

INTRODUCTION

WHAT IS CASE TEACHING IN PUBLIC HEALTH?

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BACKGROUND

Planning for our new case-based interfaculty Master of Public Health program began in July 2010, with our first cohort of 32 students enrolled in September, 2013. Our original view of ‘cases’ was based on those used in professional programs such as those at Harvard. Harvard is credited for introducing the case method in the law school in 1870, and then in business administration in 1920 (Shugan, 2006). Part of our initial enthusiasm was practical: Western University’s business school, the Richard Ivey School of Business, had adopted the Harvard approach in 1922 (Richard Ivey School of Business, n.d.), and we were very fortunate to have Ivey faculty, who were experienced with case teaching and writing, willing to help us develop our new curriculum.

Early in the planning process, we searched the literature for published educational cases on public health topics to use in our new curriculum. We quickly realized that there is a paucity of teaching cases in public health. While there are many “healthcare industry” cases available, these cases predominantly use a business lens. These cases omit details that are of interest to public health professionals and are required for situation analysis and decision-making. Thus, these cases are often not directly transferable to a public health curriculum. In addition, many existing health related cases were set in the US and therefore did not reflect the reality of Canadian health systems, our uniquely Canadian issues, or the voices of the communities our students work with. Furthermore, given our program’s focus on the public health of Southwestern Ontario, and First Nations across Canada and globally, the availability of appropriate teaching cases was further reduced. Case repositories (e.g. Harvard Publishing, Ivey Publishing, European Case Clearinghouse, etc.) have few teaching cases that can be adopted as written by a public health program, creating an opportunity for Western’s faculty and practitioner colleagues to develop *de novo* cases for their courses by building on their own research and practice experiences.

Initially, we adapted existing cases to our curriculum by focusing on and using the relevant public health content. Our faculty also began to write their own cases. Our students were to be placed in practica in local, national, and international public health organizations, where they would be working on an exceptionally broad array of projects. These diverse practicum placements were designed as penultimate learning experiences for students to apply the knowledge and skills acquired through the course of their study (Council on Education for Public Health, 2011). We realized that the students’ practica experiences were potentially a valuable resource for relevant case material. As a result, we required that each student write a teaching case in which they would demonstrate their mastery of knowledge, including its synthesis and integration, through a real-world experience. This book represents a selection of public health cases written by students in the inaugural Western MPH Class of 2014.

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PEDAGOGIES

We continue to learn from like-minded colleagues about a group of related pedagogies called *discussion teaching; active learning; experiential learning; case method learning; simulations; and problem-based learning.*

There are differences in approach among these subtypes, and we still have much to learn about the subtleties. However, it seems clear that what these approaches all have in common is best appreciated by describing what they are not: traditional didactic lecturing. As with many complex concepts, two 'pure types' form poles of a continuum. We have attempted to explain our current pedagogical approach by contrasting these pure types in two columns of a table (please see Table 1).

Table 1: Contrasting extremes: lecture-based teaching versus experiential learning

	Lecture-based	Experiential learning
Terms and labels	<ul style="list-style-type: none"> • Lecture method • Didactic (lecturing) • "Student" 	<ul style="list-style-type: none"> • Discussion teaching; active learning; case method learning; problem-based learning; advanced seminar; simulations • "Learner"
Characteristic		
View of learning	<ul style="list-style-type: none"> • Learning-as-product; can be precisely measured • Learning ends with last lecture • Learning is information 	<ul style="list-style-type: none"> • Learning-as-process: cannot be precisely measured • Learning is life-long skill • Learning is experience
Learning style	• Passive	• Active
Student preparedness, attendance and participation	<ul style="list-style-type: none"> • Varies; can be entirely optional 	<ul style="list-style-type: none"> • Preparation, attendance, and participation essential to learning
Responsibilities	<ul style="list-style-type: none"> • Professor has major responsibility for teaching, which is transferring information 	<ul style="list-style-type: none"> • Learners have major responsibility for learning, both for themselves and contributing to the learning of their colleagues, in both individual and group settings
Optimized for	<ul style="list-style-type: none"> • Small details • Memorization • Un-integrated bits of information • Facts: "right answers" • A "canon" of core concepts • Short-term recognition • Knowing 'about' • Certainty 	<ul style="list-style-type: none"> • Large, broad concepts • Application • Synthesized, integrated knowledge • Ideas: "alternative approaches" • Skills and competencies • Long-term understanding • Knowing 'how to' • Uncertainty
Rate of "information transfer"	<ul style="list-style-type: none"> • High: many "facts per hour" 	<ul style="list-style-type: none"> • Low – few "facts per hour"
Faculty resources	<ul style="list-style-type: none"> • Fewer faculty resources required 	<ul style="list-style-type: none"> • Substantial faculty resources required
Role of theory	<ul style="list-style-type: none"> • Theory as end in itself 	<ul style="list-style-type: none"> • Theory informs practice; practice informs theory
Role of professor	<ul style="list-style-type: none"> • Professor is most important teacher • Professor is "expert instructor" • Professor teaches students 	<ul style="list-style-type: none"> • Learners become their own best professors • Professor is "expert facilitator" • Professor learns from students

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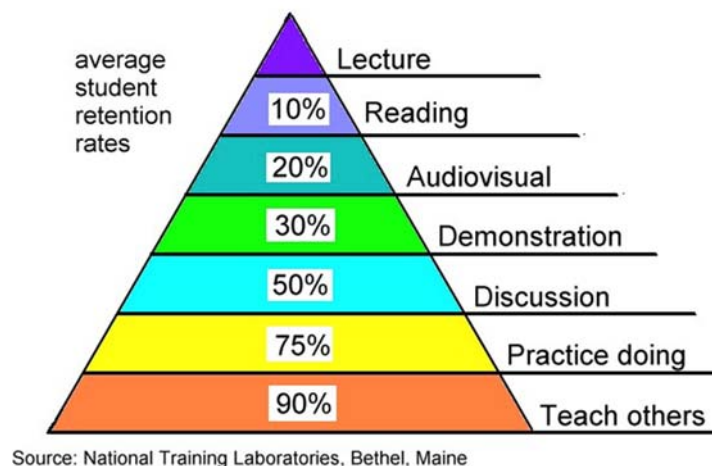
	Lecture-based	Experiential learning
Time allotted for questions and discussion	<ul style="list-style-type: none"> Varies from none to quite interactive; often spontaneous 	<ul style="list-style-type: none"> Extensive, designed into each session
Visual aids	<ul style="list-style-type: none"> Slides prepared by professor 	<ul style="list-style-type: none"> Words and diagrams drawn on board by professor and/or learners
Adaptability to emerging 'news'	<ul style="list-style-type: none"> Less flexible/structured (because lecture topics and slides are pre-set) 	<ul style="list-style-type: none"> Flexible/adaptable (i.e. can be a story from that morning's news)
Order in which concepts are covered in a particular session	<ul style="list-style-type: none"> Often, largely predictable 	<ul style="list-style-type: none"> Sometimes, largely unpredictable
When learning ends	<ul style="list-style-type: none"> Right around the final exam, when forgetting begins 	<ul style="list-style-type: none"> Learning never ends if one has a learning need and the tools to locate knowledge

Medical students memorize many common terms, but also learn Latin and Greek prefixes and suffixes (*myo-*, *osteo-*, *-itis*, *-osis*) so they can discern the meaning of novel terms from their component elements. This simple example is somewhat analogous to the transition from many undergraduate programs to more sophisticated graduate-level study. The emphasis shifts from short-term regurgitation to longer-term recall, from basic multiple-choice recognition to innovative application, and from undifferentiated facts to integrated understanding.

HEURISTICS

Education researchers have used various graphical devices as heuristics to illustrate how outcomes differ between methods of instruction. Many are familiar with the Learning Pyramid – often attributed to the National Training Laboratories, Bethel, Maine – which is intended to demonstrate that lectures are associated with the lowest rates of retention, whereas active forms of learning are associated with greater retention (please see Figure 1). The Learning Pyramid is controversial because its original source is unclear, as is the research foundation that underlies it (see, for example, Lalley & Miller, 2007). Another criticism is that the outcome – ‘retention rates’ – is itself a low level outcome compared to evaluation, critical appraisal, or application of knowledge in a novel situation.

FIGURE 1
Learning Pyramid



But even if the average retention rates given in Figure 1 cannot possibly be accurate for all learners, curricular content, and settings, most adults intuitively know from their own experience that the more active forms of learning – especially actual practice – are associated with better long-term recall and application of knowledge. We do not deny that first principles can be learned in a lecture, or by reading or watching a video. But the knowledge base of the public health profession is too complex to be considered a ‘canon’ of knowledge that every practitioner must memorize (or that any practitioner could). Some memorization of fundamental first principles is essential, but then students use practice to call up, modify, merge, and tweak them as they are applied to entirely novel problems in unfamiliar circumstances.

The number of supporters of a move from didactic to experiential learning in health professional education is growing. Most recently, a global independent commission of health professional educators has urged a move to systems based thinking with competency-driven instruction (Frenk et. al., 2010). The authors urge all health professionals to be “educated to mobilize knowledge and to engage in critical thinking” so they are “competent to participate in ... population-centered health systems as members of locally responsive and globally connected teams” (Frenk et. al., 2010:6).

Case method learning

Case method learning is aligned with competency-driven instruction. At the Richard Ivey School of Business, a case is “a description of an actual situation, commonly involving a decision, a challenge, an opportunity, a problem or an issue faced by a person (or persons) in an organization” (Richard Ivey School of Business, n.d.). At the Harvard Business School, a case is defined as:

a partial, historical, clinical study of a situation which has confronted a practicing administrator or managerial group. Presented in narrative form to encourage student involvement, it provides data – substantive and process – essential to an analysis of a specific situation, for the framing of alternative action programs, and for their implementation recognizing the complexity and ambiguity of the practical world (“Teaching with Cases at the Harvard Business School”, 1994:44).

The archetypal case for teaching business managers often involves a single protagonist making a key organizational decision in the face of incomplete or imperfect information. The objective is not for the learners to memorize circumstances and facts in that particular context that led the protagonist to make that decision. Rather, through individual study and group discussion, the objective is for the learners to imagine how they would act in a similar situation (and perhaps a different context). Learners think about how they would balance the various macro-, meso- and micro-level factors, in order to select the most reasonable course of action from a set of alternatives. Decision-making cases often involve a series of thought experiments where learners imagine the consequences of doing A, B, or C.

In a review paper on case-based learning (CBL) by Thistlethwaite and colleagues (2012:e422), the authors reported that international consensus does not exist on the definition of case-based learning. Accordingly, they defined case-based learning in terms of its goal: “The goal of CBL is to prepare students for clinical practice, through the use of authentic clinical cases. It links theory to practice, through the application of knowledge to the cases, using inquiry-based learning methods.” While there is clearly much in common across all of these approaches, the emphasis on ‘clinical cases’ suggests to us a focus on individual patients, which limits its applicability to public health.

MODIFYING CASE METHOD LEARNING TO PUBLIC HEALTH

Most problems in public health are multidimensional, faced not by one individual decision maker but by communities and entire populations. These decisions are often best approached as complex trade-offs among multiple stakeholders. Stakeholders frequently represent distinct cultural groups or organizations that have different amounts of political power and, often, competing (or incompatible) interests. For example: should the Minister of Health fund a promising new screening program? To do so, she needs to find the funds. Should she completely cut an existing program, or cut ten programs by 10 percent each? In other situations such as infectious disease outbreaks and natural disasters, many people make multiple decisions in a dynamic fashion, sometimes changing their minds as the situation evolves and the amount and quality of information improves. In spite of some differences between a focus on individual patients and a focus on entire populations, all experiential learning has common elements: learners develop and practice applying skills to actual complex situations that have been faced by real people, with a bias towards action: a carefully considered and justified set of recommendations about what should be done next.

Given the realities of public health problems and decisions, we propose the following definition of a public health case:

A real-world situation that promotes independent thinking as well as group discussion which ultimately allows the learner an opportunity to explore complex public health issues and apply theory to practice by analyzing, integrating, and synthesizing knowledge.

A public health case is a narrative-based (with optional multi-media supplements) pedagogical tool that describes a public health situation faced by an individual, group, organization, or health system that reflects the complexity and ambiguity of the real world. It provides learners with the opportunity to demonstrate an understanding of the complexities within health and health systems (for example: cultural, economic, environmental, historical, legal, and social factors that influence health). It allows learners to acquire and demonstrate public health competencies (such as: the formulation of strategies for health promotion and health protection, design and evaluation of health programs, and the application and critical appraisal of epidemiology, biostatistics, and health economics methods). Through the use of narrative (and optional multi-media sources), public health cases provide a unique opportunity to illustrate the challenges faced by disadvantaged groups, and because of the decision orientation, they are an optimal way of illustrating public health leadership.

AN INTEGRATED ONE-YEAR MPH CURRICULUM USING CASE METHOD LEARNING

From inception, the intent of the Interfaculty Program in Public Health at Western University was to design a case-based MPH program that would fill a novel niche at the intersection of leadership, sustainability, and policy within the Canadian health care system. Without any models of public health programs using the case method of learning, we embarked on developing an integrated curriculum that would prepare tomorrow's leaders and change agents to shape the future of public health.

COURSE-LEVEL

Our program consists of 14 courses over two academic semesters. The first step in our effort to integrate learning is at the course level. Faculty meet frequently to inform each other what topics are being covered in their courses, and what cases are being used. This allows faculty to know what topics have been covered, and also permits references to other cases in the classroom, as a means of reinforcing concepts and also of identifying similarities between issues that may not

have been apparent. These discussions also open the opportunity for faculty to co-lead specific cases.

PROGRAM-LEVEL

Once in the fall, and twice in the winter, we devote an entire day to an Integrated Workshop (described in greater detail in the last section of this book). The objective is for students to integrate and synthesize their learning to date from all their courses together on a single topic. By presenting students with a public health controversy, these workshops require them to work quickly and effectively in their learning teams. The workshops are important because public health situations usually require clarification of the problem and an inventory of alternatives before a decision can even be contemplated. Even so, there is often no obvious basis for choosing among starkly different alternatives. This is where collaborative group-based decision making shines in comparison to decisions made by individuals. Even if there is no obvious 'correct' decision to be made, individuals learn new perspectives from others in their learning team. When the teams present their work at the end of the workshop, the teams learn from each other.

We attempt to have the integrated workshops build in complexity over the fall and winter semesters. In 2013-2014, the integrated workshop topics/situations were: i) the public health impacts of industrial wind turbines; ii) supervised injection facilities for individuals who use injection drugs; and iii) a chemical spill and refinery fire, and evacuation of the surrounding community.

LEARNERS BECOME TEACHERS: STUDENT CASES FROM THE PRACTICUM EXPERIENCE

The summer semester sees students undertaking a practicum placement. One deliverable from each practicum is the completion of a project for the agency in which the student was placed. A second deliverable is a public health teaching case written by the student, with input from their practicum preceptor and faculty advisor. We have selected thirteen student cases from the Class of 2014 for publication in this book.

Because cases differ in terms of problem complexity and multiple decision implications, we decided to give the students considerable leeway in terms of their case topic, structure, and learning objectives. Most importantly, we wanted the student authors to think of ways a case can be applied in the public health classroom, the public health competencies covered, and the usefulness to public health students and faculty in our program and others.

INSTRUCTOR GUIDANCE

Each case is accompanied by a one-page Instructor Guidance, an idea we borrowed from the Johns Hopkins School of Public Health. This allows an interested instructor to quickly judge the potential usefulness of each case using keywords, learning objectives, and a brief synopsis of the case.

VERITÉ

In addition to having a protagonist with whom the reader can identify, our business school colleagues emphasized the importance of having a case describe a real situation, rather than a composite of several situations or a theoretical hypothetical, even if it means the real situation must be disguised to avoid identifying an agency or employee. Each case in this book describes a real public health situation faced by our students.

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The cases are presented in alphabetic order by the first (student) author. As we continue to develop new cases and refine their application in the classroom, we would welcome feedback on these cases and testimonials about how you have used them. Any corrections to this set of cases will also be gratefully received. Please get in touch with us via the program's email: publichealth@schulich.uwo.ca.

In addition, we will publish this casebook in electronic form on the Schulich Interfaculty Program in Public Health's website. Please stay tuned for that release at <http://www.schulich.uwo.ca/publichealth>.

We welcome you to the Class of 2014 MPH student casebook. We are proud to present this work and hope you are able to learn from our students' unique and collective experiences.

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