Using Learning Experience Design (LXD) to Promote Decreasing Stigma in Creating a Video Series about Syringe Services Programs (SSP)

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Despite being a vital resource for persons who inject drugs (PWID), syringe services programs (SSPs) often face stigma from the general community and medical profession. To de-stigmatize and illustrate the collaborative practices of SSPs, the authors collaborated with three syringe services programs across Connecticut to create an animated video series called "Syringe Services Programs: Community Building, Testing, and Stigma." This design case describes how the aspects of the learning experience design (LXD) were used to create the animated videos. In addition, the authors discuss how the theory of intersectionality was used to inform the video design.

Introduction

Syringe services programs (SSPs) play a key role in the public health response to the current opioid crisis, which resulted in 91,799 overdose deaths in the United States in 2020 (CDC, 2019). SSPs are community-based prevention programs that provide services such as access to and disposal of sterile syringes and injection equipment and linkage to substance use disorder treatment programs that can provide medication-assisted treatments such as methadone (Martin et al., 2013). Decades of research show that SSPs are safe, effective, and cost-saving and play an important role in reducing the transmission of infectious diseases such as HIV (CDC, 2019). Despite these benefits, SSPs often face stigma from the medical profession and the general community due to the inherent negative societal attitudes towards persons who engage in active substance use. Public opinion and awareness of these programs remain poor, and many states limit or prohibit those programs (Broz et al., 2021).

Promoting awareness and acceptance of the vital role played by SSPs is an essential component of public health efforts to deal with the opioid epidemic. Various public health campaigns, such as the CDC's Rx Awareness campaign

that tells the stories of people impacted by prescription opioids, have been initiated primarily through state and local health departments with variable degrees of uptake by medical providers and patients. The subject matter is inherently challenging to depict, given that persons served by SSPs, namely, persons who inject drugs (PWID), commonly experience difficult life circumstances such as homelessness, food insecurity, unemployment, or concomitant illnesses such as Hepatitis C Virus (HCV), HIV, mental illness, and self-harming behaviors (Rosenthal, 2020). Given heightened sensitivity as well as politically charged polarization about these subjects, there is a tendency to avoid public depictions of sensitive subject matter. Therefore, it is important that any educational materials around the role of SSPs be designed carefully. It is crucial to portray the programs, their services, and the clients who use those services in a way that de-stigmatizes the processes of needle exchange and substance use disorder treatment and prevention.

Context

Design Team and Stakeholders

The four-person development team (training development specialist, AETC (AIDS Education and Training Center) coordinator, HIV physician, and data manager) created a video series entitled "Syringe Services Programs: Community Building, Testing, and Stigma" to better educate the public, including PWID (persons who inject drugs), and medical professionals about SSPs. We partnered with three SSPs across Connecticut. Those programs were: AIDS Connecticut, Hartford, CT; Greater Bridgeport Area Prevention Program (GBAPP), Bridgeport, CT; and The Yale Healthcare Van, New Haven, CT. Feedback from the staff at these SSPs was solicited from five focus groups during design and development stages; these staff included substance use counselors, case managers, and clinicians. Selected SSP staff members also viewed the videos for further input on the final design.

People Who Inject Drugs (PWID)

PWID are a heterogeneous group of individuals who often share a background of various types of trauma. Our videos aim to deconstruct interlocking systems of oppression by promoting social equality rather than perpetuating mono-categorical frameworks such as rich/poor, old/young, female/male, and others (Collins, 2019). Unfortunately, cultural norms and expectations significantly perpetuate these binary opposites and place vulnerable populations as persons who inject drugs within their structure, leading to more marginalization and intensifying trauma experiences (Bryant-Davis, 2019).

Using Learning Experience Design

While the design of videos traditionally encompasses aspects of multimedia following the application of multimedia principles (Mayer, 2017), learning experience design (LXD) adds important considerations to video development. Donald Clark devotes sections of his book "Learning experience design: How to create effective learning that works" to the question of how LXD improves learning through media. Clark (2021) upholds the idea that LXD offers a new way to achieve desirable and lasting learning outcomes by inserting a cognitive learning theory into a design process and incorporating scenarios that reflect learners' backgrounds and experiences:

> Learning Experience Design moves us from the old to new in three ways. First, injecting learning theory, especially cognitive science into the design process. Second, designing for learners in their world. Third, seeing experiences as more than just flat pieces of media but a whole world of learning experiences that motivate and result in lasting change to long-term memory. (p. 10)

In this design case, the elements of graphic design (emphasis, hierarchy, use of white space), motion graphics (transitions and animations), language choice, and color theory were carefully developed and applied to portray the inclusive culture of SSPs and their clients often experiencing stigma and marginalization. Applying LXD, which emphasizes the learner's socio-cultural background, such as their needs, desires, and emotions (Raza et al., 2020), and the context of learning allowed our team to reflect on the instructional design elements mentioned above during the

development process. More specifically, we asked the question of how these elements can support goals we set for the animations, which we defined as follows:

Goal 1: Expand knowledge about SSP services

Goal 2: De-stigmatize the syringe exchange process and the services provided by the SSPs

Goal 3: Combat preconceptions about persons who inject drugs (PWID)

Numerous researchers emphasize that LXD is a "result of integrating design practice from other fields (e.g., HCI, architecture, product design, software design, etc.) into instructional and learning design" (Schmidt & Huang, 2022, p. 148). The instructional design strategies used in this case constitute a framework for creating a meaningful and lasting learning experience.

> The videos are available on the Connecticut New England Aids Education Training Center (NEAETC) Connecticut Regional Partner's website (www.aetcct.org) and are a free resource for programs, clinicians, and clients. The authors created the videos as part of the HRSA- 17-047-funded grant entitled "Curing Hepatitis C among People of Color Living with HIV."
>
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Learning Experience and Trauma-Informed Design

It is important to note that the trauma-informed methodologies are rooted in two foundational design approaches: the human-centered design (HCD; Boy, 2017; Cooley, 1987), which centers around the idea that instructional design should be intuitive and respond to human needs, and universal design for learning (UDL), which tailors the instruction to the needs of every learner (Carr-Chellman, 2022).

Learning experience design expands on both: the universal- and the human-centered design by adding additional aspects such as the cultural backgrounds of the users, the choice of graphics and media, the human-computer interaction (HCI), and technology use (Chang & Kuwata, 2020; Jahnke et al., 2022). A specific, single definition of LXD does not exist since LXD as a theoretical model relies on multiple theories and instructional design methods (Chang & Kuwata, 2020). To design and develop effective learning, the LXD designer needs to utilize analytical and problem-solving skills, choosing the best design methods from different disciplines such as instructional and software design, learning pedagogy, behavioral sciences, data analytics, and others such as:

- usability research (Lu et al., 2022),
- cognitive load theory (Sweller et al., 1998),
- distributed cognition (Hollan et al., 2000),
- activity theory (Engeström, 2000; Kaptelinin & Nardi, 2018)
- theories of change (Bowen et al., 2020),
- flow theory (Nakamura & Csikszentmihalyi, 2009),
- and color theory (Kimmons, 2020).

Since the main goal of the videos is to create a stigma-free awareness of SSPs' work and activities, it is essential to discuss how instructional design decisions that inform the learning experience relate to trauma-informed design. Trauma and stigma are inherently intertwined (Frieh, 2020); thus, a trauma-informed pedagogical framework is relevant

for designing stigma-free media. Particularly in healthcare settings, more examples of media and software designs can be observed in recent years that aim at stigma reduction. Some approaches to stigma-reducing designs include a website created for women with endometriosis-associated dyspareunia developed by a group of medical professionals. The website's usability and its stigma-free approach to design were tested during interviews with 12 women with endometriosis. The inclusiveness and the accurate, empowering, and non-judgmental content constituted the foundational design. To address stigma, the respondents suggested allowing privacy settings, building trustworthiness, and providing an opportunity for engagement (Abdulai et al., 2022).

Another impactful stigma-free design is the "Stigma Free Worcester" mobile application, created to support the Worcester Department of Health and Human Services, United Kingdom, in addressing access to substance abuse and mental health care (Wood et al., 2019). The app has four main categories of resources: substance use, housing and shelter, mental health and support, and food and clothing. In addition, the outreach materials like flyers, posters, and cards demonstrate such design characteristics as reduced saturation, pastel colors, and the use of non-stigmatizing, personalized language.

Intersectionality and Stigma-Free Content

Considering intersectionality as a theoretical framework within the medical field for developing stigma-free content has been considered an essential instructional design practice. For example, a recent study proposes an innovative approach called a trauma-informed computing framework to minimize technology experiences that can be trauma-inflicting or exacerbating to individuals impacted by trauma (Chen et al., 2022). The framework is based on SAMHSA's (Substance Abuse and Mental Health Services Administration) six fundamental principles of trauma-informed approaches to technology design and development: safety, trust, collaboration, peer support, enablement, and intersectionality. The article then explains that intersectionality goes beyond gender and race identities and is intertwined with people's different identities, often entrenched in generational trauma. Intersectionality is then a logical approach to understanding these identities:

> Intersectionality goes beyond accounting for identity in the form of "checking the boxes for gender, race, or class" and considers how power relations at different levels of social structure are intertwined and mutually constructed. Since trauma is intimately tied to people's identities, lived experiences, and historical and generational traumas, computing must contend with intersectionality to create trauma-informed spaces. (Chen et al., 2022, p. 8)

Developed by the social justice and human rights scholar Kimberlé Crenshaw (1989) in her seminal work "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Anti-discrimination Doctrine, Feminist Theory and Antiracist Politics," intersectionality defines how various facets of an individual's social identity overlap to create and preserve societal disparities and bias. Due to the intersecting identities defined by gender, race, class, sexual orientation, religion, and social status, individuals are often marginalized within specific social groups and organizations. Intersectionality then encourages marginalized groups to find their voice and to produce knowledge grounded in their own experiences rather than promulgate prevailing interpretations of their societal roles within the existing power structures (Collins, 2019).

Julia Seng and colleagues argue that "intersectionality is an important lens for understanding health outcomes in relation to marginalized identities" since the intersections of race, gender, class, and other identifiers constitute social identity and affect health, often leading to trauma (Seng et al., 2012, p. 1). Therefore, understanding patients' cultural backgrounds is vital to restoring their sense of belonging (Comas-Diaz & Bryant-Davis, 2016). For example, psychologists working with sexual minorities demonstrating post-traumatic stress disorder symptoms should study discrimination experiences. Likewise, psychologists counseling Black and Latina women should bring emancipation, creativity, spirituality, self-development, activism, and resistance to internalized oppression (Bryant-Davis & Comas-Diaz, 2016). Treatment would include raising awareness, building connections with others, redefining oneself, self-expression, resistance to internalized oppression, and activism.

The intersectionality approach to stigma and trauma that addresses issues of inclusion, equity, and access can change marginalized communities' cultural framework and perception, leading to less exclusion and feelings of powerlessness, particularly if the medical community (such as SSP personnel and medical providers who refer to those programs) work together to combat these preconceptions.

Other researchers highlight other stigma reduction approaches to substance use, such as creating blended eLearning courses that include reading, self-reflection exercises, and skills practice on communication and stigma (Clair et al., 2022). A few studies have shown that eLearning can effectively decrease the stigma around substance use (Finkelstein & Lapshin, 2007; Griffiths et al., 2004; Kilian et al., 2021). Other stigma-reducing approaches relate to communication strategies such as telling positive stories about overcoming the disorder and motivational interviewing (Clair et al., 2022). Although there is evidence that online learning around substance use yields positive results in reducing stigma, there is little literature on applying learning experience design methodology. This case study is an attempt to fill this gap.

Design and Development Process of the Videos

Application to Video Design

To bring the marginalized identities of people who inject drugs (PWID) to the forefront of the videos, our development team decided to touch upon their socio-economic backgrounds and describe the support they receive from SSPs and the medical community. PWID often come from vulnerable communities, including sex workers or former inmates. The programs offer support to all clients regardless of their background through establishing such roles as client advocates and community leaders. Sometimes, the staff employed in these programs are former clients.

To promote de-stigmatization, the videos describe how the medical staff and providers who often refer their patients to those programs can facilitate non-intimidating conversations with their patients about their health and their lifestyle. The programs stay in close contact with their clients, sometimes suggesting places where clients can stay, have a meal or a shower. In addition, the animations portray the support services that assist clients, such as those provided by Ryan White funding, and how they are kept confidential.

The animations were designed for providers (primary care, HIV), staff (SSP and primary care), and clients. Through a multilayered composition, diverse content, the choice of graphics, and de-stigmatizing language, the videos' main goals are to break the stereotypical notions and beliefs about persons who inject drugs and the services provided. The section below describes the LXD elements such as technology, user's background, content development, language choice, and motion and graphic design.

Formative Work

The primary motivation for creating this series resulted from identifying of the knowledge gap about the services provided by the syringe services programs among the medical personnel within HIV clinics based in Connecticut. The development team conducted one-hour interviews with three programs' staff members, after which the content of the animations was carefully scripted in collaboration with the syringe services programs. During interviews, the development team inquired about the program's activities, the needs, and the demographics of their clients.

The team sought to collect information about the processes around syringe exchange and the struggles that the SSP staff encounter when they distribute supplies and needles on a weekly basis and provide access to other supplies. We were interested to learn about PWIDs, specifically their needs, daily struggles, how the SSP staff tries to engage with them to offer help in additional testing or housing options. This information would further inform our design decisions: how many episodes we would like to produce, who should narrate them, what colors to choose to represent this community best, and what information to emphasize on the screen to portray this community in a de-stigmatizing, inclusive way. During interviews, we asked follow-up questions and inquired about stories or interactions with clients to

understand the nuances of SPPs' work to accurately represent SSPs' socio-cultural settings and communities. Some of the questions we asked were:

1. What is your role in the syringe services program?

2. What information do you collect when a client comes to the syringe services program for the first time?

3. What supplies are available for clients?

4. What are some barriers to testing for HIV and Hepatitis C? How can testing be improved?

5. What improvements to your work could be made?

6. What does the process of needle exchange look like?

7. What are the most common barriers to treatment?

8. What do your clients mostly struggle with?

9. What precautions do you take during COVID-19?

Our team recorded interviews to ensure we captured all information and transcribed the recordings. Based on the transcriptions, our team created scripts that were reviewed by our team and stakeholders.

Choice of Animation

Our team chose an animation format to represent the syringe service programs' activities and the clients based on prior experiences and products that have used animation (Sims et al., 2022). One advantage of using animations is that animated videos communicate ideas in a more engagingly, leaving designers with a free choice of color and graphics.

According to Clark, learning experience design advances the idea of a short multimedia format to create "opportunities for effortful learning" (Clark, 2021, p. 22). LXD also promotes use of other short-format media such as social media, GIF (Graphics Interchange Format), and micro-learning that meet users' needs (Clark, 2021). In the case of our animations, the short form - up to 5 minutes - allows for better retention and dissemination on social media platforms.

Animations can communicate controversial and sensitive content in an approachable way through character creation, motion graphics, and diverse color palettes. Effective use of animation techniques can help injecting emotions (fun, excitement, pleasure but also empathy or sadness) into the design, which is one of the facets of LXD (Clark, 2021; Norman, 2004).

Development of Episodes

> LXD is strong on the word 'experience.' Single experiences are often commissioned but are often the only first step in the learning process. LXD should push us towards seeing ongoing experience as the key to good learning, not the one-off experience. (Clark, 2021, p. 21)

Based on the subject matter experts' feedback about the lack of knowledge about these programs within the medical community, we divided the content into four episodes. Dividing the video content into four episodes creates an opportunity for such "ongoing" learning experience. Episode screening can happen periodically to promote retention. To motivate the learner to watch further, each episode ends with a recap and with a foreshadowing of the next episode. Each episode was narrated by a staff member from a different syringe service program to ensure the diverse voices from different organizations and the inclusion of the communities addressed in the videos.

Episode One, entitled "The Van Goes out" describes services provided on the syringe services mobile vans, such as the distribution of needle supplies, the process of syringe exchange, syringe disposal, and the home delivery option. Episode one also describes the new client registration. Episode Two, called "Harm Reduction Model" explains various

approaches to harm reduction, such as safer use, abstinence, outreach, and support programs. It discusses referrals to health and support services and how the programs engage in community outreach through client advocates, community leaders, and secondary distribution. The episode outlines the syringe services programs' organizational structure and highlights staff responsibilities and prospects of professional development. Episode Three, "Testing and Referrals" describes testing for infectious diseases and linkage to care. Specifically, it illustrates how testing is performed on the mobile van and how clients are referred to medical care. Episode Four, "Barriers and Stigma" describes some barriers clients who use the syringe service exchange face. This includes stigma from the general community, resulting in a pushback against the van's presence, provider biases, and clients' concerns about confidentiality.

Storyboards for each episode were created (Figure 1). The development team used the animation software Vyond as the main animation tool. Other programs included PowerPoint, Adobe Premiere Pro, After Effects, and Adobe Illustrator.

Figure 1

Example Storyboard for the Opening of Episode 1: "The Van Goes Out"

Incorporating Destigmatizing Language

The stigmatizing language used to describe persons with substance use disorders can create barriers to accessing health care, employment, education, and affordable housing for individuals who want to contribute to society (Jackson-Best & Edwards, 2018; Zwick et al., 2020). Therefore, throughout the development process, the SSP staff instructed the development team on using de-stigmatizing language.

People with substance use disorders (SUDs) are often referred to as "dope fiends," "pot heads," and "addicts" who "abuse" drugs and have "dirty" urine tests (Earnshaw, 2020). De-stigmatizing this language assisted in the accurate representation of the values of the programs, their shared beliefs, and the programs' history. For example, instead of the term "dirty needles," authors used the term "used needles" or instead of the word "addict" - "a person suffering from substance use disorder." The use of de-stigmatizing terminology created an opportunity to shift public thinking from

exclusion and rejection to acceptance and inclusion into the public community. Persons referred to as "addicts" are frequently seen as more deserving of blame than people referred to as "having SUD" (Kelly et al., 2015). Using de-stigmatizing language can help gain public support for changing policies around substance use that promote the well-being of individuals in recovery (Earnshaw, 2020).

Use of Visual Design and Motion Graphics

The authors used authentic photographs that show street scenes as backgrounds (Figure 2) instead of animating the backgrounds or using abstract images. The photographs let the viewers better relate to the environment, where the syringe services programs operate, such as the settings where the needle exchange occurs. In addition, the viewers gain an understanding of some of the client's living circumstances, like housing and access to food. The authors also used the photographs provided by the SSPs, like the different supplies distributed to clients. The black and white backgrounds blend well with fictional elements like animated characters and objects, and the whole multilayered composition offsets the seriousness of the topic, engaging the viewer further through acquired depth and perspective.

Figure 2

Sample Black-White Backgrounds Showing Street Scenes

To prevent redundancy and reduce graphic overload, the authors applied graphic design principles when composing individual frames and staging elements within the frames. These principles are alignment, hierarchy, proximity, repetition, similarity, emphasis, space, balance, and contrast. Adhering to these principles ensures that the objects are positioned in a single frame so that the visual elements communicate ideas effectively and accurately, enhancing retention. For example, Figure 3 shows the animation excerpts outlining the needle exchange process. Here, graphic design elements have helped communicate the message about the supplies distributed to clients. The alignment creates an order between the elements on the screen (the supplies are organized in the back of the van). The more important elements, like the syringe service staff and the bucket with used syringes, are in the foreground, and the van with additional supplies stays in the background (hierarchy). The camera movement highlights the importance of the supplies and the staff member, which are placed close to one another and on the same axis (emphasis, balance, and proximity). There is a continuity in the scene, where the same supplies in the van stand outside the van in the second frame (repetition). The white and black photographs contrast the animated characters (contrast). The colors in the

second scene are the same as in the first one (similarity), and there is enough distance around the characters and above the elements (space).

Figure 3

Application of the Design Principles on the Example of the Needle Exchange Sequence

Another important aspect of learning experience design is the choice of colors. Colors carry meaning, help process information, and impact people's behavior (Elliot & Maier, 2014). In addition, research shows that different colors impact individuals' moods (Rider, 2010). Depending on the application area and the intensity, colors can be overwhelming and produce anxiety. In his chapter, "Color Theory in Experience Design" (2020) Kimmons suggests that learner's emotional reactions to colors originate from their cultural backgrounds and life experiences:

> *Colors elicit various emotional and physiological reactions from users that are important for designers to understand, and these reactions are determined by various factors associated with the colors themselves (e.g., hue, saturation, brightness) as well as the cultural and experiential backgrounds of users (e.g., this color reminds me of X). (p. 103)*

Kimmons further states that brightness and saturation account for "two-thirds to three-fourths of the detected variance in users' feelings toward color" (2020, p. 110). While it is not always possible to account for users' cultural backgrounds or experiences, it is possible to influence users' emotional response to the training content by changing saturation and hue. For example, different saturations and brightness of blue might elicit various feelings, ranging from tranquility, amazement or awe (Kimmons, 2020). Positive emotional reactions translate into enhanced learning outcomes.

In the case of our design, all our backgrounds have been transformed to white-black. We changed the saturation by adding more white for better contrast. Through the application of black and white backgrounds, our team's goal was to encourage the user to reflect on the situation of PWID.

Certain colors are used more often in specific settings. For example, blue is commonly used in healthcare since it builds trust and confidence and is non-threatening; green, also non-threatening, symbolizes renewal and clarity and is used in social services and the service industry; yellow is often used in non-profit organizations and cleaning products. The authors used predominantly shades of blue and green. Red and orange indicate danger, mistakes, and unwelcome behaviors.

In addition to the graphical elements, each episode has a narrator who is a medical staff working in one of the syringe services programs in Connecticut that the team collaborated with. Each episode starts with a short overview video presented by the medical staff appearing in person. Subsequently, the animated version of the staff member narrates the episode, occasionally appearing on the screen as an animated figure. Other animated characters (clients, pedestrians, counselors) have been carefully designed to show diversity, ethnic background, and racial diversity.

Implementation of the Video Series

The videos were completed in eight months (February 2020-September 2020). The videos are available on the Connecticut New England Aids Education Training Center (NEAETC) Connecticut Regional Partner's website (www.aetcct.org) and are a free resource for programs, clinicians, and clients. One of the privacy settings implemented on the website is password protected. Website visitors who wish to view the animations are asked to create an account. By accessing their account, they can view all the password-protected content available on the website, including animations. The videos can be accessed independently, asynchronously, and included in various educational settings as, for example, structured training in clinics. As a stand-alone resource, videos promote recovery among people who inject drugs and address stigma manifestations from some healthcare workers (Earnshaw, 2020).

Design Reflection and Limitation

This article describes the process for creating the video series "Syringe Services Programs: Community Building, Testing, and Stigma" with essential design principles embedded in LXD and intersectionality viewpoints. While we do not have formal quantitative or qualitative results to demonstrate the effectiveness of this approach, we have had preliminary feedback from early viewers (patients, providers) that suggest acceptability and utility.

Our video series attempted to address the trauma-based experiences of PWID. An essential aspect of trauma-informed instruction includes understanding users' backgrounds, recognizing the importance of acknowledging their social identities and sociopolitical context, and discussing issues within safe and inclusive settings (Bozkurt & Sharma, 2020; Carr-Chellman, 2022; Pica-Smith & Scannell, 2020; Watermeyer et al., 2020).

Existing research often focuses on the investigation of stigma on the individual level, with much less understanding of how to address the issue of stigma at the cultural and organizational levels (Smith et al., 2022). Through design techniques such as animation, choice of graphics, and colors, we aimed to promote accessibility and de-stigmatization and ultimately better understand the culture of care promoted in SSPs. Thus, more research is needed to understand the role and impact of how culturally responsive learning experience design can change public perception of marginalized communities and the stigma surrounding them.

There is also a need for more research on the effectiveness of the application of LXD to reduce stigma in the medical field and, specifically, on how the learning designers make the decisions to deliver a product that is stigma-free and results in long-lasting behavioral changes.

Considering our design, a significant limitation was the need for specific survey questions to evaluate if the videos successfully promoted de-stigmatization and intersectionality approaches to education on SSPs. The original questions we created in the pre- and post-survey were focused on knowledge assessment. Measuring the effectiveness of the videos on stigma reduction would require additional data study best conducted within a qualitative research format. The videos were created during the COVID-19 pandemic, when data collection, in-person or online, was challenging due to changes in work modalities, overall work uncertainty, and other issues. Future research will focus on assessing the

impact of the video series on decreasing stigmatizing attitudes towards persons who access SSPs and increasing favorable attitudes towards SSPs in general.

Conclusion

The authors created four animated video series entitled "Syringe Services Programs: Community Building, Testing, and Stigma," partnering with three syringe services programs (SSPs) across Connecticut as a novel approach to raise public awareness about the syringe services, which can lead to a better understanding of their client's needs and life circumstances, and consequently improve the health outcomes of those who inject drugs. The videos used LXD theory to emphasize the importance of stigma-free culture to address underlying issues such as trauma and intersectionality of identities faced by individuals suffering from substance use disorders. Specific application of LXD principles, following the user-centered design process, including elements of graphic design (emphasis, hierarchy, use of white space, and more), motion graphics (transitions and animations), language choice, and color theory can create a compelling and well-accepted platform with the potential to raise awareness about marginalized communities such as syringe services programs and their clients. Applying theories and methods from learning experience design can increase learner's knowledge about stigma, and it is a first step towards shifting public's perception about people who inject drugs and the importance of services they use.

References

Abdulai, A. F., Howard, A, F., Yong, P. J., Noga, H., Parmar, G., & Currie, L. M. (2002). Developing an educational website for women with endometriosis-associated dyspareunia: Usability and stigma analysis. *JMIR Human Factors, 9*(1), e31317. https://doi.org/10.2195/31317

Bozkurt, A., & Charma, R. C. (2020). Education in normal, new normal, and next normal: Observations from the past, insights from the present, and projections for the future. *Asian Journal of Distance Education, 15*(2), i-x. https://doi.org/10.5281/zenodo.4362664

Bowen, K., Forssell, K. S., & Rosier, S. (2020). Theories of change inlearning experience (LX) design. In M. Schmidt, A. A. Tawfik, I. Jahnke, & Y. Earnshaw (Eds.), *Learner and user experience research: An introduction for the field of learning design & technology*. EdTech Books. https://edtechbooks.org/ux/lx_theories_of_change

Boy, G. A. (Ed.). (2017). *The handbook of human-machine interaction: A human-centered design approach*. CRC Press.

Broz, D., Carnes, N., Chapin-Bardales, J., Des Jarlais, D. C., Handanagic, S., Jones, C. M. McClung, R., & Asher, A. K. (2021). Syringe services programs' role in ending the HIV epidemic in the US: Why we cannot do it without them. *American Journal of Preventive Medicine, 61*(5), 118-129. https://doi.org/10.1016/j.amepre.2021.05.044

Bryant-Davis, T. (2019). The cultural context of trauma recovery: Considering the posttraumatic stress disorder practice guidance and intersectionality. *Psychotherapy, 56*(3), 400-408. https://doi.org/10.1037/pst0000241

Carr-Chellman, A. A. (2022). Negentropy, profundity & trauma-infomed pedagogy: Three ideas to expand instructional design. *TechTrends, 66*(4), 564-567. https://doi.org/10.1007/s11528-022-00748-3

Centers for Disease Control and Prevention (2019). *Syringe Services Programs (SSPs).* https://www.cdc.gov/ssp/index.html

Chang, Y. K., & Kuwata, J. (2020). Learning experience design: Challenges for novice designers. In M. Schmidt, A. A. Tawfik, I. Jahnke, & Y. Earnshaw (Eds.), *Learner and user experience research: An introduction for the field of learning design & technology*. EdTech Books. https://edtechbooks.org/ux/LXD_challenges

Chen, J. X., McDonald, A., Zou, Y., Tseng, E., Roundy, K. A., Tamersoy, A., Schaub, F., Ristenpart, T., & Dell, N. (2022). Trauma-informed computing: Towards safer technology experiences for all. In S. Barbosa, C. Lampe, C. Appert, D. A. Shamma, S. Drucker, J. Williamson, & K. Yatani (Eds)., *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*, 1-20. https://doi.org/10.1145/3491102.3517475

Clair, V., Rossa-Roccor, V., Mutiso, V., Rieder, S., Musau, A., Frank, E., & Ndetei, D. (2022). Blended-eLearning impact on health worker stigma toward alcohol, tobacco, and other psychoactive substance users. *International Journal of Mental Health and Addiction, 20*(6), 3438-3459. https://doi.org/10.1007/s11469-022-00914-x

Clark, D. (2021). *Learning experience design: How to create effective learning that works*. Kogan Page Publishers.

Collins, P. H. (2019). *Intersectionality as critical social theory*. Duke University Press.

Comas-Díaz, L., & Bryant-Davis, T. (2016). Conclusion: Toward global womanist and mujerista psychologies. In T. Bryant-Davis & L. Comas-Días (Eds.), *Womanist and mujerista psychologies: Voices of fire, acts of courage* (pp. 277-289). American Psychological Association. https://doi.org/10.1037/14937-013

Cooley, M. (1987). Human-centered systems: An urgent problem for system desigers. *AI and Society, 1*(1), 34-46. https://doi.org/10.1007/BF0190588

Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A Black feminist critique of anti-discrimination doctrine, feminist theory and anti-racist politics. *The University of Chicago Legal Forum, 1989*(1), 139-167.

Earnshaw, V. A. (2020). Stigma and substance use disorders: A clinical, research, and advocacy agenda. *American Psychologist, 75*(9), 1300-1311. https://doi.org/10.1037/AMP0000744

Elliot, A. J., & Maier, M. A. (2014). Color psychology: Effects of perceiving color on psychological functioning in humans. *Annual Review of Psychology, 65*, 95-120. https://doi.org/10.1146/annurev-psych-010213-115035

Engeström, Y. (2000). Activity theory and the social construction of knowledge: A story of four umpires. *Organization, 7*(2), 301-310. https://doi.org/10.1177/13505084007200

Finkelstein, J., & Lapshin, O. (2007). Reducing depression stigma using a web-based program. *International Journal of Medical Informatics, 76*, 726-734. https://doi.org/10.1016/j.ijmedinf.2006.07.004

Frieh, E. C. (2020). Stigma, trauma, and sexuality: The experiences of women hospitalized with serious mental illness. *Sociology of Health & Illness, 42*(3), 526-543. https://doi.org/10.1111/1467-9566.13034

Griffiths, K. M., Christensen, H., Jorm, A. F., Evans, K., & Groves, C. (2004). Effect of web-based depression literacy and cognitive-behavioural therapy interventions on stigmatising attitudes to depression: Randomised controlled trial. *The British Journal of Psychiatry, 185*(4), 342-349. https://doi.org/10.1192/bjp.185.4.342

Hollan, J., Hutchins, E., & Kirsh, D. (2000). Distributed cognition: Toward a new foundation for human-computer interaction research. *ACM Transactions on Computer-Human Interaction (TOCHI), 7*(2), 174-196. https://doi.org/10.1145/353485.353487

Jackson-Best, F., & Edwards, N. (2010). Stigma and intersectionality: A systematic review of systematic reviews across HIV/AIDS, mental illness, and physical disability. *BMC Public Health, 18*(1), 1-19. https://doi.org/10.1186/s12889-018-5861-3

Jahnke, I., Schmidt, M., Earnshaw, Y., & Tawfik, A. A. (2022). Theoretical considerations of learning experience design. In H. Leary, S. P. Greenhalgh, K. B. Staudt Willet, & M.-H. Cho (Eds.), *Theories to influence the future of learning design and technology*. EdTech Books. https://edtechbooks.org/theory_comp_2021/toward_theory_of_LXD_jahnke_earnshaw_schmidt_tawfik

Kaptelinin, V., & Nardi, B. (2018). Activity theory as a framework for human-technology interaction research. *Mind, Culture, and Activity, 25*(1), 3-5. https://doi.org/10.1080/10749039.2017.139089

Kelly, J. F., Wakeman, S. E., & Saitz, R. (2015). Stop talking 'dirty': Clinicians, language, and quality of care for the leading cause of preventable death in the United States. *The American Journal of Medicine, 128*(1), 8-9. https://doi.org/10.1016/j.amjmed.2014.07.043

Killian, C., Manthey, J., Carr, S., Hanschmidt, F., Rehm, J., Speerforck, S., & Schomerus, G. (2021). Stigmatization of people with alcohol use disorders: An updated systematic review of population studies. *Alcoholism: Clinical and Experimental Research, 45*(5), 899-911. https://doi.org/10.1111/acer.14598

Kimmons, R., (2020). Color theory in experience design. In M. Schmidt, A. A. Tawfik, I. Jahnke, & Y. Earnshaw (Eds.), *Learner and user experience research: An introduction for the field of learning design & technology*. EdTech Books. https://edtechbooks.org/ux/color_theory

Lu, J., Schmidt, M., Lee, M., & Huang, R. (2022). Usability research in educational technology: A state-of-the-art systematic review. *Educational Technology Research and Development, 70*(6), 1951-1992. https://doi.org/10.1007/s11423-022-10152-6

Martin, N. K., Hickman, M., Hutchinson, S. J., Goldberg, D. J., & Vickerman, P. (2013). Combination interventions to prevent HCV transmission among people who inject drugs: Modeling the impact of antiviral treatment, needle and syringe programs, and opiate substitution therapy. *Clinical Infectious Diseases, 57*(2), 39-45. https://doi.org/10.1093/cid/cit296

Mayer, R. E. (2017). Using multimedia for e-learning. *Journal of Computer-Assisted Learning, 33*(5), 403-423. https://doi.org/10.1111/jcal.12197

Nakamura, J., & Csikszentmihalyi, M. (2009). Flow theory and research. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (pp. 195-206). https://doi.org/10.1093/oxfordhb/9780195187243.013.0018

Norman, D. A. (2004). *Emotional design: Why we love (or hate) everyday things*. Civitas Books.

Pica-Smith, C., & Scannell, C. (2020). Teaching and learning for this moment: How a trauma-informed lens can guide our praxis. *International Journal of Multidisciplinary Perspectives in Higher Education, 5*(1), 76. https://doi.org/10.32674/jimphe.v51i1.2627

Raza, A., Penuel, W. R., Jacobs, J., & Sumner, T. (2020). Supporting equity in schools: Using visual learning analytics to understand learners' classroom experiences. In M. Schmidt, A. A. Tawfik, I. Jahnke, & Y. Earnshaw (Eds.), *Learner and user experience research: An introduction for the field of learning design & technology*. EdTech Books. https://edtechbooks.org/ux/supporting_school_equity

Rider, R. M. (2010). *Color psychology and graphic design applications*. [Senior honors thesis, Liberty University]. Scholars Crossing. https://digitalcommons.liberty.edu/honors/111/

Rosenthal, E. S., Silk, R., Mathur, P., Gross, C., Eyasu, R., Nussdorf, L., Hill, K., Brokus, C., D'Amore, A., Sidique, N., Bijole, P., Jones, M., Kier, R., McCullough, D., Sternberg, D., Stafford, K., Sun, J., Masur, H., Kottili, S., & Kattakuzhy, S. (2020). Concurrent initiation of Hepatitis C and opiod use disorder treatment in people who inject drugs. *Clinical Infectious Diseases, 71*(7), 1715-1722. https://doi.org/10.1093/cid/ciaa105

Schmidt, M., & Huang, R. (2022). Defining learning experience design: Voices from the field of learning design & technology. *TechTrends, 66*, 141-158. https://doi.org/10.1007/s11528-021-00656-y

Seng, J. S., Lopez, W. D., Sperlich, M., Hamama, L., & Meldrum, C. D. R. (2012). Marginalized identities, discrimination burden, and mental health: Empirical exploration of an interpersonal-level approach to modeling intersectionality. *Social Science & Medicine, 75*(12), 2437-2445. https://doi.org/10.1016/j.socscimed.2021.09.023

Sims, K. M., Brooks, R., Nichols, L., Wegener, M. D., & Villanueva, M. S. (2022). Methadone referrals demystified: A client's journey into methadone treatment—social constructivism and the use of video-based content in medical provider education. In S. R. Tamim (Ed.), *Instructional design exemplars in eHealth and mHealth education interventions* (pp. 217-237). IGI Global.

Smith, J. M., Knaak, S., Szeto, A. C. H., Chan, E. C., & Smith, J. (2022). Individuals to systems: Methodological and conceptual considerations for addressing mental illness stigma holistically. *International Journal of Mental Health and Addiction, 20*(6), 3368-3380. https://doi.org/10.1007/s11469-022-00801-5

Sweller, J., van Merriënboer, J. J. G., & Paas, F. G. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 251-296. https://doi.org/10.1023/A:1022193728205

Watermeyer, R., Crick, T., Knight, C., & Goodall, J. (2021). COVID-19 and digital disruption in UK universities: Afflications and affordances of emergency online migration. *Higher Education, 81*(3), 623-641. https://doi.org/10.1007/s10734-020-00561-y

Wehbe, R. R., Whaley, C., Eskandari, Y., Suarez, A., Nacke, L. E., Hammer, J., & Lank, E. (2022). Designing a serious game (above water) for stigma reduction surrounding mental health: Semistructured interview study with expert participants. *JMIR Serious Games, 10*(2), e21376. https://doi.org/10.2196/21376

Wood, E. S., Kerkach, J. W., Mey, S. P., & Guzman, M. K. (2019). *Public health campaign for stigma free Worcester app*. Worcester Polytechnic Institute. https://digital.wpi.edu/show/z890w709

Zwick, J., Appelseth, H., & Arndt, S. (2020). Stigma: How it affects the substance use disorder patient. *Substance Abuse Treatment, Prevention, and Policy, 15*(1), 1-4. https://doi.org/10.1186/s13011-020-00288-0

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