

## **An Examination of NYC's Public Health Policy Education and Its Effectiveness on Regulated Business Owners**

**Dr. Gifty Akomea Key, Ed.D, M.S.<sup>1</sup> & Dr. Ndidiamaka Amutah, Ph.D., MPH, CHES<sup>2</sup>**

### **Abstract**

---

One of the many reasons for smoking litigation against public health agencies such as a health department is due in part to the gap between public health education and knowledge of the laws by those who are regulated by these policies. This research study examined the effectiveness of public health instruction and curriculum from the New York City Department of Health and Mental Hygiene (NYCDOHMH), and its effect on knowledge of the law as it relates to business owners. N = 74 business owners were surveyed using a pre/post study design to determine their knowledge of public health law. Results of the study found the education to be 'somewhat' effective, while other factors suggested a gap in the knowledge of public health law still existing among business owners. Given this lack of advanced knowledge, suggestions for curricular and instruction improvements are offered for the promotion of more effective public health pedagogy.

---

**Keywords:** public health education, health training, smoking ban, calorie labeling, health policies

### **1. Background**

Public health policies are enacted through many laws that regulate environmental hazards, restrict smoking, and address the nation's obesity problems. In some circumstances public health policies garner substantial coverage in the media and newspapers (Center for Science in the Public Interest, 2008; O'Donnell, 2005; Saulny, 2004), whether due to the implementation of the regulation or the effects of the regulation on businesses. When many of these regulations such as the Smoke-Free Air Act, tobacco regulations, and calorie labeling were enacted, it came as little surprise that many health inspectors across the U.S.A. experienced backlash from business owners and the community regarding the education and implementation of these policies. Restaurateurs, employees, and members of the general public were in an uproar over the anticipated impacts that these laws would have on businesses and the social community, but many were even more upset with the lack of education put forth by health officials. Unfortunately, this outrage went further than public outcry and landed into many courtrooms.

### **1.2 New York City (NYC)**

The largest and most densely populated city in the United States of America, NYC has approximately 8.3 million inhabitants (Gasner, Fuld, Drobniak, & Varma, 2014), thereby making its regulating health agency, the NYC Department of Health and Mental Hygiene (DOHMH) the "largest nonfederal public health agency in the United States" (Gasner et al., 2014, p. 993). A suit was filed in 2003 through the federal court in Manhattan and echoed the sentiments of communities across the country, regarding smoking bans.

---

<sup>1</sup> Saint Joseph's University, 5951 Overbrook Avenue, Philadelphia, PA 19131, USA. [drgakey@gmail.com](mailto:drgakey@gmail.com), [gkey@sju.edu](mailto:gkey@sju.edu), (646) 335-6493

<sup>2</sup> Montclair State University, One Normal Avenue, Montclair, NJ 07043, USA. [namutah@gmail.com](mailto:namutah@gmail.com), [amutahn@mail.montclair.edu](mailto:amutahn@mail.montclair.edu), (973) 655-4400.

The plaintiffs in the suit, The Players Club Bar, claimed that the smoking ban negatively impacted their business by preventing “expressive association” (O’Donnell, 2005, para. 1). The judge ultimately rejected the arguments, but the questions and criticisms surrounding the gap between public health pedagogy and law remained. This case and many others highlighted the effectiveness of the education provided by the NYC DOHMH. Business operators claimed both in and out of court that there was lack of clarity on public health facts, while health officials defended their education, citing compliance failures. Health agencies disagreed with these claims, and justified their position. Opposing parties felt these laws were not only administrative violations, but also encroached on operators’ constitutional rights (O’Donnell, 2005; Saulny, 2004).

Supporting evidence was introduced in the lawsuit filed by a group known as NYC Clash, Citizens Lobbying Against Smoker Harassment in the Southern District of New York in 2004. The group claimed that the amount of environmental tobacco smoke (ETS) passed to non-smokers were not harmful enough to cause health risks (Saulny, 2004). Since evidence of the dangers of ETS were well documented as the law was being debated, the fact that a consumer group was using this argument suggested a possible lack of education on and awareness of the extent and harms of ETS by consumers. The NYC group used this argument in their litigation contending that “...association, speech, and general social interaction cannot occur or cannot be experienced to the fullest without smoking” (Saulny, 2004, para. 8), which was ultimately rejected by the judge (O’Donnell, 2005).

Health officials defend their position through the purposeful introduction of health policies in phases. When the NYC Smoke Free Air Act was enacted in December 2002, several exemptions were granted for business owners (City of New York Department of Health and Mental Hygiene, 2013). One of the exemptions included written warnings instead of immediate fines. It wasn’t until July 2003 that exemptions were voided and fines were fully assessed to violators (City of New York Department of Health and Mental Hygiene, 2013).

Health experts also supported health policies such as the smoking ban (Gori, 2002). The plethora of studies and data on the benefits of these public health regulations solidified the purpose of the legislation, and made arguments in support of them more plausible. In September 2002, the Institute of Medicine (IOM) published a report conclusively supporting less hazardous cigarette and tobacco products. IOM concluded their report by calling for endorsements and regulations (Gori, 2002). This report not only reinforced the studies blaming many diseases on exposure to tobacco toxins but it also supported tobacco control efforts and the feasibility of reduction (Gori, 2002). This was yet another effective argument for health officials. Not only had the two aforementioned cases of *Players Club vs. NYC*, and *NYC Clash Group vs. NYC* resulted in findings in favor of the NYC DOHMH, but the IOM report also supported their claims of effective education of health policies.

## 2. Purpose Statement

Proponents and lawmakers use the harms of ETS as justification for smoke-free laws, but business owners and opponents of such legislations argue the need for such extreme regulations as the contrivance of improving public health. Business owners see a flaw in the dissemination of information prior to the passage of these laws, and judges question the expertise of those disseminating the information. An additional challenge for state and local agencies includes the need to educate operators on relevant laws during public health trainings (Jacobson, et al., 2012).

Public health scares such as the recent Zika Virus or the Ebola pandemic require immediate attention and reliable policies (Jacobson et al., 2012). Unfortunately, there currently exists no systematic assessment of the connection between public health education and the law. As a result, there is limited information available, and few experts who understand this gap to efficiently understand, interpret, explain, and train on the law as it relates to public health (Jacobson et al., 2012). “From a policy perspective, it is important to identify and understand the factors responsible for how any gaps in practitioners’ knowledge about legal requirements affect the public health system’s response capabilities” (Jacobson et al., 2012, p. 298).

Business owners and opponents of the laws suggest better pedagogical practices from government agencies and environmental health specialists; environmental health specialists request adequate resources for training and more effective delivery of the training (Fraser & Nummer, 2010), but the research supports that “a fundamental challenge for state and local public health agencies is how to use the law to prepare for and respond to public health” (Jacobson et al., 2012, p. 298).

With the plethora of case law and the differences in interpreting the law, many feel it is implausible to effectively merge law with public health, and address both disciplines as one. Hence, the problem lays not so much with where the two disciplines meet but how to make them meet, or whether there already exists an efficient nexus between the two fields.

### 3. Supporting Federal Law

Consequently, following these widely publicized studies came another controversial public health policy - the Family Smoking Prevention and Tobacco Control Act (FSPTCA), which turned the winning tide away from government agencies. By signing into law the FSPCTA in 2009, President Barack Obama gave the Food and Drug Administration (FDA) "unprecedented power to regulate tobacco products" (Shechtman, 2011, para. 1). The new powers would now allow regulators to control aspects of tobacco advertising, gave them leeway to insist on tobacco products' warnings on the packaging, and allowed restriction on location of sales within proximity to schools (Sylvester, 2013).

The stronger powers granted to the FDA left many questioning the constitutionality of the law, as well as the intentions of the federal government. This dispute turned to the courts in *R.J. Reynolds Tobacco Company v. FDA, 2012*, when the tobacco giant challenged a regulation that would have required it to place graphic images such as diseased lungs on its cigarette packaging and advertising. R.J. Reynolds, the second largest tobacco company in the United States, argued that the laws infringed on First Amendment Rights by violating the company's freedom of speech. The federal government justified the regulations as a necessary step in helping combat underage tobacco consumption (Shechtman, 2011).

Ultimately, the courts determined that the tobacco giant's constitutional rights were indeed violated, and that both preliminary and conclusive efforts in education were insufficient. In other words, by regulating the packaging images of a man smoking through a tracheotomy hole or a woman smoking while holding a child, the government was trying to change the behavior of both future and current smokers through subjective means, as opposed to educating with objective facts and images (Sylvester, 2013). The D.C. Circuit recognized the need for protection of the public from "deception by compelling factual and uncontroversial disclosures" (Sylvester, 2013, p. 782). The government was unsuccessful in proving that these types of graphic images promoted education and reduced smoking rates; therefore the district court and D.C. Circuit ruled that First Amendment rights of the company were violated (Sylvester, 2013).

The same first amendment arguments arose from the passage of smoking bans in several states, which attempted to regulate the amounts of secondhand smoke ingested by non-smokers. Secondhand smoke, changed in recent years to ETS, can cause cardiovascular and respiratory diseases, including lung cancer, in nonsmoking adults and children (Centers for Disease Control and Prevention, 2011). For that reason, the passage of smoke free laws in order to protect against these hazards has been the initiative of federal agencies such as the Centers for Disease Control and Prevention, as well as state and local agencies throughout the U.S.A. to include but not limited to California, New York, Pennsylvania, and North Carolina (Centers for Disease Control and Prevention, 2011).

The detriments of smoking and ETS have long been debated among communities across the nation on whether real harm exists. The public has debated whether smoking actually leads to lung cancer and other associated diseases, which implies that the harms of ETS have not been as believable. This too was addressed in the federal case with the NYC Clash Group. Another one of their arguments questioned the evidence of harm due to ETS. The Group contended that the amount of smoke staff was exposed to was limited, in comparison to the longer periods of time and exposure that people who resided with smokers may ingest. The group then concluded, "The dose makes the poison" (Saulny, 2004, para. 5), which yet again led to the questioning of public health pedagogy. However, had business owners been better educated to the realities of ETS perhaps this argument may not have been made.

#### 3.1 Approaches to Educating Through Curriculum

In almost every aspect of our lives, including the educational and professional, standards, for lack of a better word, are set in place to create uniformity and validation. Standards have therefore come to be defined as the "basis for validation. Successful performance of the standards assures us of, or validates the individual's ability to provide expert performance of the standards on some level" (Horn, 2004, p. 11).

Although the rationale stated by Horn (2004) segues into the technical-scientific approach, the other side, the non-technical scientific approach has its own validations. The two approaches are better understood under the umbrellas of technical standards and standards of complexity.

Consequently, not all educators view curriculum in such a distinctive binary way. These educators believe that a gray area, so to speak, exists and a combination of both approaches are required for a healthy educative experience; and those educators generally opt for standards of complexity, which gives way to the non-technical scientific approach (Horn 2004).

The technical scientific and non-technical scientific approaches differ significantly on their focus (see Table 1.1). Firstly, technical-scientific approaches are subject centered in comparison to non-technical scientific, which are student-centered (Ornstein & Hunkins 2009). A technical-scientific approach will use science as a source, which designs curriculum based on elements that are quantifiable. Much of the curriculum in the NYC Health Academy relies on quantifiable science facts, many of which are provided by health experts and the Centers for Disease and Control Prevention (City of New York Department of Health and Mental Hygiene, 2013). The technical-scientific approach is objective. "It rests on the assumption that reality can be defined and represented in symbolic form. This also resembles the NYC training manual for the course, which depicts processes in symbolic forms.

**Table 1.1: Overview of Approaches, Design Development, Implementation, and Evaluation**

APPROACHES	ASSUMPTIONS	DESIGN	DEV.	IMPLEMENTATION	EVAL.
Technical-scientific	-Subject centered -Science as a source. -Objective -Quantifiable	-Subjects come from textbooks. -Verbal form.	-Tyler Model: four basic principles. -Taba Model: grassroots rationale.	-Systems for rank and sort. -Overcoming Resistance to Change Model (ORC).	-Scientific -Utilitarian -Norm Referenced Tests (NRT)
Nontechnical-scientific	-Student/learner centered -Subjective -Not quantifiable -Society as a source.	-Experienced centered design.	-Deliberation Model: builds on feedback through six stages.	-Systems to develop the learner.	-Humanistic -Intuitionist -Intrinsic -Criterion Referenced Tests (CRT)

*Note:* Dev = development; Adapted from *Curriculum: Foundations, Principles, and Issues* (5<sup>th</sup> ed.), 2009, Needham Heights, MA: Allyn and Bacon.

The non-technical scientific approach is subjective, and stresses the learner, and not the output. The non-technical scientific curriculum developers do not believe the accomplished product can be measured, whereas the technical developers believe that the only way to see accomplishment is through measurement, identical to the temperature requirements for food safety that is taught in the NYC training course. Supporters of this approach will see society as the source and may draw its curriculum from social situations (Ornstein & Hunkins, 2009).

### 3.2 Understanding of the Law

Before business owners can be properly educated on public health law, there must be a comprehensive understanding of the law from those who teach these business owners. However, there is a gap in that understanding for public health law from a legal standpoint as well as the public health standpoint (Jacobson, Wasserman, Botoseneanu, Silverstein, & Wu, 2012; Kaufman, Allan, & Ibrahim, 2012; Smith, 2009). Health experts choose to err on the side of caution in the promotion of health, while legal counsel and lawmakers uphold it to the fullest, and tend to focus on the legitimacy of the law, as opposed to the public health benefit. Jacobson et al. (2012) says it best, "An effective implementation process is therefore integral to the effective use of the law...because legislative objectives are likely to be interpreted differently at various levels of government" (p. 312).

As it relates to food safety, the NYC Health Academy, which delivers the 15-hour course on health policy, uses a 95-page manual as part of the training. The training manual describes all health laws related to operating a food service establishment and is made accessible to business owners online (City of New York Department of Health and Mental Hygiene, 2013). However, the manual dedicates only nine pages for the Smoke Free Air Act health policy, which is the most argued case in the judicial system (LexisNexis, 2014). This would seem to warrant more coverage.

In *New York Statewide Coalition of Hispanic Chambers of Commerce et al., v. New York City Department of Health and Mental Hygiene et al.*, business owners filed suit against the DOHMH for unlawfully banning sugary drinks using the city's Portion Cap Rule.

This NYC regulation prohibited certain food service establishments from serving drinks larger than 16 ounces. After several motions the court declared the regulation invalid, finding that the department performed outside of their expertise. The conclusion read, "We do not believe that the Board of Health exercised any special expertise or technical competence in developing the Portion Cap Rule" (*New York Statewide Coalition of Hispanic Chambers of Commerce et al., v. New York City Department of Health and Mental Hygiene et al.*, 2013, para. 27). In fact, the court stated that the Board of Health did not act solely on the basis of public health, but also considered on the economic impact of obesity on health care expenditures.

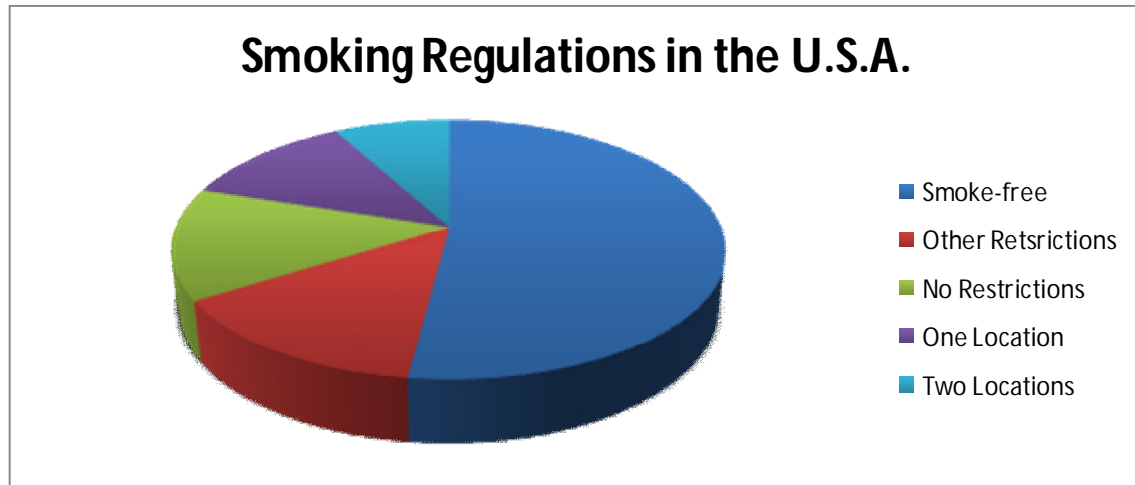
However, not all legal cases have concluded with a ruling of improper education on the part of the authoritative body. Many cases have confirmed the effective pedagogy of health officials. In *New York State Restaurant Association v. New York City Board of Health, New York City Department of Health and Mental Hygiene, Thomas R. Frieden*, the plaintiff filed suit against the NYC DOHMH contending the violation of their First Amendment rights through the calorie posting regulation. The restaurant association challenged the constitutionality of the law and the expertise of the department, but the courts ruled in favor of the department by stating "New York City has plainly demonstrated a reasonable relationship between the purpose of Regulation 81.50's disclosure requirements and the means employed to achieve that purpose" (*New York State Restaurant Association v. New York City Board of Health, New York City Department of Health and Mental Hygiene, Thomas R. Frieden*, 2009, para. A-1). The judge contended that so long as the health policy was understood, and properly communicated by the legal authority of the agencies' powers, they were so justified in enacting it (*New York State Restaurant Association v. New York City Board of Health, New York City Department of Health and Mental Hygiene, Thomas R. Frieden*, 2009).

### 3.3 Health Policy: Smoking Ban

Environmental tobacco smoke (ETS) is estimated to cause 46,000 heart disease deaths and 3,400 lung cancer deaths each year in the United States (Centers for Disease Control and Prevention, 2011). A case in point was the sudden death of Dana Reeve, the widow of "Superman" actor Christopher Reeve, who died only one year after being diagnosed with lung cancer (Stoppler, 2006). Dana Reeve was a nonsmoker, but was exposed to passive smoke, and other carcinogens. Consequently, laws that prohibit smoking in all areas of any venue will fully protect nonsmokers from involuntary exposure to ETS indoors (Centers for Disease Control and Prevention, 2011).

Additionally, researchers in Pueblo, Colorado conducted a study in Helena, Montana, and hypothesized that smoke free ordinances led to a reduction in heart attacks (Science Letter, 2005). After a three-year period spanning from January 2002 to December 2004, they discovered that the number of heart attack patients admitted into hospitals dropped from 399 to 291. There was a 27 percent decrease in heart attacks following the new ordinance in Pueblo, Colorado (Science Letter, 2005), which led to the conclusion of the benefits of smoking bans. This study has since been cited in other studies and forums justifying smoking bans.

Opponents of the smoking bans have provided some counter arguments. When NYC extended its smoke free ban to the outdoors in 2011, one-time supporters argued the extremity of the policy (Siegel, 2011). Up until that point the arguments on the hazards of ETS were based on the amount of exposure, especially within closed areas such as workplace settings, so when the extension of the ban included outdoor areas, some people questioned the logic. Opponents contended that non-smokers were able to move more freely outdoors, in addition to the dissipation of smoke in the open air, and would therefore not be exposed to harmful amounts of ETS (Siegel, 2011). That notion was potentially disproved by a Stanford University study, which concluded that substantial levels of ETS could be received in brief periods whether outside or not (Shwartz 2007).

Figure 1.1: *Smoke Free Laws in the U.S.A.*

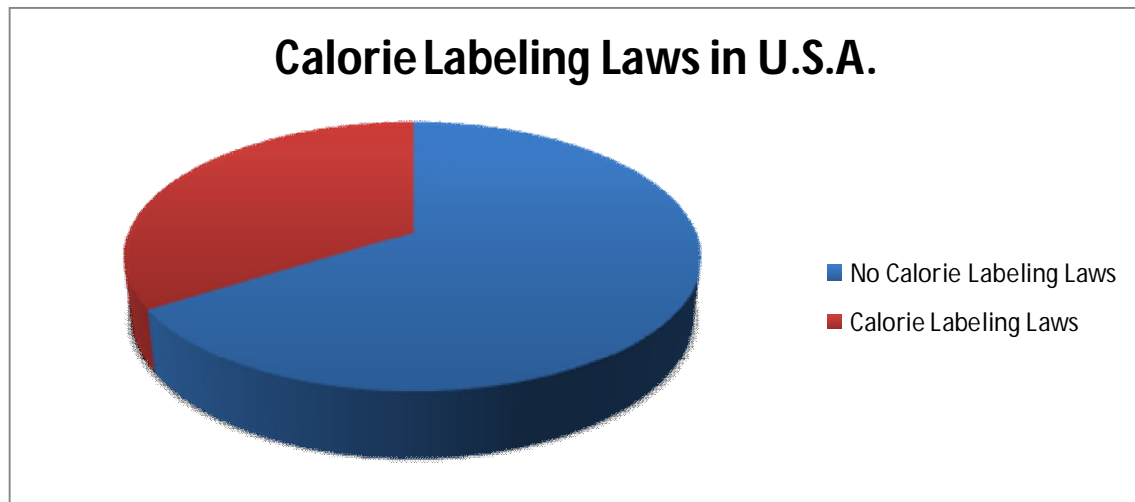
**Note:** Adapted from the Centers for Disease Control and Prevention, 2011.

### 3.4 Calorie Labeling Regulation

Obesity is determined by the body mass index (BMI) of an individual (Centers for Disease Control and Prevention, 2012). Ranges that are determined by using the height and weight are calculated to determine the BMI, which correlates to the overweight and/or obesity status of an individual. The BMI ranges then predict the likelihood of diseases and other health problems associated obesity (Centers for Disease Control and Prevention, 2014). The prevalence of obesity has become a major national concern due to the societal cost of increases in heart disease, high blood pressure, Type 2 diabetes and many forms of cancer (City of Philadelphia Public Health, 2010). For example, the morbidity and risk factors for 18 year olds and over who are obese has risen from 10.9% in 2000 to 11.8% in 2010, where 65 year olds and over has risen from 29.6% in 2000 to 30.4% in 2010 (Centers for Disease Control and Prevention, 2011). In 2009, high blood pressure was the leading, if not contributory, cause of death for more than 348,000 Americans – an average of 1,000 deaths a day (Centers for Disease Control and Prevention, 2014).

Although rates of obesity vary among states, with higher concentrations in the southern states, the growing concern among young people has garnered additional attention. A study conducted by the CDC from 2009-2010 showed 19.6% of males and 17.1% of females aged 12-19 years were obese (U.S. Centers for Disease Control and Prevention, 2012). This concern has resulted in health officials targeting fast food restaurants, which are required to post calorie counts for their menu items (Center for Science in the Public Interest, 2008; City of Philadelphia Public Health, 2010).

Studies have also shown that the average American eats out four times a week, meaning one-third of their calorie consumption results from eating in restaurants (City of Philadelphia Public Health, 2010). To combat the health risks of increasing obesity, public health officials enacted calorie-labeling legislation. Researchers believed that the availability of nutrition information, and calorie posting – educating consumers about what they were eating – would be one way of combating the growing concerns of obesity and reducing related health risks. (City of Philadelphia Public Health, 2010). In January of 2010, Philadelphia joined NYC and California in passing strong menu labeling requirements (Center for Science in Public Interest, 2008). This regulation made it a directive for all food chains with 15 or more establishments to post their calories on the menu board. However, the law regulated only restaurants within the City of Philadelphia, therefore the state of Pennsylvania still remained in the majority of states without the regulation (Center for Science in Public Interest, 2008) (see Figure 1.2). Later that year, the federal government followed suit and enacted calorie labeling regulations which required restaurants with 20 or more chains to post caloric information on menus and menu boards across the country (Centers for Disease Control and Prevention, 2014).

**Figure 1.2: Calorie Labeling Laws in the U.S.A.**

*Note:* Only 17 states, to include NY and DE, have chosen to adopt the calorie-labeling law. Adapted from the Centers of Disease Control and Prevention, 2014.

Adversaries of this law argued that the restaurant business would suffer financially, only for an outcome that would not prove effective. Many argued that the law was a hindrance on business more so than an aid to the public. Conversely, advocates believed it would reduce the rate of obesity and make a large enough impact on the general health of Americans (Center for Science in Public Interest, 2008).

However, many of the Americans it was supposed to help understood nothing of the legislation and the reason behind it. The business owners who were required to follow the legislation were also confused about how to implement the regulations. This led many to question whether business owners were intentionally mis-educated, and if not, whether they were effectively educated on the policies by qualified personnel.

### 3.5 What Constitutes Effectiveness?

Many definitions exist for effectiveness; and it is often used interchangeably with efficient, but before the term is applied, the goal is made clear. The promotion of public health adopts strategies, such as combating public health and researching public health, but this study looks at promoting public health through the training of public health law; and the strategy in which that knowledge is translated is pivotal to the effectiveness. As noted by LaRocca, Yost, Dobbins, Ciliska, and Butt (2012), "Knowledge translation is defined by the Canadian Institutes of Health Research as a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of populations" (p. 15).

How that process is synthesized, disseminated, and exchanged should be the goal of public health training. We know that public health policies are essential in promoting good public health, as well as efficient authorities to do so, but what strategies are constituted as effective? According to a collaboration of five studies conducted on knowledge transmission, "educational sessions involving peer development and workshops; dissemination channels...and Internet, technical assistance and staff training with varying levels of interaction and supervision; and... targeted messaging" (p.15). The studies collectively concluded that in order to consider the chosen strategies effective, characteristics of the knowledge being taught, the participants, the instructors, and the agency should be considered (LaRocca et al., 2012).

## 4. Methods

A quantitative, quasi-experimental approach was selected as the most efficient design to test the hypothesis. After isolating the confounding variables, a set of statistical procedures was conducted to draw the desired unbiased conclusions from a set of data that may be applicable to a larger population. A *Paired Samples T-test* was chosen as the analysis to determine significance, as well as additional explanation through the use of descriptive statistics on the impact of the intervention.

#### 4.1 Site of Data Collection

The NYC DOHMH's Health Academy is a three-story brick building located in upper Manhattan. The government owned building, surrounded by other city buildings, is predominantly housed by the Health Academy for the training of all restaurant owners within the five boroughs of the city. The third floor houses the instructional classrooms 307, 311, 312, and 313 as well as a mock kitchen for experiential learning. All data were collected within the third floor classrooms at this central hub for health law education.

#### 4.2 Limitation of a Confounding Variable – the Instructor

The NYC Health Academy presently has eight instructors. These instructors rotate the teaching schedule and type of classes, but only five of them teach the English language courses for business owners as it relates to this study. Out of those five instructors, two instructors taught the morning and afternoon classes during the week of the pilot study. Two of the same instructors and a third taught the morning, afternoon and evening classes during the week of the actual data collection. This study was focused on the classes taught by three of the five instructors only.

A small demographic survey of the instructors was conducted to determine some relevant factors to the study. The first instructor is a 40-year old Guyanese-American male. He holds a Bachelor of Science degree and has 12 years of experience as a Public Health Inspector. He instructs the Food Protection Certificate (FPC) in accordance with the Food Safety Manual, his experience with inspecting restaurants, and the end-of-week exam. The second instructor is a Chinese-American female, age 27. She holds a Bachelor of Science degree and has three years of experience as a Public Health Inspector. She also instructs the business owners in accordance with the Food Safety Manual, her experience with inspecting restaurants, and an end-of-week exam. The third instructor is a 43-year old Hispanic-American female. She holds a Bachelor of Science Degree, a Master of Science Degree, and has two years of experience as an Engineering Inspector (see Table 2.1). This third instructor is also contracted by the NYC to teach all evening classes. The curriculum, coming from the Food Safety Manual, is the same for all classes and taught by all of the academy's instructors.

**Table 1.2: Demographic Survey of Instructors**

	<b>Instructor's Qualifications</b>	<b>Years of Experience</b>
Morning Instructor	Bachelor of Science	12 years
Afternoon Instructor	Bachelor of Science	3 years
Evening Instructor	Bachelor of Science Master of Science	2 years

*Note:* Morning instructor represents the 9 a.m. course teacher, afternoon instructor represents the 1 p.m. course teacher, and evening instructor represents the 5 p.m. course.

The Health Academy and the Bureau of Food Safety and Community Sanitation created the *Food Safety Manual*, under the guise of the Environmental Health Division of DOHMH (New York City Department of Health and Mental Hygiene, 2014). The manual, which was last revised in 2013, was designed to assist food service operators in the day-to day operations of their businesses. It also serves as a reference and includes all the pertinent information required to pass the examination at the end of the Food Protection Certificate course (New York City Department of Health and Mental Hygiene, 2014).

#### 4.3 Participants

Participants included 74 business owners, managers, and employees who own, operate, or work in food service establishments, including bars and nightclubs, which are subject to regulations such as the Smoke Free Air Act and calorie labeling laws.

Because the FPC course is provided three times daily (9 a.m., 1 p.m. and 5 p.m.), both Time 1 and Time 2 questionnaires were distributed to three separate classes, all of which include the same participants for the week. The same participants who took the course at 9 a.m. on Monday were the same participants in the course for the entire week, at the same time for the duration of three hours. The course concluded on Friday with the exam.



#### 4.4 Instrumentation

A Likert-type questionnaire was created as the data collection tool. The rating scale was developed to rate from no to yes, on a three-point scale, with 'not sure' as a third option. In order to differentiate the responses from the three separate classes, questionnaires were color-coded. This color-coded system allowed the researcher to analyze the correct set of data from Time 1 on Monday to Time 2 on Friday. In addition, to maintain anonymity of the participants, yet identify a difference from Time 1 to Time 2, a birth date was required on the questionnaire. This allowed the researcher to match the pretest and post-test scores of the participant.

#### 5. Results

According to the results of the study, there is a significant difference between the knowledge before and after in the training course. Both pilot study and actual data collection resulted in significant *alpha or sig.* values, suggesting significant differences from Time 1 to Time 2 so when asked *Is the NYC health policy curriculum and instruction effective in increasing business owners' understanding of the law*, the results suggest: *Yes, the NYC health policy curriculum and instruction is effective in increasing business owners' understanding of the law.* The *.002sig.* value supports this finding. However, whether the training is totally responsible for the increase in knowledge is debatable.

The initial use of the *t-test* analysis only determined the significance value, *.002*, from Time 1 to Time 2 and compared the *Mean* scores (Time One = 1.58 and Time Two = 1.89), which indicates that it was unlikely to occur by chance. Calculations of the effect size were then conducted to determine the magnitude of the Food Protection Certificate (FPC) class on the knowledge of public health law. The effect size (.16) subsequently resulted in a large value suggesting that the FPC class largely impacted the knowledge of public health law (KNPHL) of business owners.

#### 6. Discussion

The majorities of business owners who take the course generally pass the test at the end of the weeks' classes, but is the course effective in increasing the knowledge of public health law? The passing grade for the FPC examination is 70%, which is the score that the majority of business owners receive (New York City Department of Health and Mental Hygiene, 2014); and although the paired samples analysis resulted in a significant increase in KNPHL after the course, few operators resulted in an 'Advanced' scoring on the questionnaire. Although, those who had taken the course prior to the current one performed significantly well, there was not an indication of 'Advanced' knowledge by a majority of them. This result suggests that business owners do still not fully grasp the necessary knowledge of public health law even after additional training opportunities; but could this be attributed to something else? One primary goal of many business owners is profit motive. This focus of profit margins may drive the focus and actions of these operators. Adhering to public health policies such as smoking bans in a tavern or calorie labeling in a fast food restaurant may not appear promising for the financial gain of the business, and so these restrictions are not readily accepted. Indeed, operators may be resistant to fully grasping the public health policies that they believe hinders the earning potential of the business.

The study also examined whether the course-content of a model-training course, provided in the largest city in the U.S., prepared respondents effectively, covered the necessary information, and whether it adequately delivered the intended goals. The latter seems met if the passing grade was achieved and the operator left with a certificate, but what about the operator's advanced or proficient knowledge on public health law required to operate their businesses? Many of the questions on the instrument were based on statements of operators and judges in related cases, and still they could not be accurately answered. One would assume that the number of years spent in the industry, along with the direct experience with the policies would create an increased awareness of the regulations, but the results say otherwise. An analysis of the years in the industry to the KNPHL was not comparable. In fact, it appeared inversely correlated.

Along with teaching to the educational level, the curriculum may be tailored to teach based on years in the business. A tailored curriculum may also best serve business operators with more experience and lesser education. Consequently, the seasoned business owners may feel they already know it and therefore don't fully engage. Many of the participants were of foreign descent with English as a second language. According to the data from the descriptive statistics, African-Americans and Caucasians only made up 39.2% of the participants, which placed more than half of the participants in other ethnic groups. Asians made up 25.7% of the sample size, Latinos made up 20.3%, Middle Eastern participants made up 6.8%, and other made up 1.4% of the participants.

Yet, aside from the option to take the final exam in their preferred language, no additional accommodations were made within the curriculum to account for the differences in cultures, and customs of the participants; and this can impact responses.

## **7. Implications**

The NYC Health Academy serves as the primary source of public health training for food service operators, but they also have additional obligations, which include managing the online registration, courses, and customer service for operators. Each instructor has additional duties in addition to teaching, and therefore do not always teach a particular course. Some of the participants who completed the questionnaire during Time 1 did not complete the Time 2 questionnaire. This may be due in part to the general practice of the academy to review, administer the exams, grade the exam and issue cards to passing operators, before dismissing them. With the awareness of leaving the Health Academy earlier, directly after the completion of their final exam, participants were not as interested in completing the Time 2 questionnaire. Furthermore, for those employees that may be paid a full days' wage for taking the course, and now have the remaining day free, completing a questionnaire was undesirable.

Although smoking bans are one of the most controversial public health policies in the country, limited training time was spent on smoking bans. The minimal time spent teaching the policy in the Health Academy is comparable to the coverage of the policy within the Food Protection Training Manual. This realization supports the conclusion in the R.J Reynolds federal case, where the judge ruled that the education regarding smoking seemed insufficient by attempting to change the habits of operators as opposed to properly informing them (Sylvester, 2013).

This research study does not necessarily discount the pedagogy of the NYC FPC Course, but it does provide evidence that additional measures should be implemented to ensure more effective education and training. It has already been suggested that operators may not want to adhere to public health law because of potential revenue loss, or that operators may feel more knowledgeable than the classroom information based on their experiences, but the data show that all the necessary information is still unknown. This then implies that more can be done in the area of public health education to address this knowledge gap.

## **8. Suggestions for Future Studies**

First, gathering data from one instructor's course and acquiring a sufficient sample set means collecting data over a period of several weeks or months from the Health Academy. Secondly, researchers are encouraged to examine why several pages are allotted for food related policies more so than smoking or calorie labeling, which happen to be the leading policies in litigation. Several of the legal cases discussed resulted from the smoking ban, the calorie labeling regulation, and even sugary foods, yet the coverage within the 97-page manual used solely for the course is minimal. Thirdly, perhaps future studies can focus on the instructor. Conducting a mixed method study, where both a quantitative section examining the result of their instruction, supported by a qualitative portion explaining the instructor's perception of teaching could provide additional answers to the pedagogy.

As suggested by the descriptive statistics of the years in the industry, the more years an owner has, the less he or she has shown an increase in knowledge of the law. This could be a suggestion for curriculum improvement for future research, especially by designing a curriculum specifically for more seasoned owners and workers. The same could be said for curriculum improvement and future research on curriculum design taking into account educational attainment. Finally, having completed the FPC course before, it is expected that the owner/operator would perform at an advanced level of knowledge, but that was not the case. Operators who had taken the course before performed relatively similar to those who had not taken the course before. There was no significant indication that the participants were 'Advanced.' Understanding why this occurred is an important area for future study and eventual curriculum improvement. In summary, this quantitative study provided statistical evidence supporting the significant increase of the NYC public health training course on operators' knowledge of public health, but it also suggested that other factors play a part in the increase or decrease of knowledge. Whether the operators were college educated, taken the course several times before, or just had the luck of sitting through the class of a thorough instructor, all factors played a part in their knowledge of public health.

Nonetheless, knowledge was not increased to an advanced level suggesting that improvement to their pedagogy, to include curriculum and instruction of the current course are warranted. The application of better strategies, whether in design, or implementation, are required to ensure that business owners are receiving the best training to effectively serve the public and promote good public health.

## References

- California Restaurant Association. (2014). California food handler card: SB 602 requires workers to receive food safety training. Retrieved from <http://www.calrest.org/issues-policies/key-issues/food-safety/foodhandler/>
- Center for Science in the Public Interest. (2008, November 6). *Philadelphia passes strongest nutrition labeling requirements for chain restaurant menus*. Retrieved from <http://cspinet.org/new/200811061.html>
- City of New York Department of Health and Mental Hygiene. (2013). *Food protection training manual*. Retrieved from <http://www.nyc.gov/html/doh/downloads/pdf/rrii/fpc-manual.pdf>
- City of Philadelphia Public Health. (2010). *What every Philadelphian should know about menu labeling*. Retrieved from [http://www.phila.gov/health/pdfs/What\\_Every\\_Philadelphian.pdf](http://www.phila.gov/health/pdfs/What_Every_Philadelphian.pdf)
- Fraser, A. M., & Nummer, B. A. (2010). Surveying the food safety training needs of environmental health specialists in the U.S. *Journal of Environmental Health, 72* (8), 18-23.
- Gasner, M. R., Fuld, J., Drobnik, A., & Varma, J. K. (2014). Legal and policy barriers to sharing data between public health programs in New York City: A case study. *American Journal of Public Health, 104*(6), 993-997. doi:10.2105/APH.2013.301775
- Gori, G. B. (2002). The Institute of Medicine report on smoking: A blueprint for a renewed public health policy. *American Journal of Public Health, 92*(6).
- Horn, R. A. (2004). *Standards primer*. New York, NY: Peter Lang.
- Jacobson, P. D., Wasserman, J., Botoseneanu, A., Silverstein, A., & Wu, H. W. (2012). The role of law in public health preparedness: Opportunities and challenges. *Journal of Health Politics, Policy and Law, 37*(2), 298-328.
- Kaufman, N., Allan, S., & Ibrahim, J. (2012). Using public health legal counsel effectively: Beliefs, barriers and opportunities for training. *Journal of Law, Medicine, & Ethics*. Spring 2013 Supplement, 41, 61-64.
- LaRocca, R., Yost, J., Dobbins, M., Ciliska, D., & Butt, M. (2012). The effectiveness of knowledge translation strategies used in public health: a systematic review. *BMC Public Health, 12*(1), 751-765. doi:10.1186/1471-2458-12-751
- Lockner, S. (2003). Public health: Smoking ban exceeds board of health's authority. *The Journal of Law, Medicine & Ethics, 31*(1), 163-165.
- New York Statewide Coalition of Hispanic Chambers of Commerce v. New York City Department of Health and Mental Hygiene*, 2014 N.Y., Lexis 1442; 2014 NY Slip Op 4804, (June 26, 2014).
- New York Statewide Coalition of Hispanic Chambers of Commerce et al., v. New York City Department of Health and Mental Hygiene et al.*, 110 A.D. 3d 1; 970 N.Y.S. 2d 200; 2013 N.Y. App. Div. LEXIS 5423; 2013 NY Slip Op 5505; Decided July 30, 2013.
- New York State Restaurant Association v. New York City Board of Health, New York City Department of Health and Mental Hygiene, Thomas R. Frieden*, U.S. Court of Appeals, 2<sup>nd</sup> Cir., 556 F. 3d 114; 2009 U.S. App. LEXIS 2905.
- O'Donnell, M. (2005, May 26). Metro briefing New York: Manhattan: Challenge to smoking ban dismissed. *The New York Times*. Retrieved from <http://query.nytimes.com/gst/fullpage.html?res=9904E0DD1039F935A15756C0A9639C8B63&module=Search&mabReward=relbias%3Ar%2C%7B%222%22%3A%22R1%3A18%22%7D>
- Ornstein, A. C., & Hunkins, F. P. (2009). *Curriculum: Foundations, principles, and issues (5<sup>th</sup> ed.)*. Needham Heights, MA: Allyn and Bacon.
- Saulny, S. (2004, April 9). Rejecting constitutional claims, judge upholds smoking bans. *The New York Times*. Retrieved from <http://www.nytimes.com/2004/04/09/nyregion/rejecting-constitutional-claims-judgeupholdssmokingbans.html?module=Search&mabReward=relbias%3Ar%2C%7B%222%22%3A%22R1%3A18%22%7D>
- Science Letter. (2005, December 13). New study links smoke-free ordinances to fewer heart attacks. Retrieved from <http://www.lexisnexis.com/lncui2api/delivery/PrintDoc.do?jobHandle=1829%3A31438>.
- Shechtman, M. (2011). Smoking out big tobacco: Can the family smoking prevention and tobacco control act equip the FDA to regulate tobacco without infringing on the first amendment? *Emory Law Journal, 60*(3), 705-749.
- Shwartz, M. (2007). *Study confirms the risk of exposure to secondhand tobacco smoke at sidewalk cafes and other outdoor settings*. Retrieved from Stanford University website: <http://news.stanford.edu/pr/2007/pr-smoke-050907.html>

- Siegel, M. B. (2011, May 5). A smoking ban too far. *The New York Times*. Retrieved from [http://www.nytimes.com/2011/05/06/opinion/06siegel.html?module=Search&mabReward=relbias%3Ar%2C%7B%22%22%3A%22RI%3A16%22%7D&\\_r=0](http://www.nytimes.com/2011/05/06/opinion/06siegel.html?module=Search&mabReward=relbias%3Ar%2C%7B%22%22%3A%22RI%3A16%22%7D&_r=0)
- Smith, J. A. (2008). Training individuals in public health law. *Journal of Law, Medicine & Ethics*, 3650-3660. Doi:10.1111/j.1748-720X.2008.00314.x.
- Stoppler, M. C., (2006). Dana Reeve dies of lung cancer. MedicineNet.com. Retrieved from <http://www.medicinenet.com/script/main/art.asp?articlekey=60375>.
- Sylvester, R. R. (2013). R.J. Reynolds Tobacco CO. V. FDA: The D.C. Circuit tells the FDA to butt out of the tobacco companies' business, causing the graphic image requirement of the Family Smoking Prevention and Tobacco Control Act to go up in smoke. *Creighton Law Review*, 46(4), 777-807.
- The New York City Department of Health and Mental Hygiene. (2013). *New York City Board of Health*. Retrieved from [www.nyc.gov/html/doh/html/about/boh.shtml](http://www.nyc.gov/html/doh/html/about/boh.shtml)
- The New York City Department of Health and Mental Hygiene. (2014). Retrieved from <http://www.nyc.gov/html/doh/html/services/hanyfood-online.shtml>
- U.S. Centers for Disease Control and Prevention (2011). *State smoke-free laws for worksites, restaurants, and bars*. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6015a2.htm>.
- U.S. Centers for Disease Control and Prevention (2012). *Health, United States, 2011* (Issue Brief). Hyattsville, MD. Retrieved from [www.cdc.gov/nchs/data/hs/hs11\\_InBrief.pdf](http://www.cdc.gov/nchs/data/hs/hs11_InBrief.pdf)
- U.S. Centers for Disease Control and Prevention (2012, March 9). *Quickstats: Prevalence of obesity among persons aged 12-19 years, by race/ethnicity and sex*. Morbidity and Mortality Weekly Report, 61(09); 165. Retrieved from [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6109a7.htm?s\\_cid=mm6109a7\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6109a7.htm?s_cid=mm6109a7_w).
- U.S. Centers for Disease Control and Prevention (2014). *High blood pressure fact sheet*. Retrieved from [www.cdc.gov/dhdsp/data\\_statistics/fact\\_sheets/docs/fs\\_bloodpressure.pdf](http://www.cdc.gov/dhdsp/data_statistics/fact_sheets/docs/fs_bloodpressure.pdf)
- U.S. Centers for Disease Control and Prevention (2014). *Overweight and Obesity*. Retrieved from <http://www.cdc.gov/obesity/adult/defining.html>
- U.S. Centers for Disease Control and Prevention (2014, July 11). Restaurant menu labeling use among adults – 17 states, 2012. *Morbidity and Mortality Weekly Report*. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6327a1.htm>