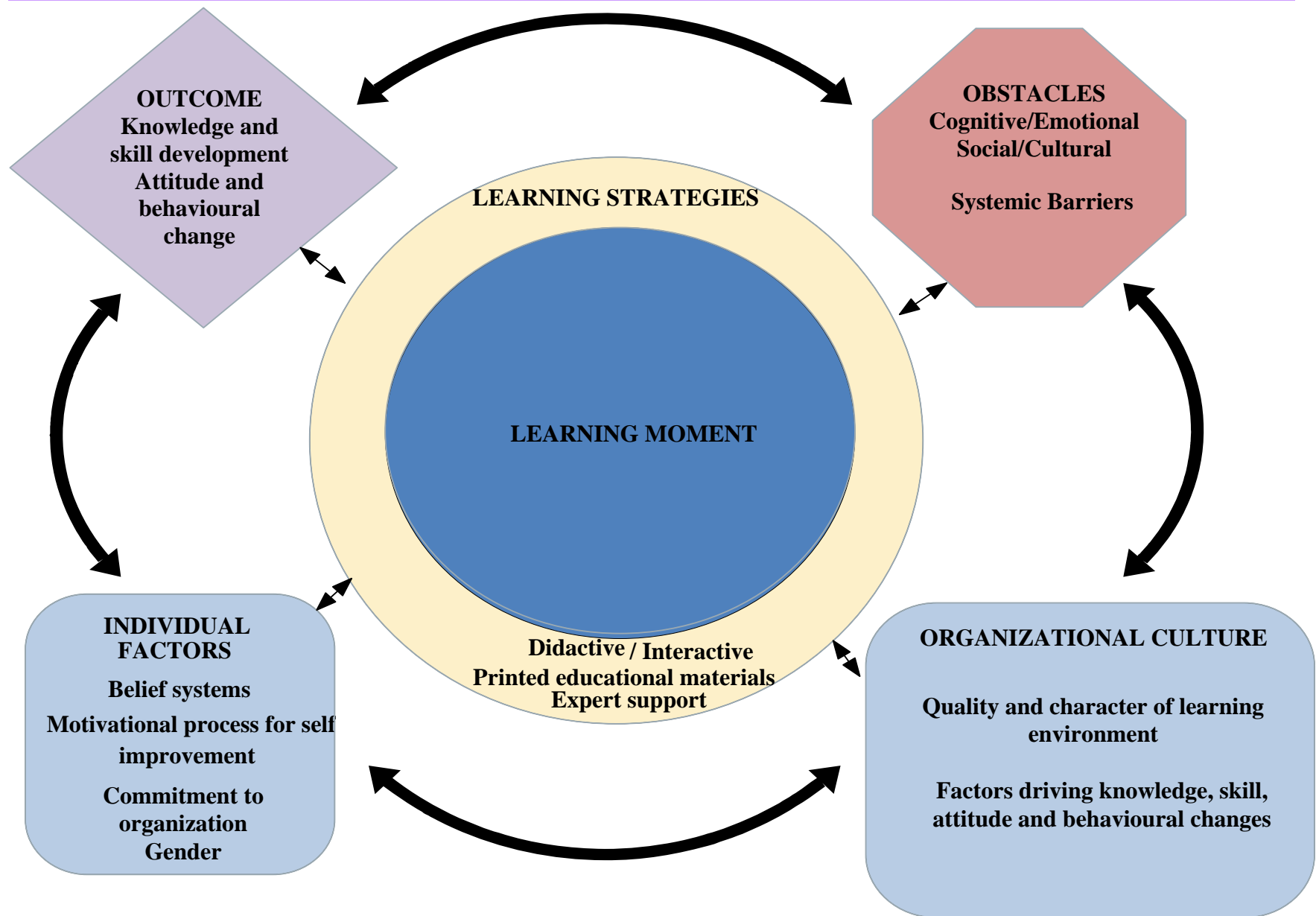
Appendices

Appendix A: Conceptual Model

Appendix B: Literature Search Flowcharts

Appendix C: Data Extraction Table for Systematic Reviews

Appendix D: Applicability and Transferability Worksheet

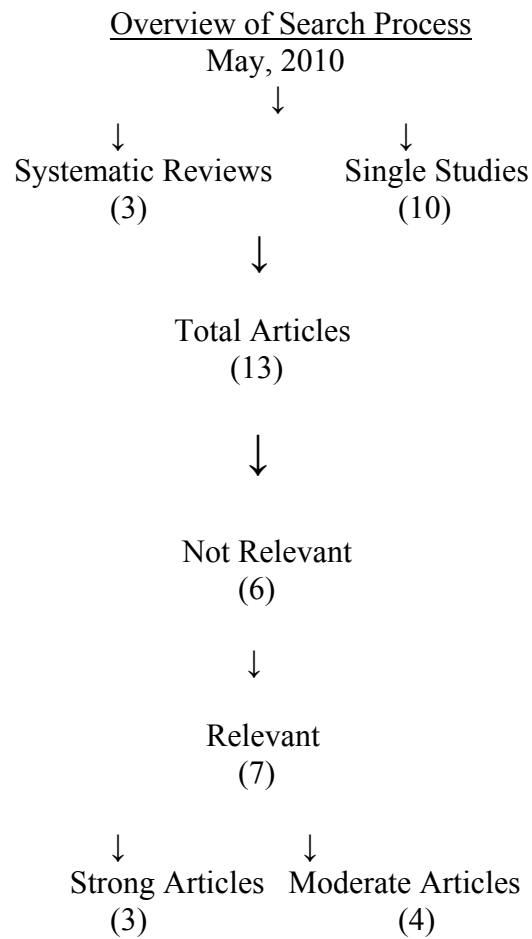


Appendix B

Search Strategy

1. learning style.mp. [mp=ti, ot, ab, nm, hw, ui, sh, tn, dm, mf, tc, id] (2711)
2. public health professionals.mp. [mp=ti, ot, ab, nm, hw, ui, sh, tn, dm, mf, tc, id] (1472)
3. staff development.mp. [mp=ti, ot, ab, nm, hw, ui, sh, tn, dm, mf, tc, id] (7751)
4. 1 and 2 (0)
5. 3 and 4 (0)
6. workforce development.mp. [mp=ti, ot, ab, nm, hw, ui, sh, tn, dm, mf, tc, id] (491)
7. 1 and 6 (1)
8. adult learning principles.mp. [mp=ti, ot, ab, nm, hw, ui, sh, tn, dm, mf, tc, id] (206)
9. 2 and 8 (0)
10. 3 and 8 (10)
11. 2 and 10 (0)
12. 2 and 6 and 8 (0)

Appendix B



Appendix C: Data Extraction Table for Systematic Reviews

<u>General Info/ Quality Rating for Review</u>	<u>Details of Each Review</u>	<u>Details of Interventions Included in Review</u>	<u>Outcome Measurements in Review</u>	<u>Results of Review</u>
<p>1. Forsetlund et al. (2009)</p> <p>US</p> <p>Systematic Review</p> <p>Population: HCP</p>	<p>Reviewed 81 RCT studies</p> <p>multifaceted educational interventions vs. educational meetings alone</p> <p>1999-2006</p> <p>EPOC registry</p> <p>Searches in Scopus and EMBASE for missed RCT studies</p> <p>Previous review, and new RCTs used in this review</p>	<p>Majority are physician based in general practice; some RCT populations community based but unclear who was involved</p> <p>Interactive educational meetings increased effectiveness of training more than didactic. Large educational meetings have positive effects on learning, rarely negative impacts.</p>	<p>Didactic sessions found to have little impact on practice, but interactive educational meetings in conjunction with didactic components improve clinical practice</p>	<p>Little info on how to design effective continuing education meetings for specific clinical problems</p> <p>Continuing educational meetings can improve clinical professional practice, but cannot change complex behaviours effectively</p>
<p>2. O'Brien et al (2008)</p> <p>US</p> <p>Systematic Review</p> <p>Population: HCP</p>	<p>Reviewed 69 RCT studies</p> <p>The effects of Education Outcome visits (EOV) on professional practice vs. other educational interventions. (EOV are trained individuals who arrive to assist participants in their practice settings to help with the behavioural practice changes)</p> <p>Registered with EPOC in March 2007, test searches</p>	<p>Majority are physician based, some studies include HCP in community settings.</p> <p>The use of EOV particularly in continuous outcome interventions can be as high as 20 % increase in the behaviour practice change</p>	<p>Use of EOV can assist in skill development and unblock potential barriers of practice.</p> <p>Provide a source of support to those learning a new skill</p>	<p>Number of visits required to determine effect on skill development is unclear.</p> <p>Type of EOV should be considered (i.e. Academic/ Research Specialist)</p> <p>No studies determine the effectiveness past one year of use.</p> <p>RCT studies utilized in systematic review are based on the physicians' prescribing behaviour.</p>

	MEDLINE EMBASE for studies not included in the register			
3. Farmer et al. (2009) US Systematic Review Population: HCP	Reviewed 23 RCT studies To determine the effect of Printed Educational Materials (PEM) in improving practice and to explore whether the effect on the PEM's characteristics can influence professional practice. July 2006 EPOC register, MEDLINE, EMBASE, CINAHL, CAB health databases were searched for additional RCTs not registered with EPOC.	Majority are physician based, general practice/community type units are unspecified. Characteristics of PEM included newsletters/bulletins, articles published in journals, dissemination of findings from BPG.	PEM has small effect on practice; they are worthwhile because of the relatively low cost and wide distribution ability to practitioners.	If the goal is to disseminate info to large group of HCP, PEMs will improve professional practice, but marginally Printed sources were only considered for the review, online/email type were not included in this review.
4. Baker et al. (2009) US Qualitative Evaluation Population: Public Health professionals	Qualitative inquiry, based on a narrative analysis of PH professionals attending an Evidence Based Public Health course in St. Louis, MI PH staff attending the 3 day Evidenced Based Public Health (EBPH) course from 2001-2004, 246 participants were emailed the survey, 107 participated. 20% of them agreed to a	Asked open ended questions on what they thought EBPH was, the facilitators and the barriers to using it their practice.	Course provided a review for those with educational preparation EBP is a process, and the course provided the knowledge base that could better evaluate programs and support policy development.	Diverse cultural groups may have different learning styles Consideration of multiple and complementary modes of educational delivery to maximize learning Regular training opportunities is required (not a dichotomous intervention)

	taped open ended interview			
	Utilized Adult Learning principles in the course			
5. Ward & McCormick (2000) Qualitative: Action Participation Research Population: Nursing Managers and Project Specialists in a Hospital setting targeting hospital nursing staff	Time frame not discussed Development of a learning culture based on reports of poor nursing practice audits and lack of EBP Used Nurse managers and Project Specialists to promote a learning culture in the work environment	Apply a model of professional development hospital wide. Used adult learning principles including Knowles (1984) Theory of Adult Learning, Jarvis(1995) behaviourist learning theory on the cognitive, humanistic and social perspectives and Rogers (1983) theory of experiential learning Program leader ensured that each theory was implemented into the project plan of the hospital's learning culture Personal journals, field notes and interviews were included in data collection	Learning is difficult to measure on an individual level and as a organizational culture as a whole Study found there was less dependency on the manager for decision making by project specialists on program evaluation Observed increase in staff use of program leader for guidance to assist with searches and lit review. Four key nursing leaders developed the confidence in knowledge, wanting to use their experience and learn strategies for their staff development	No concrete data or data transferability available from this study. Findings support the need for flexible and supportive managers, who have clear problem solving strategies to aid in the development of learning work culture for the successful implementation of EBP.

<p>6. Forsetlund et al. (2003)</p> <p>Norway</p> <p>Mixed Qualitative Review of failed RCT</p> <p>Population: Public Health Physicians</p>	<p>Qualitative inquiry of original RCT Training of Public Health physicians to use EBP.</p> <p>RCT ended in Jan 2001, Qualitative inquiry from July 2001- Oct 2001</p> <p>Cochrane, Best Evidence library, EMBASE, Psychiatry and Sociofile</p> <p>Physicians who attended the EBP workshop and participated in the active online discussion list.</p>	<p>Semi structured telephone interviews, based from Roger's model of Innovation and Diffusion Theory.</p> <p>Medical student conducted the interviewing to eliminate bias and encourage frank discussion from the participants</p>	<p>Physicians found no time to do the search strategies and critical appraisal in daily practice.</p> <p>Lacked a supportive work environment that assisted with EBP</p> <p>Training was not new to their knowledge base, as provided a review of EBP</p>	<p>Management support and local EBP 'champions' and ready made 'digests of research' was more helpful for this population d/t time constraints on conducting own lit review.</p> <p>Rogers theory of Innovation and Diffusion may be helpful to understand the process of complex behaviour change</p> <p>Low response rate only 29% of participants</p>
<p>7. Forsetlund et al. (2003)</p> <p>RCT</p> <p>Norway</p> <p>Population: Public Health physicians</p>	<p>RCT</p> <p>1.5 year intervention: April 1999-January 2001</p> <p>All Public Health physicians in Norway were invited via letter to participate in RCT with incentive of free library access for 1 year</p>	<p>To examine whether the physicians studied would uptake research evidence in their decision making</p> <p>Utilized Rogers Theory of Diffusion and Innovation theory to guide the study.</p> <p>Intervention group consisted of taking a course on critical appraisal and participation of a discussion online.</p> <p>Both groups were subjected to a hypothetical assignment, mailed out survey evaluating their experiences</p>	<p>Primary findings indicate no change in behaviour using EBP despite the availability of courses, online discussion</p> <p>Study results found the intervention group used research more often in their practice, based on self reporting use of the library for evidence inquiry, but concluded no statistical significance.</p>	<p>Smaller than required sample size</p> <p>Responses were self reported, resulting in large amount of bias.</p> <p>Authors suggest that 1.5 year study is too short of time to measure behavioural changes in evidence informed decision making.</p> <p>According to Rogers's theory, study participants were concluded to increase their knowledge of evidence informed decision making, but not the buy in.</p> <p>Therefore increase in knowledge of evidence informed decision making did not necessarily mean change in practice.</p>

Appendix D

Applicability and Transferability Worksheet

Applicability

Factors For Consideration	Questions For Applicability and Feasibility	Responses
Political Leverage	<p>Will this program enhance the stature of the organization?</p> <p>Will target groups support the intervention in its current format?</p>	<p>Using interactive and didactic in educational workshop design along with the reference notes and support from a practice specialist will enhance public health workforce development.</p> <p>Current EIDM training supports these interventions.</p>
Social Acceptability	Will the target population find the intervention socially acceptable?	Will be widely accepted by Peel Public Health staff as suggested training format can appeal to a variety of learning styles
Available Essential Resources	<p>Who/ what and where are available for implementation?</p> <p>What are the costs?</p>	<p>MacMaster is providing most of the EIDM training. Peel Public Health can determine if future internal EIDM training activities are structured in as suggested by the literature.</p> <p>Financial resources and staff costs can be calculated in advance of future training initiatives. A training template can account for hidden costs including the need for an external consultant.</p>
Organizational Expertise and Capacity	Is the intervention offered in line with Peel's 10 Year Strategic Plan: 'Staying Ahead of the Curve'?	<p>EIDM training underway has evolved from the strategic plan under workforce development. The recommendation to structure learning activities to a didactic/interactive component with educational resources and a knowledge broker is currently used.</p> <p>Divisions would welcome a training standard to take</p>

	<p>Does the intervention lend itself to cross departmental/divisional collaboration?</p> <p>Any organizational barriers or structural issues?</p> <p>Is the organization motivated?</p>	<p>put the guesswork on how to introduce a new practice concept to staff</p> <p>Issues that may arise as cost barriers, particularly if a division needs to bring in an external support.</p> <p>Organizational expertise is building, staff are motivated to participate in EIDM training</p>
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Transferability

<i>Factors For Consideration</i>	<i>Questions For Transferability and Generalizability</i>	<i>Responses</i>
Magnitude of issue in local setting	What is the prevalence of the issue locally?	Literature review findings can provide an opportunity for the Manager of Education and Research to formulate a training standard for Peel Public Health
Magnitude of the reach and cost effectiveness of the intervention	Will the intervention appropriately reach the intended population?	Training standard will apply to all future training activities for Peel Public Health staff
Target population and characteristics	Are they comparable to the study population?	Limited research evidence found on training effectiveness on public health professionals, but literature populations were health professionals, comparable in education and duties.

Proposed Direction

Despite the lack of strong empirical evidence, the evidence described has the same consensus. Combinations of didactic and interactive workshops work best to develop the necessary skills for practice change.

Worksheet adapted from: Buffet, C., Ciliska, D. and Thomas H. National Collaborating Centre for Methods and Tools. November 2007. *Can I Use This Evidence in my Program Decision?-Assessing Applicability and Transferability of Evidence.*