

Teaching Health Disparities, the Social Determinants of Health, and the Social Ecological Model through HBO's *The Wire*

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ABSTRACT

Purpose: Understanding the social determinants of health, health equity, and social justice from a social ecological perspective is vital for public health students. This paper provides an example of a creative method for teaching health disparities, using the HBO television series *The Wire*. **Methods:** The pedagogical strength of *The Wire* for public health courses is presented, a framework for using this media text in the classroom is shared, and implications for classroom instruction are explored. **Conclusions:** *The Wire* is an innovative and effective teaching tool for teaching health disparities and engaging the next generation of public health educators.

Keywords: health disparities, social ecological model, social determinants of health, *The Wire*

INTRODUCTION

HBO's groundbreaking television series *The Wire* has increased in popularity as a tool for educating students from various disciplines about issues related to life in inner-city America (Bennett, 2010). Although *The Wire* has been used more frequently in social work, urban planning, and sociology courses (Buttress, 2013), it has the potential to be as effective in public health courses that focus on issues such as health disparities, the social determinants of health, the social ecological model, social justice, and health equity. Specifically, Season 4 of *The Wire*, through its seamless presentation of the intersectionality of concentrated poverty, a failed education system, corrupt government, mass incarceration, and the war on drugs, among many other factors, provides a compelling platform for public health education. Since the Fall 2014 semester, students in an undergraduate health disparities course have

been assigned a final paper that required them to watch Season 4 of *The Wire* and conduct an analysis of a character's life, using the social ecological model (SEM). This paper demonstrates how Season 4 of *The Wire* can be used as an effective pedagogic tool in courses that address health disparities and presents a framework for using *The Wire* in the classroom.

The Wire

The Wire, broadcast on HBO from 2002 to 2008, is an American crime drama that depicts life in and around Baltimore, Maryland. Although the series ended in 2008, its content is relevant and timely in addressing current public health challenges. *The Wire* depicts systematic urban inequality and examines the interconnection of crime and incarceration, failed education systems in impoverished communities, and political institutions that are unable to effectively serve the urban poor. These are all issues that contribute to existing health disparities (Thorton

et al., 2016; South, Kondo, Cheney, & Branas, 2015). Courses focused on *The Wire* are currently taught at Harvard University and Johns Hopkins University, among many other institutions.

The series consists of five seasons, each having its own theme that focuses on an institution in Baltimore, including the drug trade, seaport system, city government and bureaucracy, education and schools, and print news media (Kinder, 2008). The power of *The Wire* is its ability to demonstrate how these various systems work together to affect the lives of the city's residents (Simon, 2008). Although it is based in Baltimore, *The Wire* could be a representation of many American cities. The producers of the series deliberately portray two Americas, one for the *haves* and the other for the *have-nots*, through carefully constructed images, characters, and story lines (Simon, 2008). What makes *The Wire* different from other television shows about inner-city life is its examination of the root causes of the various issues that are depicted, using a systematic storytelling approach that does not merely look at the *what* but also explores the *how* and *why* (Moore, 2011). It is this method of storytelling that provides viewers with the opportunity to critically assess the various health disparities that are demonstrated in the series through the lens of the social determinants of health. Furthermore, the depth of character development and vivid portrayal of the environment in which the characters exist, magnifies the social justice issues that are present and pushes the viewer to search for solutions grounded in equity.

Season 4 of *The Wire*

Season 4 of *The Wire* focuses on Baltimore's deteriorating education system. The central setting in this season is the Edward Tilghman Middle School, a poorly performing institution that services the surrounding poverty-stricken community (Simon & Bianchi, 2010). The main characters of Season 4 are a group of eighth-grade friends, Randy Wagstaff, Michael Lee, Duquan "Dukie" Weems, and Namond Brice (Simon & Bianchi, 2010). Randy is an entrepreneurial young man and foster child who, through a series of bad decisions, constantly finds himself in trouble. Randy's character

allows students to explore the foster care system and what can become of children who are in it. Randy comes across as the most likeable of the four boys. He is personable and ingenious with the various schemes that he devises to earn money legally, such as selling candy to his fellow classmates at higher prices. It is clear from watching Randy that, in a different setting with more opportunity, his life would have turned out more positively.

At 14 years old, Michael is forced to grow up quickly and to take care of his drug-addicted mother and his little brother. To survive and receive protection in such a dangerous environment, Michael must make many complex decisions and form alliances he might not have chosen under better circumstances. Michael's character allows the viewer to explore the consequences of a lack of adequate social services, mental health treatment, and functional family structure.

Duquan is a shy young man who is living in a home with drug addicts, where there is no food or running water. He is given the nickname "Dukie" by his classmates due to his terrible smell. Duquan is not performing well academically, and his character introduces the concept of social promotion in education, as he is passed to high school despite his academic limitations but later drops out due to his lack of preparation.

Although all of the boys are dealing with hardship in their homes, Namond, whose father is incarcerated and whose mother encourages him to sell drugs to uphold their lavish lifestyle, presents the most overt behavioral problems. As a result, he is placed in a study run by a local university that focuses on at-risk youth. One of the leaders of this program is a former police commander, Bunny Colvin. Bunny takes a liking to Namond, and, through a series of events, Namond moves in with Bunny and his wife, which positively changes the trajectory of his life. Namond's story gives students the opportunity to consider how the other boys' lives might have turned out if their circumstances had been different (Simon & Bianchi, 2010). The stories of all four boys demonstrate the social determinants of health and the various levels of

influence explored in the social ecological model.

Simultaneous story lines on the periphery focus on the drug trade, gang violence, a corrupt police force, and an ineffective political system. The landscape of Baltimore, as portrayed in *The Wire*, is one of severe urban blight. Underlying this blight are themes of masculinity, addiction, sexual abuse, race, and class. *The Wire* works because there are no easy answers or forced happy endings, which is an accurate portrayal of the lives of many of the residents of inner-city America.

TEACHING METHODS

Target Audience

This assignment was initially created for undergraduate public health students. Since the Fall 2014 semester, students in an undergraduate health disparities course have been required to watch Season 4 of *The Wire* and complete a final paper based on this series. Since the initial offering, this assignment has been required in 7 semesters and 210 students have completed it. Although this assignment has only been offered at the undergraduate level, it can be modified for graduate students.

Learning Objectives

The learning objectives of this assignment are as follows: 1) Students will conduct an analysis of the selected character and the related public health issues using the Social Ecological Model (SEM) (CDC, 2013), 2) Students will select the level of the SEM that they believe was most influential in the selected character's life and provide examples of primary, secondary, and tertiary prevention based on this level.

Materials and Resources

The Wire is available on major video streaming services including YouTube, HBO Go, Amazon Video, and iTunes. It can be viewed for free with an HBO Go or Amazon Prime subscription. It can be purchased for \$1.99 per episode or no more than \$20.00 for the entire season. *The Wire* can also be purchased as a DVD either as a box set for the entire five seasons or as individual seasons. For students who experience financial hardship, a copy of the

DVD can be placed on reserve at the university library.

TEACHING PROCEDURES

There are various strategies for using *The Wire* in a public health course. *The Wire* could be used as a media text, replacing traditional print text, and complemented with other course readings and lecture notes (Moore, 2011). The entire series is relevant for public health courses and has been used successfully in its entirety for semester long instruction. However, the more popular approach is to select one season of *The Wire*.

Season 4 has 13 episodes, and each episode can be assigned for independent viewing or shown in class weekly with a corresponding reading and an assigned exercise. Because the weekly option takes up more course time, it would work best in courses focused specifically on urban health. For courses with time constraints, instead of viewing the entire season, a condensed use of *The Wire* would incorporate selected episodes into specific lectures. This paper focuses on utilizing *The Wire* as the basis of a culminating course assignment. Regardless of the approach used, the first episode should be viewed in class and paired with a lecture to explain why this media text has been selected for the course.

An effective method for incorporating *The Wire* in public health courses is to use it as the basis for a 10- to 15-page final paper, leaving students to view it independently by an assigned date, usually four weeks before the end of the semester. This gives students more flexibility in viewing the series. To ensure that students are observing the important themes, the instructor should create worksheets for each episode that students complete while they are watching on their own. These worksheets will serve as a guide for students and allow them to focus on information pertinent to the final paper. The final paper should use the social ecological model (SEM) (CDC, 2013) to analyze *The Wire*. According to the Centers for Disease Control and Prevention (CDC, 2013), "the SEM is a systems model with multiple bands of influence. At the core of the model is the individual, surrounded by four bands of influence representing the interpersonal, organizational,

community, and policy levels” (para. 1). Figure 1 provides a visual representation of this model.

After viewing all 13 episodes, students select a character from Season 4 for whom they will conduct a SEM analysis and justify why the choice of this character is a good one for the focus of the final paper. This selection must be submitted to the instructor by an assigned date and approved before the student can complete the assignment. Although students are encouraged to select one of the four main characters, they can choose any character in Season 4 if they can justify the appropriateness of this selection. The final assignment is a research paper, supported by scholarly evidence, that incorporates course content about health disparities and the social determinants of health. The paper is comprised of ten sections:

- Introduction which includes a general overview of *The Wire*, the purpose of the paper, and the chosen character.
- Background regarding public health issues, health disparities, social justice, the social determinants of health and the population portrayed in *The Wire*, a brief summary of issues specifically related the life of the chosen character, and explanation of the significance of these issues using scholarly evidence and data.
- SEM individual-level contributing factors such as the chosen character’s race, gender, knowledge, attitudes, and beliefs.
- SEM interpersonal-level contributing factors such as family, peers, and social networks.
- SEM organizational-level contributing factors such as education system and employers.
- SEM community-level contributing factors such as advocacy organizations and community coalitions.
- SEM policy-level factors such as national, state, and local laws.
- Analysis of the level of the SEM, based on the student’s assessment, that affected the chosen character the most with an explanation of why this is the case.

- Proposal of interventions that would improve this level of the SEM on the primary, secondary, and tertiary prevention levels.
- Summary and conclusion which should include an overview of important points, recommendations for next steps, and the importance of health equity.

All sections of this assignment must be supported by scholarly evidence. Two scholarly sources for each section is the standard requirement. However, this can be modified by the instructor.

To assist students with the assignment, prior to starting the final paper, they should receive an outline containing an explanation of each of the ten sections. The SEM model diagram provided in Figure 1 should be provided to students to assist them in completing the SEM analysis sections. This may be the first time that some students have written a research paper of this length; thus, the outline also provides information about where scholarly sources should be used for each section and a detailed explanation of what each section requires. There is room for instructor modification here depending on whether the assignment is given in an undergraduate or graduate level course and also based on instructor expectations regarding the level of detail required in the final submission.

A lecture should be given at the beginning of the course to explain the assignment, elaborate on how *The Wire* has been used as a teaching tool in various disciplines, introduce the social ecological model, and serve as an introduction to this assignment. To provide students with opportunities to continue to think critically about the series and formulate ideas for their paper, throughout the semester, class lectures should regularly connect *The Wire* with course content. Instructors who choose to assign *The Wire* paper should ensure that the entire course is grounded in the framework of the social ecological model. Since, students will view *The Wire* independently, instructors can set viewing benchmarks and give quizzes on the episodes based on these benchmarks. For example, two quizzes can be given during the semester, one for Episodes 1 to 6 and another for Episodes 7 to 13 on the required viewing due dates. These

quizzes are optional. Instructors can create their own assessment tools to determine if students are viewing the series in a timely manner.

A final debriefing session should occur at the end of the semester where instructors can ask students to share the connections they made between *The Wire*, course content, and the social ecological model. During this time, students can also share their experiences regarding the assignment and *The Wire*. This can occur in the form of a discussion, survey questions, or reflection paper. Results from the final course debriefing sessions are shared in the next section.

STUDENT FEEDBACK ON THE WIRE

Since 2014, 270 students in an undergraduate health disparities course have completed this assignment. Students have been able to successfully meet both assignment learning outcomes. Student success is measured by their ability to apply all five levels of the SEM to *The Wire* and make connections to health disparities, the social determinants of health, and health equity. Because this semester long assignment is completed in steps, students can ask questions and receive guidance. Students are also given feedback on their paper outlines and allowed to make improvements before submitting the final paper. Student success is measured using the assignment rubric shown in Table 1. Most students score within the good and excellent range. Lower scores are due to students not following assignment instructions such as not including scholarly sources or not completing each of the required sections correctly.

Student feedback about the assignment and use of *The Wire* as a teaching tool were gathered from surveys and class discussions. The brief written surveys included open-ended questions regarding *The Wire* assignment. Students were given the option to provide consent for their survey responses to be used. The feedback is organized into five themes: (1) the experience of watching Season 4 of *The Wire*, (2) the process of exploring the social determinants of health through watching Season 4, (3) the process of learning the social ecological model through watching Season 4, (4) perspectives on *The Wire* as a teaching tool,

and (5) challenges in completing *The Wire* assignment.

Theme 1: Experience Watching Season 4 of *The Wire*

Overall, students found the use of *The Wire* to be a highly engaging and rewarding experience.

They used words such as *overwhelming*, *powerful*, *upsetting*, and *eye-opening* to describe their experience. Some students even noted that they found themselves crying and feeling progressively saddened as they watched more episodes. These students knew of neighborhoods that were similar to those presented in *The Wire*, but they had never given much thought to those who live there or what their lives are like. They admitted that they had no perception of such people's humanity and that, in regard to such people, they generally used one-dimensional phrases such as *those people*, *bad neighborhood*, or *the ghetto*. Through watching *The Wire*, these students could see that "those people" had hopes and dreams, laughed and cried, loved and lost, and deserved just as much of a chance at life as they did. One student stated, "Just reading statistics about high crime rates and concentrated poverty is not as powerful as seeing how this manifests and has consequences on many levels." Connecting with the lives of the characters truly had an impact.

Theme 2: Exploring the Social Determinants of Health through Watching Season 4 of *The Wire*

Various social determinants of health are explored in Season 4 of *The Wire*. Students were able to view what happens in a broken educational system in which not all teachers are of good quality; social promotion is the norm; teachers do not believe in the students or have lost hope in the process; there is a shortage of teachers; teachers are forced to teach to the test; and there are no textbooks, educational materials, or resources available to effectively deal with the various problems that the students have. Students stated that they could not imagine having to learn in this environment and that there was no way that someone who had to learn in this way could be expected to thrive. One student noted, "I was able to make the connection that learning is more than what happens in the classroom and that home and

community factors also play a role.” Students stated that they were able to understand the school-to-prison pipeline and make the connection among poor education systems, lack of employment options, and high incarceration rates.

Theme 3: Learning the Social Ecological Model through Watching Season 4 of *The Wire*

The Wire is excellent at showing the connections between events and contexts. Nothing occurs in isolation, and connections are always subtly displayed. Season 4 focuses on the relationships among poverty, racial discrimination, and institutional collapse—the socioeconomic conditions that give rise to criminal activity (Simon, 2008). Students commented that the SEM was clearer after watching *The Wire*. They now understood that the concept of individual responsibility has to be analyzed in the context of the social determinants of health. One student stated, “There was constant negative pile-up from so many directions that made it almost impossible to break the cycle of poverty.”

Theme 4: Student Perspectives on *The Wire* as a Teaching Tool

Students shared that, in courses that deal with complex subject matter, such as health disparities, they may understand the concepts in a superficial or intellectual way but that they are not connected to them. Few have lived them, which often results in the lack of a deeper level of empathy, compassion, or desire to make a difference. Watching *The Wire* allows students to get closer to the various issues that are discussed in public health courses. The main characters in Season 4 are very close in age to traditional undergraduate students. One student commented, “I always wanted the story to end well, but I knew that it wouldn’t, and I could not handle that because I came to realize that someone was living these same experiences, not too far from where I live.”

Theme 5: Challenges in Completing the Wire Assignment

Some students who have never been exposed to issues impacting inner city communities expressed an inability to relate to the lives of the characters in *The Wire*. They

shared that it was challenging to watch some of the more violent scenes and increased level of hardship that the characters experienced in daily life. This forced these students to expand their world-view and reflect deeply on the various issues presented in the series. Other students shared that the urban dialect used by the characters was difficult to understand at times. As a result, some students needed to watch certain scenes more than once. Students also shared that having to connect the levels of the social ecological model to the series forced them to engage in a deeper level of analysis. This required more effort for those students who had never written a research paper that requires critical thinking.

After watching Season 4, students felt an urgency to make a difference. There was a heightened sense of anger and frustration regarding social injustice. Students also noted that pairing episodes of the series with selected readings was an effective way to use *The Wire* in the classroom.

ASSESSMENT PROCEDURES AND EVALUATION RUBRIC

The Wire assignment is evaluated based on the assignment rubric provided in Table 1. There are ten sections of this paper each worth ten points. The evaluation rubric scale ranges from excellent to poor. Excellent (9-10 points): all section requirements completed correctly, demonstrates a thorough understanding of key concepts, significant detail is provided and supported by two or more scholarly sources, multiple relevant examples from *The Wire* are used, evidence from additional course materials including lecture notes and readings is also used. Good (6-8 points): most section requirements completed correctly, demonstrates a good understanding of key concepts, detail is provided and supported by one or two scholarly sources, moderate examples from *The Wire* and evidence from additional course materials including lecture notes and readings are also used. Fair (3-5 points): few section requirements are completed correctly, demonstrates a fair understanding of key concepts, limited detail is provided and information is not supported by scholarly sources, the section is lacking in detail and does not include sufficient examples or

provide evidence from the readings and course materials. Poor (0-2 points): section requirements not completed correctly, demonstrates poor understanding of key concepts, the section is missing detail, scholarly evidence, and does not include any pertinent examples or provide sufficient evidence from the readings.

DISCUSSION

For instructors in public health and community health education programs, all five seasons of *The Wire* provide rich material for course content. When instructors teach students about important social issues, they should combine their instruction with a charge to encourage students to work toward social change (Miner & Richter, 2008). In the case presented here, after students watch *The Wire* and complete their final paper, they are ready to take action. This would be an ideal time to have a service learning or community service course offering available.

There has been a call to action to improve training for public health students to equip them with the tools needed to meet complex 21st-century public health challenges, which are global, social, environmental, and economic (Godwin & Heymann, 2015). The first step toward this goal is to give students opportunities to engage in critical thinking and high-level analysis. Although students may be able to memorize definitions and concepts related to health disparities and the social determinants of health, it is more difficult to get them to immerse themselves in the content at a deeper level for various reasons, including discomfort with the material and lack of interest (Gonzalez & Bussey-Jones, 2010). Therefore, it is the role of instructors to provide a learning environment that encourages students to move to this next level. This is especially important when discussing new topics and ideas that students may find uncomfortable such as race and class. Instructors face the challenge of creating a learning environment that will make students want to engage and not retreat.

Students need to feel enthusiastic and stimulated by the content being presented and to establish an emotional connection to the

material, which will lead to greater sustained interest (Filene, 2005). Although textbooks and other course readings can provide a foundation, they may lack the motivating qualities needed to push students to this next level of learning (Hunt, 2001). Media such as movies, music, and television shows have proven to be effective for improving retention, clarifying content, increasing student engagement, and complementing course information (Mateer, Ghent, Porter, & Purdam, 2013; Trier, 2010). In many public health courses, however, content is typically tailored with a direct health message that may, at times, be uninspiring to students. Thus, instructors should use popular media, such as *The Wire*, to better engage students.

CONCLUSION

The need for creative public health teaching methods is apparent. Innovative strategies need to be implemented to enable students to connect with course concepts at a level that, at a minimum, helps them to learn and, at best, motivates them to engage in social change. This paper established that *The Wire* is an effective tool for public health education that focuses on health disparities, the social determinants of health, and the social ecological model. Students have shared positive feedback regarding the assignment and have also been able to meet the assignment learning objectives. Although *The Wire* is effective as a media text, there are many other options in popular television, movies, podcasts, and online series that could be just as effective. If instructors are not aware of what these may be, it can be helpful to ask students what they watch as well as to conduct a search of popular current media to determine what would be appropriate for a specific course.

In the final episode of Season 4, while Duquan is engaged in a conversation about his bleak future with a local boxing coach who has become a mentor for some of the boys, he asks, "Where do we go from here?" (Simon & Biachi, 2010). This poignant question is one that students can explore from a public health lens while watching *The Wire* or other relevant programming.

REFERENCES

Bennett, D. (2010, March 24). This will be on the midterm. You feel me? *Slate*. Retrieved from <http://www.slate.com>

Buttress, A. (2013). The wire and urban health education. *Journal of Urban Health, 90*(3), 359-368.

Centers for Disease Control and Prevention. (2013). *The social ecological model*. Retrieved from <https://www.cdc.gov/cancer/crccp/sem.htm>

Filene, P. (2005). *The joy of teaching: A practical guide for new college instructors*. Chapel Hill, NC: The University of North Carolina Press.

Godwin, H., & Heymann, S. J. (2015). A call to action: Training public health students to be effective agents for social change. *American Journal of Public Health, 105*(S1), S34-S37. doi:10.2105/AJPH.2014.302356

Gonzalez, C. M., & Bussey-Jones, J. (2010). Disparities education: What do students want? *Journal of General Internal Medicine, 25*(2), 102-107.

Hunt, C. S. (2001). Must see TV: The timelessness of television as a teaching tool. *Journal of Management Education, 25*(6), 631-647.

Kinder, M. (2008). Re-wiring Baltimore: The emotive power of systemics, seriality, and the city. *Film Quarterly, 62*(2), 50-57.

Mateer, D. G., Ghent, L. S., Porter, T., & Purdam, R. (2014). *Using media to enhance teaching and learning*. Retrieved from:

<https://serc.carleton.edu/sp/library/media/index.tml>

Miner, K. R., & Richter, D. L. (2008). Curricular innovation and the science of public health education: A call to action. *Public Health Reports, 123*(Suppl. 2), 1-4.

Moore, A. (2011). Teaching HBO's *The Wire*. *Transformative Dialogues: Teaching & Learning Journal, 5*(1), 1-14. Retrieved from http://www.kpu.ca/sites/default/files/Teaching%0and%20Learning/TD.5.1.9_Moore_Teaching_he_Wire.pdf

Simon, D. (2008, September 6). The escalating breakdown of urban society across the US. *The Guardian*. Retrieved from: <http://www.guardian.co.uk>

Simon, D. (Producer), & Bianchi, E. (Director). (2010). *The Wire: The complete series*. [DVD]. New York, NY: Home Box Office.

South, E. C., Kondo, M. C., Cheney, R. A., & Branas, C. C. (2015). Neighborhood blight, stress, and health: A walking trial of urban greening and ambulatory heart rate. *American Journal of Public Health, 105*(5), 909-913. doi:10.2105/ajph.2014.302526

Thornton, R. L., Glover, C. M., Cene, C. W., Glik, D. C., Henderson, J. A., & Williams, D. R. (2016). Evaluating strategies for reducing health disparities by addressing the social determinants of health. *Health Affairs, 35*(8), 1416-1423. doi:10.1377/hlthaff.2015.1357

Trier, J. (2010). Representations of education in HBO's *The Wire*, Season 4. *Teacher Education Quarterly, 37*(2), 179-200.

Table 1: The Wire Assignment Evaluation Rubric

The Wire Assignment Evaluation Rubric Criteria	Excellent (9-10 points)	Good (6-8 points)	Fair (3-5 points)	Poor (0-2) points
	All section requirements completed correctly. Demonstrates a thorough understanding of key concepts. Significant detail is provided and supported by two or more scholarly sources. Multiple relevant examples from <i>The Wire</i> and substantial evidence from course materials including lecture notes and readings are also used.	Most section requirements completed correctly. Demonstrates a good understanding of key concepts. Moderate detail is provided and supported by one or two scholarly sources. Moderate examples from <i>The Wire</i> and some evidence from course materials including lecture notes and readings are also used.	Few section requirements are completed correctly. Demonstrates a fair understanding of key concepts. Limited detail is provided and not supported by scholarly sources. The section is lacking in detail and does not include sufficient examples or provide evidence from the readings and course materials.	Section requirements not completed correctly. Demonstrates poor understanding of key concepts. The section is missing detail, scholarly evidence, and does not include any pertinent examples or provide sufficient evidence from the readings or course materials.
Introduction				
Background				
SEM-Level One- Individual Level Factors				
SEM-Level Two- Interpersonal Level Factors				
SEM-Level Three- Organizational Level Factors				
SEM-Level Four- Community Level Factors				
SEM-Level Five- Policy Level Factors				
Influential SEM Level				
Primary, Secondary, & Tertiary Prev.				
Summary and Conclusion				

Total Score:

Figure 1: Social Ecological Model



Centers for Disease Control and Prevention. (2013). *The social ecological model*. Retrieved from <https://www.cdc.gov/cancer/crccp/sem.htm>