

RESEARCH BINDER

Shepard's District: LGBTQIA+ Housing



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ADHM 351
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Current Issues Research Application Chart

EVIDENCE AND ANALYSIS OF RESEARCH - APPLICATIONS CHART		
REFERENCE - PRIMARY SOURCE	RESEARCH DISCOVERY/FINDINGS	DESIGN APPLICATIONS
<p>HOMELESSNESS Manly, J. (August 29, 2019). Dorothy Day Food Pantry Informational Tour. Personal Collection of Jim Manly, Dorothy Day Food Pantry, Fargo, ND.</p>	<p>Manly (2019) stated that nearly 35 – 40 families enter the food pantry each day the pantry is open. As the school year and winter nears each year the number of families entering the pantry typically rises to at least 50 each day open. Super Shelf, an organization working to renovate pantries is working with Dorothy Day to convert the space into a Choice Model pantry which is designed to act like a mini grocery store. The local food bank and Super Shelf are working together to educate the surrounding communities on the structure of food pantries and the donation process.</p>	<ul style="list-style-type: none"> • Design large, open-concept communal areas that can accommodate multiple families such as the food pantry. • Develop an interior environment that is space planned in common forms to provide reassurance, familiarities, and comfort as Super Shelf does with the Choice Model design of a typical, grocery store layout but on a small-scale size.
<p>SUPPORTIVE HOUSING McClafflin, B. (September 12, 2019). Personal interview.</p>	<p>Brady's informative interview presented us with information pertaining to the Churches United local homeless shelter as well as Bright Sky Apartments, local permanent supportive housing. For convenience household and hygiene items can be picked up upon entrance at the reception desk with 3 case managers located nearby for quick access. Storage is a huge need at the shelter for donations but also personal belongings. As the elderly, homeless population rises there is a high need for an overall ADA accessible space to accommodate all stages of life. Incorporating monthly parties such as birthdays and holidays creates in both facilities creates for a deeper community feeling. The addition of washers and dryers with automatic dispensers creates for a more cost effective and universal design.</p>	<ul style="list-style-type: none"> • Keep the reception desk close in proximity to the entrance and showers for household/hygiene item distribution convenience. • Maintain one floor level height throughout the space for ADA applications and accessibility. • Develop a community area that incorporates multiple areas of seating and indoor/outdoor living for large community-oriented events and rises in patrons. • To practice sustainability, create a laundry facility that has automatic dispensing systems to save on cleaning materials and time.
<p>WELLNESS National Alliance to End Homelessness. (2019). <i>Incidence and Vulnerability of LGBTQ Homeless Youth</i>(Report No. 2). Retrieved from HUD Exchange: https://b3cdn.net/naeh/1f4df9fc5fca414d92Lvim6ivd15.pdf</p>	<p>HUD (2019) states that 20 to 40 percent of homeless youth identify as LGBTQ. Many LGBTQ homeless are rejected by their immediate families because of who they truly are or ongoing family issues which threaten the welfare and safety of these individuals. LGBTQ homeless youth experience twice the rates of sexual abuse than their heterosexual peers before the age of 12. The National Alliance to End Homelessness discusses the extreme need for the overall safety of homeless LGBTQ members for reasons such as mental health, chemical abuse, sexual abuse, and death.</p>	<ul style="list-style-type: none"> • Develop safe/panic rooms to welcome residents that are experiencing high cases of anxiety, depression, and other high concerns. • Create community/family areas that are designed in an open concept layout to prevent private, un-visible areas to protect from assault of all forms. • Design spaces that can be used for productive and structured activities that help engage youth and give them focus and hope.
<p>WELLNESS Hunter, E. (2008). WHAT'S GOOD FOR THE GAYS IS GOOD FOR THE GANDER: MAKING HOMELESS YOUTH HOUSING SAFER FOR LESBIAN, GAY, BISEXUAL, AND TRANSGENDER YOUTH. Family Court Review, 46: 543-557. doi:10.1111/j.1744-1617.2008.00220.x</p>	<p>In Hunter's findings, he investigated the different youth shelters across America and found issues that were common among the spaces. Hunter identifies that most of the homeless youth is LGBTQIA+ youth. He states that this youth population is at great risk for assault and harassment. Their safety is in jeopardy. He discusses the need for safe spaces where the youth can lock themselves away and protect themselves from outside violence.</p>	<ul style="list-style-type: none"> • Use door styles that can lock effectively to protect the youth from outside violence/intruders • Design showers and bathing areas that are always one use to protect everyone from any sort assault. • Have designated areas for the youth where they can reside, so they are protected from harassment and physical injury.
<p>INCLUSIVE DESIGN Gibson, D. (2009). <i>The Wayfinding Handbook: Information Design for Public Spaces</i>. New York: Princeton Architectural Press.</p>	<p>Throughout Gibson's text he digs deep into the need of wayfinding and the ability to create applications that are far more than just informational. "Wayfinding is a form of brand extension that gives visitors the subtle incentive to come back to the space." The three variables that create a successful wayfinding design include: the individuals the organization associate with, the environment in which</p>	<ul style="list-style-type: none"> • Develop signage that directly connects with the architectural design and intent of the building/area. • Create elements that assist with movement through the wing of the apartment, and aide in people's needs.

	<p>installation will occur, and the identity of the client's organization. Signage throughout buildings needs to be integrated in an effective manner that complements the architectural design intent. Custom wayfinding should need to connect with the primary patron audience but also the secondary audience of day-to-day inhabitants such as employees and volunteers.</p>	
<p>SUSTAINABILITY McCoy, J. (2012), Sustainability: Environmentally Responsible Interior Design. <i>Journal of Interior Design</i>, 37: 5-6. doi:10.1111/j.1939-1668.2011.01070.x</p>	<p>McCoy presents information to the viewer about environmentally responsible interior design. She discusses how a dwelling can evolve to be "energy efficient" and "solar powered." One statement she makes is that there is hardly a topic within the branch of Interior Design that does not have a direct relationship with sustainability. Interior Design projects an important voice in the sustainability movement. Discussing topics on community, culture, family, and individual identity - Interior design can support many platforms of sustainability for the user's environment.</p>	<ul style="list-style-type: none"> • Use sustainable furnishing, fixtures and materials • Use energy conscious design decisions • Maximize sustainability through the design and construction of the interior environment
<p>TRANSFORMATIVE FURNITURE Pohlen, Tobias et al. "Semantic Segmentation of Modular Furniture." <i>2016 IEEE Winter Conference on Applications of Computer Vision (WACV)</i>. IEEE, 2016. 1-9. Web.</p>	<p>Throughout Pohlen's discussion, he brings up points of segmentation and how defining boundaries. He discusses how typical furniture is used within an interior environment. Examining the sizes of modular furniture and its effects on an interior environment, the designer can estimate minimum and maximum covering by the elements throughout the space. Pohlen attempts to identify how a piece of modular furniture can be interacted with.</p>	<ul style="list-style-type: none"> • Use research to identify how modular/transformational furniture can benefit an interior space. • Design a piece of furniture that can be transformed and benefit the design of the space for the user. • Design a piece that is durable, usable, functional, and aesthetically beautiful.
<p>COLOR Braham, W.W. (2002). <i>Modern Color/Modern Architecture: Amedee Ozenfant and the Genealogy of Color in Modern Architecture</i>.</p>	<p>Braham presents us with his detailed research and findings of color psychology, color theory, and the genealogy that is behind color selections. Architects and designers need to understand and be required to have a logic of color concepts which should organize and influence their work instead of unified theories of color psychology and perception. To set specified rules for color selections is to set up an easy entrance of debate structured with competing color explanations. The task of developing logic on this topic needs to start with the relationship examination that lies between color and form. Specific color palettes can be re-invented repeatedly in useful ways to translate to different situations, environments, and periods of time. Designers and architects must not fear color as a rule like fashion and the relentless cycles that quickly turn fashion trends into meaningless work. All buildings have a color palette even if just filled with neutral tones and whiteness they are still subject to fashion cycle dictations. The relationships between color palettes of today's fashion industry and innovations need to be understood in genealogical formats, which continuously cycles and recycles values of authenticity, solidity, and color qualities.</p>	<ul style="list-style-type: none"> • Brainstorm and develop color innovations that are not strictly influenced by theories and the history of color, but which connect directly with the interior environment. • As custom architectural elements are continuously being designed and edited keep color in mind and its connection with the architectural form. Exposed, industrial ceilings should be accented with color that is authentic and pushes the boundary of whiteness. • Work to focus our design not a trend in color that are influenced by architecture, color, or time. Push the boundaries and theories behind color and the innovations that surround it. Develop a custom, detailed reception desk that incorporates materials of multiple color palettes that accent each other while being chosen for genealogical reasons.

Research Articles



1

Ozenfant and the genealogy of architectural color

We must endeavor to introduce a little order into this business, or at least sense into a great deal of it. But what is sense without order? We must try to find some method of arriving at some sort of order - one that will at least enable us to escape from this vagueness in the design of colour.

(Ozenfant, 1937)¹

In 1937 the French painter Amédée Ozenfant wrote six articles about color for the highly respected *Architectural Review* in London. He had emigrated from Paris the year before and abruptly announced his intention to open a school of architectural color and decoration. The articles that he wrote advance a uniquely intriguing proposal for 'colour solidity' in architecture and are as witty and insightful as any of the more famous pieces that he wrote with Le Corbusier in the 1920s, but before discussing them we first have to ask some very basic questions such as 'Why and in what ways do architects use or even care about color?' Even the way we phrase such questions is shaped by deeper assumptions about form, function and appearance in architecture. Mark Wigley has re-examined those premises in his 1995 *White Walls, Designer Dresses*, arguing that even the most neutral and apparently stable element of modern architecture - the white wall - can itself be seen as a form of clothing and an element of fashion.² That book, along with groundbreaking work by scholars such as Arthur Rüegg and John Gage, radically changed our understanding of color and its role in the formation of the modern architecture of the 1920s and 1930s.³ Ozenfant's career as a painter and teacher, his

collaboration with Le Corbusier and even his clothing boutique, 'Amédée', recommend him as a guide to a full genealogy of color in modern architecture.

To be frank, Ozenfant was a better critic and writer than he ever was a painter (or dress designer). When he and Le Corbusier exhibited their first collaborative paintings in 1918, it was their jointly authored manifesto of Purism, *Après le Cubisme*, that really attracted attention. Their rapid emergence as leading figures in the European avant-garde owed less to the early products of Purism, the self-declared successor style to Cubism, than to the polemical nature of *L'Esprit Nouveau*, the journal with which they jointly advanced their ideas from 1920 to 1925. *L'Esprit Nouveau* not only led the artistic *rappel à l'ordre* of that period, but the name 'Le Corbusier' was itself conceived as Charles-Edouard Jeanneret's pseudonym for his architectural work in the journal, and his first four books, of which *Vers une architecture* remains the most famous, were largely compilations of articles conceived and written as part of their intensely collaborative Purist alliance.⁴ As a result Ozenfant is largely remembered among architects as just that: the early collaborator of Le Corbusier, the one who taught him to paint.

It is little wonder that Ozenfant terminated the collaboration in 1925 when he found himself overshadowed by the ever-expanding persona of Le Corbusier. By any other measure Ozenfant's subsequent career as artist, teacher and critic would have been deemed remarkably successful. He began teaching with the painter Fernand Léger soon after the Purist collaboration ended and later founded his own atelier, 'l'Académie Ozenfant', in the residence and studio that Le Corbusier designed for him. He moved the atelier to London as the Ozenfant Academy of Fine Arts in 1936 and then to New York in 1938, where it became one of the more popular independent art schools of the 1950s as New York became the new Paris. He continued to write widely and on many subjects

after the end of *L'Esprit Nouveau*, completing his book *Art in 1928*, which was soon translated into English as *Foundations of Modern Art* and remained in print until the 1950s.⁵

The standard biographical sketch suggests that Ozenfant's connection to architecture was through Le Corbusier, but a more complete introduction would recall the conditions at the beginning of their collaboration. Though Ozenfant trained as a quite traditional painter he spent the year before meeting Le Corbusier supervising the construction of a concrete factory building. Conversely, although Le Corbusier had just completed his first independent buildings in Switzerland, he was determining to become a painter. Their collaboration is emblematic of the intense encounters between architecture and painting that shaped the avant-garde of the 1920s. Not surprisingly, their collaboration produced a decidedly architectural style of painting, orthographically portraying everyday objects and rejecting any of the Cubist use of multiple points of view or the Neo-Impressionist attention to perceptual variations in light and color.

In the early Purist manifestos, color was simply deemed secondary to form, a conclusion that would prevail when Le Corbusier began to build again in the mid-1920s, carefully limiting his elegant polychromy to the visual reinforcement of discrete architectural surfaces. The Purist approach was in opposition to the more aggressive use of color by Theo van Doesburg and the De Stijl group, who allowed bold primary colors to alter the formal and spatial appearance of their buildings. Such disputes are not original to the avant-garde of the 1920s and that is the basic thesis of this book: architects have had difficulty deciding how to use color since at least the polychromy dispute of 1830, when the austere whiteness of the Neoclassical was first called into question.⁶ These kinds of difficulties with color constitute a central element in the 'tradition' of modern architecture and will be examined in depth in Chapter 4.

The belief that the architecture of the avant-garde of the 1920s

was largely white has concealed what was in fact a quite vigorous use and discussion of color. The explicitly colorful postmodernist reaction of the 1980s largely reinforced myths about the whiteness of this avant-garde and created an essentially nostalgic picture of nineteenth-century polychromatic explorations, imagining them as the final remnant of meaningful traditional practices rather than as a first encounter with the increasingly uncertain conditions of the modern era. Debates about color are an often small element in these larger encounters, but like slips of the tongue or other seemingly minor details, color helps reveal those issues that have been suppressed, allowing architects a more critical insight into their own practices.

The 1920s and 1930s remain a critical moment for modern color use, and for modern architecture itself. This is the period to which architects return again and again, whether to celebrate or denounce the visibly revolutionary break with previous practices. Many recent studies have established just how many contradictions existed within that period, and the canonizing histories by Siegfried Giedion or Nikolaus Pevsner underscored the decades of experimentation that preceded the modernist rupture.⁷ The purpose of this study is not to tell that history again, nor to simply re-explore the new insights about whiteness or fashion, but to examine the origins of our particular understanding of architectural color. The point of departure for this genealogy is the proposal for 'colour solidity' that Amédée Ozenfant advanced in his articles for the *Architectural Review* 1937, a somewhat paradoxical proposal that demands an account of its genesis.

Unlike Le Corbusier, Theo van Doesburg, Bruno Taut, Alberto Sartoris, El Lissitzky, Fernand Léger or other members of the avant-garde who were actively experimenting with architectural color, Ozenfant did not write to explain or justify a particular practice, but to examine architectural color directly. Paradoxically, he drew both on his early association with the

Neo-Impressionist painter Paul Signac, whose experiments with nineteenth-century theories of color and perception profoundly shaped modern painting, and on the principles of Purism that he and Le Corbusier had conceived as a rejection of precisely that tradition of optical experiment. Fie explained that architectural color became an issue because of the many radical changes in construction techniques and the newly transient nature of modern urban life to which he attributed what he called the 'divorce of painting and architecture' and which, like the tales about the whiteness of the new architecture, distracted architects from their own encounter with modern color.

To understand the problems that color induces in architecture, it is not enough simply to read Ozenfant's articles, though his article on 'English color' alone would provide a worthy course of study. Nor is it sufficient merely to review the projects and positions of the period. The examination of modern architectural color requires an investigation of the 'morality tale' that runs through modern architecture, a tale that warns against the dangers of decoration, symbolic representations and the appreciation of color's pleasures for their own sake. Such messages are conveyed in many settings by many means, mostly in the subtle ways in which table manners or conventions of dressing are learned, and they are just as often resisted by those questioning such lessons. As Gilles Deleuze has explained, a genealogy identifies the origins of a particular set of practices at the same time that it establishes the distance traveled from those origins, denying us any possibility of recovering the initial condition. A genealogical study of color also reveals the forms of prohibition and longing that prompt its investigation. Wigley has taught us about the complex aspirations that surround the use of whiteness, and this book seeks to develop the full genealogy of that condition, beginning with Ozenfant's complex notion of 'colour solidity'

Conceiving this work as a genealogy is not merely a metaphor, but a tactic for discovering the architectural values around which

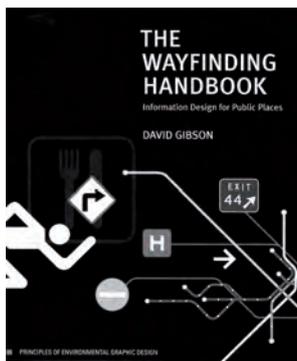
the modern architectural tradition has been assembled.⁸ Ozenfant's essay on the 'English Tradition' offered no simple rules of color selection, combination or use, but a vivid examination of the kinds of color differences - strong and gentle, constructive and destructive - with which that tradition was elaborated. His *Architectural Review* articles offer an equally strong warning about the fixing of such traditions, about the cultural changes and conditions that alter them, especially with such a visually changeable element as color. The articles contrast starkly with the dogmatic statements that he and Le Corbusier made about color in the various Purist documents, such as 'form is pre-eminent, color is only one of its accessories'.⁹ The scientific aspirations of those early years gave way to the more pragmatic and painterly understanding that Ozenfant developed through his work and writing in London, even though he continued to wrestle with the earlier terms he had employed.

Expectations about color methods have been influenced by scientific thinking since at least the beginning of the nineteenth century, shaped by the belief that color practices should be based on some objectively true theory of color perception. Whatever the standards required in color science, such criteria have little relevance to decisions about the use of color in architecture. Specific color palettes can be usefully invented again and again, translated to different situations and periods. That condition is generally feared among architects as the rule of fashion, because its relentless cycles can quickly render their work meaningless. The solution seems simple: exclude color and you exclude change and fashion. But of course all buildings have a color palette, even the whitest, most neutral or natural ones, and they too are subject to the dictates of fashion. The relationships among color palettes, among today's innovations and yesterday's fashions, can only be understood genealogically, as the cycling and recycling of specific values - solidity, authenticity and so on - discovered in and demonstrated through qualities such as color.

to be predictive of human response to the built environment. He would like to see architectural research follow a more scientific route in order to arrive at good design. He ruminates on the possibility that if Frank Lloyd Wright's 'architectural vocabulary' could be shown to have a grounding in science, then this 'vocabulary' could be usefully applied as the basis for future projects, in the same manner that scientific methods are constantly improved and developed. This will sit uneasily with designers who see more in architectural expression than a tool to achieve defined human responses.

Eberhard succeeds in opening up the cross-over field of neuroscience and architecture; a field that had never before been so clearly defined, and having read this book, one recognises its connections to many different areas of architectural research. One could criticise the quality and relevance of some of the images, and some of the spelling and referencing, which nevertheless should not detract from the book's plea to bring more scientific understanding to the effects of the built environment, and its potential to shake-up environmental psychology and behaviour research.

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Finding the Way

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The Wayfinding Handbook: Information Design for Public Places, by David Gibson, Princeton Architectural Press, 37 E 7th street, New York, New York, USA, 2009. 152 pp, *illustr., index.* Price € 17.90 Pbk. ISBN 978-1-56898-769-9.

This is a useful, short handbook on the graphic and information design aspects of wayfinding, with the sub-sub-

title of "A manual for students, teaching, professionals and clients".

David Gibson, a Canadian and graduate of the Yale University School of Art, who has worked for the US design firm Two Twelve Associates for almost three decades, wrote the book. Based on his experiences as an environmental graphic designer, he has realised that wayfinding has become an important issue in graphic design and the design of places. The role of the wayfinding designer, as he refers to it, is to provide information for people in order to help them find the way to their destination. Environmental graphic design, such as appropriate signage, is a tool to give information to these people. He claims that the wayfinding designer is the middle person between people and places in order to make a better designed environment. This book is a compilation of his experiences and his personal knowledge about wayfinding design. While it refers, mostly in passing, to other writers on wayfinding, the book is based almost exclusively on his own design experience.

This book aims to give a concise overview of the wayfinding design process and some graphic heuristics for good wayfinding design. The contents consist of the role of wayfinding designers in the wayfinding design process and some fundamentals of wayfinding design in terms of signage. The book consists of four chapters – the 'discipline' of wayfinding design, planning wayfinding systems, wayfinding design and practical considerations.

The 'discipline' chapter explains the importance and history of wayfinding in the environment, the types of clients and projects that require wayfinding design and the definition of wayfinding designers and their roles. A very brief history of the 'discipline' of wayfinding is limited to four pages, whereas the majority of the chapter shows examples of his and his firm's wayfinding graphic designs.

The second chapter, planning wayfinding systems, illustrates the design process of wayfinding, the planning and wayfinding strategies of a signage program in urban planning and the categories of signs, contents and locations. Some of the chapter is 'old hat', like the chart of the general architectural design process from client

meetings to construction administration. Again, there are multiple examples from his firm's professional work including wayfinding plans for a variety of corporate campuses, universities and hospital complexes. The last of these has often been a wayfinding nightmare, on which considerable research has been conducted, though none of it is reported here.

The third chapter focuses wayfinding design in details such as branding and placemaking, typography and layout, colour, symbols and maps, forms, materials and media, and green design for sustainability. Some of this chapter is less about wayfinding *per se*, and more about signing for corporate branding. The sections on choosing typefaces and other design details show a wealth of valuable professional experience to guide the new professionals and students.

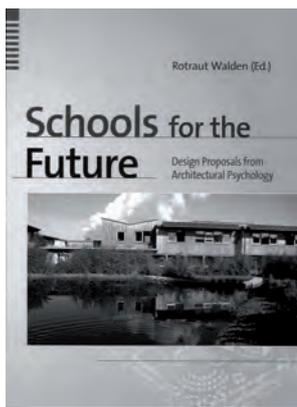
The last chapter is about practical considerations. It shows many more examples of wayfinding projects. The chapter illustrates how clients get involved and support projects. It focuses on feedback from users in order to see what might occur on a particular site after using the wayfinding design package, followed by the code requirements that might affect the wayfinding design project. The chapter concludes with a segment on the implementation of the wayfinding projects from the ideas to the signed documentation package.

Based on these contents, this book is suitable for architects, interior designers, planners and environmental graphic designers who are interested in the wayfinding design process from a practical viewpoint. However, scholars and researchers who are interested in wayfinding theory or the latest empirical research may find this book less useful for several reasons.

First of all, this book focuses on the 'theory' of environmental graphic design in terms of signage design rather than wayfinding theory. In other words, the book informs readers about methods of managing the wayfinding design process and the principles of signage design in order to give information for people in the public spaces. The book does not have any parts relating how the designed signage can decrease the wayfinding problems or help people in wayfinding decision making. Secondly,

in terms of a wayfinding handbook, the book should have other parts related to larger-scale environmental aspects, for example, floor-plan configuration and visual access that are known from the research literature, and practical experience, to help people to find their destinations. Interestingly, the three pages of bibliography are almost exclusively about signing, graphic design, colour and typography. The strengths of the book are its wealth of design experience and its focus on graphic design. The weaknesses are the flip side of that coin, the lack of tackling the larger issues of wayfinding planning including such factors as the effects of floorplan configuration or campus configuration on ease of wayfinding, wayfinding under extreme situations of mild to moderate visual handicaps and the interactive effects on wayfinding of lighting, terrain, visibility and other larger architectural and urban design factors. These other aspects facilitate wayfinding ability as well as the smaller scale factors of graphic design. Nevertheless, as a companion to the well-known architectural wayfinding books by Passini and by Arthur and Passini, this book fills a niche about the smaller-scale issues of graphic wayfinding design.

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Schools for the Future

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Schools for the Future: Design Proposals from Architectural Psychology, edited by Rotraut Walden; Hogrefe & Huber Publishers, 875 Massachusetts Avenue, 7th Floor, Cambridge, MA 02139, 2009. 261 pp, illus., appendices, refs. Price US\$ 28. ISBN 978-0-88937-351-8.

Architecture and its influence on users in school environments is beginning to find a significant place in contemporary 21st Century educational thought. In the 21st Century – the information and technology age – necessities have changed rapidly. As a result, education systems in various parts of the world have changed and school buildings are struggling to deal with the latest needed changes. In this context, the editor has challenged her authors to answer two deceptively simple questions: “What are the new trends in school buildings” and “What is emerging in educational practice that may affect school design tomorrow?” Four authors plus Walden discuss these questions as they explore concepts of lifelong learning, active participation and technological development and their impact on the architecture of school buildings. As the concept of “school” has since the 1990s become enlarged to a notion of community campus, the book also investigates the new, community-based model of teaching and learning. The main premise is to outline some of the principles of the design of flexible and adaptable school buildings for today and for the future.

Rotraut Walden, editor of this book, has a tenured position at the Institute for Psychology of the University of Koblenz, Germany. Her major fields of research are architectural psychology and work and organizational psychology, while she is also interested in educational and social psychology. With this book, she merges her discipline (architectural psychology, or more broadly known outside Germany as environment-behavior studies) with school architecture. As well as Rotraut Walden, the other authors, representing three continents (North America, Europe and Asia) are Henry Sanoff, the recently sadly deceased Jeffery Lackney, Simone Borrelbach and Kaname Yanagisawa, with shorter appendices contributed by Peter Hübner and Friedensreich Hundertwasser.

The book is comprised of eight chapters plus two appendices. The first chapter is introductory, in which Walden outlines the book in general, for example the importance of school buildings to education and gives an overview of each chapter.

The next three chapters are about the history of school buildings in the USA, Germany and Japan. First, Lackney presents a history of USA school buildings from early colonial times to the present. He argues that the history of the schoolhouse in the USA was affected by educational philosophy, goals, curricular objectives, instructional methods and cultural values. He then shows these changes on educational architecture under three general periods of American social, economic and political history: the Agrarian Colonial Period (1650-1849), the Industrial Revolution (1850-1949) and the Information Age (1950-present). Included, as an example from the Industrial Revolution period, is a lovely historical photograph of the famous Golda Meir School in Milwaukee, named after the first female prime minister of Israel.

Yanagisawa describes the brief history of formal Japanese school planning. He traces the development from the Meiji era (1868-1912) through to contemporary times. A feature of this short chapter is the extensive inclusion of plans and photographs of contemporary Japanese schools.

Then, Borrelbach outlines the history of schools in Germany, with an emphasis on the main historical pioneers of change. One can find information about the many reform movements and their implications on the form of the school building by Maria Montessori, Rudolf Steiner, Peter Peterson and Helen Parkhurst.

The remaining chapters, the third part of book, are related to the school of the future. In an extensive chapter opening this section of the book, Walden discusses the impact of major architectural aspects of school buildings on learning; namely, color, form, design, lighting, heating, cooling and ventilation, acoustics and noise, furniture and equipment, and density and crowding. As well as these, ecological and organizational aspects are taken into consideration. In addition, she stresses the user design and appropriation by students to interact with their learning environment directly. She examines all aspects regarding environment-behavior studies with long and useful list of references to the scientific literature from various parts of the world.



Sustainability: Environmentally Responsible Interior Design

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A Voice of Sustainability in Interior Design

Do you remember when the discussions on sustainability evolved from cutting household costs through “energy efficiency” and “solar power” to a growing awareness that resource conservation includes social and cultural implications as well as physical and economic impacts? Perhaps it is enough to know that early on interior design educators and practitioners embraced the reality that our responsibility to the planet and its inhabitants included meeting diverse needs and expectations of the people who occupy the environments we design. There is hardly any topic or subject within interior design that doesn’t have a direct relationship with sustainability. More than a responsibility for selecting “green” materials, we now also acknowledge that sustainability in interior design aligns with client values and vision. For interior design, this involves not only space planning for efficiency and productivity, but also embracing a holistic approach to fostering sustainability for both individual workers and aggregate organizations. Sustainable environments include schools that are learning environments and hospitals that are healing environments. Interior design decisions can support and sustain community, culture, family, and individual identity. Designers elevate the most vulnerable when we design for equality and justice. Interior design projects an important voice in the sustainability movement.

While graduate designers entering the profession today have been steeped in the principles and practices of sustainability, they do not always have adequate tools and information necessary for the task. The research presented in this first installment of a special double issue of the *Journal of Interior Design* 37.1–2 offers unique, cutting-edge perspectives and evidence intended to inform design efforts that enhance the health, well-being, and safety of those who travel the planet with us. Lisa Tucker, Ph.D. introduces this thematic issue with a historical analysis of the influence of the Architects’ Small House Service Bureau (ASHSB), who proposed a small house model for addressing some of the challenges of net zero carbon housing solutions and sustainable houses in the United States which were small, affordable, and also designed well. We next move to Julia Day, M.A., Judy Theodorson, M.Arch, and Kevin Van Den Wymelenberg, M.Arch who examine workers’ ability to control office daylight and its perceived influence on performance. Finally, the special issue concludes with a paper by Young Lee, Ph.D. who presents a case for using building information modeling (BIM) in green simulations during the design process with special implications for interior design.

We believe that it is the responsibility of the *Journal of Interior Design* to be provocative, to encourage the exchange of ideas, methods, and outcomes. New ideas are rarely born of agreement, but it is more likely that truly new concepts emerge as others question our beliefs and strategies—arguing for alternative points of view. With this in mind this issue of the *Journal of Interior Design* will offer its readers unique and challenging perspectives on sustainability. It is our intention to encourage and stimulate new ideas informing the practice and pedagogy of interior design.

In this issue, we are honored to include the perspective of Susan Szenasy, who is by any standards, a leader in design. As the editor-in-chief of METROPOLIS and the creator of the Smart Environments Award offered by

I N T R O D U C T I O N

New ideas are rarely born of agreement, but it is more likely that truly new concepts emerge as others question our beliefs and strategies—arguing for alternative points of view. With this in mind, this issue of the Journal of Interior Design will offer its readers unique and challenging perspectives on sustainability.

International Interior Design Association, Susan has traveled the world discussing the value of interior design and urging both designers and clients to respect the planet and the many species it supports. No stranger to speaking her mind and advocating for a greater emphasis on designing for sustainability, Susan brings a thoughtful, provocative voice to our focus on Sustainability and Interior Design. From a very personal perspective, she intertwines her life experience with the roots and milestones of the sustainability movement and sets the stage for the three unique, distinctive studies contained in this volume.

The volume of the Journal will follow with the invited perspective of Linda Sorrento, FASID, former Senior Director, Education Partnerships at the U.S. Green Building Council. JID 37.2 will dive deeply into the issue of sustainability by presenting refereed articles examining definitions of comfort and the need for understanding unique cohorts who are impacted by interior design. It is our belief that Linda Sorrento's and Susan Szenasy's essays along with the voices of the scholars represented in JID 37.1–2 should ignite much discussion of the meaning and future direction for interior design in the sustainability movement.

Dr. Janetta Mitchell McCoy has published numerous peer-reviewed papers and conference papers. She has 14 years of experience in the private practice of workplace design, and over 20 years in design education and research. Adding to her interest in creative places, Professor McCoy has recently focused on the launch of an action research program of service for small rural, impoverished communities with a goal of using the physical environment to enhance much needed economic development in historic downtown districts. At Washington State University, Professor McCoy's design studios introduce emerging designers to EB research in support of underserved populations. In addition to her commitment to the Journal of Interior Design as Associate Editor, she is a frequent reviewer for Environment & Behavior and the Journal of Environmental Psychology. She is most proud of IDEC's recent recognition of her work with the 2011 Community Service Award.

Semantic Segmentation of Modular Furniture

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Abstract

This paper proposes an approach for the semantic segmentation and structural parsing of modular furniture items, such as cabinets, wardrobes, and bookshelves, into so called interaction elements. Such a segmentation into functional units is challenging not only due to the visual similarity of the different elements but also because of their often uniformly colored and low-texture appearance. Our method addresses these challenges by merging structural and appearance likelihoods of each element and jointly optimizing over shape, relative location, and class labels using Markov Chain Monte Carlo (MCMC) sampling. We propose a novel concept called rectangle coverings which provides a tight bound on the number of structural elements and hence narrows down the search space. We evaluate our approach’s performance on a novel dataset of furniture items and demonstrate its applicability in practice.

1. Introduction

Visual understanding of indoor scenes is a crucial task for many applications in robotics. Most notably, the interaction of autonomous robots with complex indoor scenes requires an accurate semantic labeling. While there have been many approaches for a coarse labeling of entire indoor scenes (e.g. [6, 15, 29, 12]), only very little work goes beyond an analysis on the object level [22].

In this paper, we want to address the logical next step and provide a more detailed analysis of object semantics (see Figure 2). We take advantage of the fact that many furniture items exhibit a modular internal structure: They are composed of a set of common *interaction elements* (doors, drawers, or shelves) in a variable yet constrained (modular) spatial configuration.

We present a first approach for the semantic segmentation of such modular furniture that is applicable to bookshelves, wardrobes, office cabinets, etc. Given the front face of a furniture item, our goal is to find and label the individual interaction elements (Figure 1). Here we focus on rect-



Figure 1: Our approach performs semantic segmentation of modular furniture into doors (red), drawers (green), and shelves (yellow).

angular front faces and the three most common interaction elements: *doors*, *drawers*, and *shelves*.

Comparing the problem of furniture segmentation to the problem of segmenting entire indoor scenes reveals several new challenges: First, we are interested in a structured segmentation that clearly defines the boundaries of the individual interaction elements. A noisy pixel-wise segmentation would not be sufficient in order to infer the structural information that is required for an interaction. Second, as also noted by [34], traditional visual cues such as color and texture are not particularly useful for labeling furniture as their surfaces are often uniformly colored and have a similar textural appearance. Third, furniture items often include additional decorative elements prohibiting simple rectangle detection from being able to locate or even determine the number of parts (See Figure 1).

We therefore propose a two-stage segmentation approach. In the first stage (Section 3), we generate an *over-complete* set of *interaction element proposals*. Here,



Figure 2: For a given indoor scene (left) the bounding box of the furnitures’ front face can be estimated *e.g.* by [16]. We rectify this bounding box which then serves as the input to our pipeline (right).

over-complete means that for all interaction elements there should be at least one matching proposal. Under the assumption that all interaction elements are rectangular, each proposal is a labeled and weighted rectangle. The weight is proportional to the probability of the candidate being an interaction element of a certain kind (*i.e.*, a door, a drawer, or a shelf). In the second stage of the approach (Section 4) we select the set of proposals that forms the best *modular* semantic segmentation of the furniture, *i.e.* the separation into interaction elements. We formulate this proposal selection as an energy minimization problem.

Contributions. 1) To the best of our knowledge, we propose the first approach devised for detailed segmentation of modular furniture from single images. 2) One important aspect when representing an object composed of a set of parts is the size of the part set. We provide a novel approach to estimate tight bounds on this quantity. To that end we estimate minimum and maximum coverings by elements through solving a sequence of quadratic integer programming problems. 3) We propose a new classification approach based on a generative codebook. It is able to classify furniture elements that are weakly textured but still share class-specific structural traits. 4) We present a new furniture dataset and corresponding ground truth annotations¹.

2. Related Work

Segmentation approaches. Many segmentation approaches rely on pixel grouping based on feature similarities [7, 17, 26, 9]. These basic segmentation approaches do not take semantic information into account. Most work done in order to incorporate semantic information, can be assigned to one of two categories. The first category of approaches groups neighboring pixels and then classifies them [10]. The second category tries to incorporate semantic information directly into the segmentation itself [28, 2, 19, 20]. Unfortunately, the aforementioned methods just provide a noisy pixel-wise segmentation and do not

model the inherent structural properties of modular furniture items.

Indoor scene parsing approaches. [14] and [33] exploit the fact that man-made objects are mostly composed of rectangular elements. Their approach is closely related to ours in the sense that we also generate an initial over-complete set of rectangles and then arrange the current selection of rectangles in the inference stage. However, their work does not consider semantic information.

Facade parsing approaches. The problem of parsing building facades into the architectural elements is similar to our problem of furniture segmentation. Both – facades and modular furniture items – show rectangular, grid-like, recursive structures. One class of methods directly performs a bottom-up analysis, either starting from a noisy segmentation [23] or by inferring repetitive structures [25]. Another class of methods uses shape grammars [30] in order to combine top-down semantic grammar rules with the bottom-up shape cues derived from the image. In most cases, a suitable grammar is manually designed to fit one particular style of architecture [32, 24, 31, 27]. This keeps the parsing technique from generalizing well to similar problems. These grammar based approaches are most powerful if the grammar represents an underlying architectural style, where each instance follows a relatively similar derivation. This is not the case in our problem setting.

Furniture parsing. [21] addresses the problem of furniture detection and pose estimation using an exact 3D CAD model. [11] proposes joint 3D object and layout inference by explicitly modelling occlusion visibility and physical constraints. The inference of a 3D object heavily depends on the 3D CAD model. In contrast to those methods, our approach does not rely on any pretrained object models.

3. Interaction Element (IE) Proposals

In the following, we assume that we are given a single image of a modular furniture from an uncalibrated camera. Moreover, we assume that the furniture item has a rectangular front face whose bounding box is known. For this we rely on a preprocessing step (such as the method from [16]).

Using the bounding box of the furniture item’s front face, we first approximately rectify the region of interest by computing a homography that maps the front face to a rectangle of approximately the same aspect ratio (Figure 2). The rectified region of interest serves as the input to our pipeline. This allows us to constrain the search to rectangular axis-aligned interaction elements.

In the first stage of the algorithm we generate an over-complete set of proposals with the goal of generating at least one matching proposal for each interaction element of the furniture item. Having an over-complete set of proposals allows us to compute the semantic segmentation by performing subset selection.

¹www.vision.rwth-aachen.de/furniture

We generate the proposals in three steps: *detection*, *pruning*, and *weighting*. We first perform a supervised approach to generate a *semantic edge map*, a binary image that labels rectangle border pixels. Based on this semantic edge map, we exhaustively search for rectangle candidates. Then, we perform an unsupervised pruning step that removes rectangles that are unlikely to correspond to IEs of the furniture. Finally, we compute weights for all candidates and their corresponding labels, resulting in the final pool of rectangle proposals.

3.1. IE Candidate Generation

Semantic edge map. Following the idea of Dollár *et al.* [8] we predict edge pixels using a *random forest* [4]. In contrast to performing general edge detection, the goal of our semantic edge map is to identify only those edges that belong to interaction element boundaries. We train an ensemble of *binary decision trees* based on feature vectors $\mathbf{x} = (x_1, \dots, x_d)^T \in \mathbb{R}^d$. Two different kinds of randomness are used in the tree training process: Each tree is computed on a randomly sampled subset of the training data and the parameters of the tree nodes are optimized over a randomly sampled subset of features. Each node v of the trees is a simple decision stump comparing one entry of the feature vector x_{d_v} to a threshold θ_v . The leaf nodes store the posterior probabilities for each class label. We stop growing the tree when the number of samples in a node falls below a threshold. As feature vector we use image patches of size 25×25 pixels defined over four channels: Intensity, derivatives in x and y direction, and gradient magnitude. For predictions, the output of the different trees are combined via weighted majority voting.

Candidate generation. Based on the semantic edge map, we detect horizontal and vertical lines using the Hough transform. By iteratively sampling two horizontal and two vertical lines, we form rectangle hypotheses defined by the convex hull of the four intersection points of the respective lines. A hypothesis is accepted (*i.e.*, a rectangle is detected) if the maximum distance from any boundary pixel to the closest edge pixel is small. This can be efficiently implemented using a distance transform of the edge map. If the number of iterations is sufficiently high, the candidate set contains all IEs with high probability.

3.2. IE candidate Pruning

The candidate generation step yields a large set of rectangles, most of which do not correspond to actual interaction elements. We perform an unsupervised pruning step to greatly reduce the number of irrelevant rectangles.

As a side product of this candidate pruning we also obtain lower and upper bounds on the possible number of interaction elements of a furniture item. The following algorithm is based on the idea that the correct set of non-overlapping interaction elements should cover almost the

entire front face of the furniture item.

A “good” rectangle covering. Let $\Omega \subset \mathbb{R}^2$ be the region of interest (*i.e.* the rectangular front face of the furniture item). A selection of K rectangles $r_1, \dots, r_K \subset \Omega$ is an (ϵ, δ) -rectangle covering of Ω if

$$\frac{1}{|\Omega|} \left| \bigcup_{k=1}^K r_k \right| \geq \epsilon, \quad \frac{|r_k \cap r_l|}{\min(|r_k|, |r_l|)} \leq \delta, \quad \forall k \neq l \quad (1)$$

where $|r_k|$ denotes the area (Lebesgue measure) of the rectangle r_k . These two properties state that a “good” rectangle covering must span at least a portion ϵ of the region of interest Ω while the intersection area between all two pairs of rectangles is smaller than a portion δ of the smaller rectangle. While we can learn the parameter ϵ using the coverage statistics of the training data, we set $\delta = 0.1$ in order to accept a selection of rectangles if each pair of rectangles does not overlap by more than 10%. Ideally, we would like to set $\delta = 0$. However, this might conflict with the sometimes noisy rectangle detection.

Calculation of the maximal (minimal) covering. Inferring the true number of parts can be challenging for furniture items with ambiguous rectangle structures. Because we will try to find an optimal selection of parts in the second step of the pipeline (Section 4), an estimate of the number of parts helps to restrict the size of the search space. In order to obtain these covering numbers, we successively try to fit a rectangle covering for a fixed number K of IE candidates.

This can be achieved by solving quadratic integer programs for different values of K . Let r_1, \dots, r_N be the IE candidates. We set up two matrices $A, O \in \mathbb{R}^{N \times N}$ for the two defining properties of an (ϵ, δ) -rectangle cover. Set

$$A_{n,m} = \frac{1}{|\Omega|} |r_n \cap r_m|, \quad (2)$$

$$O_{n,m} = \mathbb{I} \left[\frac{|r_n \cap r_m|}{\min\{|r_n|, |r_m|\}} > \delta \right], \quad (3)$$

for $1 \leq n, m \leq N$, where \mathbb{I} is the *indicator function* that is 1 if the argument is true and 0 otherwise. Furthermore, let $q \in \mathbb{R}^N$ with $q_n = |r_n|/|\Omega|$ for $1 \leq n \leq N$. If for a fixed $K \in \mathbb{N}$, the optimal objective of the following quadratic integer program is not less than ϵ , then the optimal value x^* of the selector variables, defines an (ϵ, δ) -rectangle cover of size K :

$$\max_{x \in \{0,1\}^N} q^T x - \frac{1}{2} x^T A x - 2x^T O x \quad (4)$$

$$\text{subject to } \sum_{n=1}^N x_n = K$$

We optimize this program using the Gurobi software [13].

Using the rectangle covering for pruning. We finally use the maximum (ϵ, δ) -rectangle covering to reduce the set of IE candidate rectangles. This pruning procedure is based on the intuition that the semantic segmentation should cor-

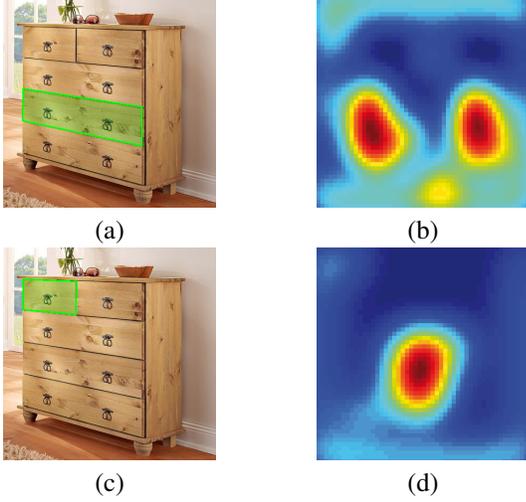


Figure 3: The images (b) and (d) show the distributions of gradients within the marked rectangles in the images (a) and (c) respectively. The door handles are clearly visible as small regions with large gradients.

respond to a maximal covering (*i.e.*, a rectangle covering with the largest possible number of rectangles). While this is not always the case, rectangles that are similar in size and location to the ones from a maximal covering usually form good proposals for interaction elements. Therefore, we prune the initial set of IE candidates of all the rectangles that are dissimilar to the ones in a computed maximal covering. To be specific, if r_1, \dots, r_N are the initial IE candidates and r_{n_1}, \dots, r_{n_K} form a maximal (ϵ, δ) -rectangle covering, then we prune the rectangle r_n from the set if $\max_{k=1, \dots, K} \frac{|r_n \cap r_{n_k}|}{|r_n \cup r_{n_k}|} < \theta$ where $\theta \in [0, 1]$ is the *pruning threshold*.

3.3. IE Candidate Weighting

We assign each IE candidate a weight and a class label. The weight quantifies the likelihood of an IE candidate belonging to a certain class. We model the weights in terms of the conditional probability

$$p(l | r, I) \propto \underbrace{p(I | r, l)}_{\text{Appearance likelihood}} \underbrace{p(r | l)}_{\text{Shape prior}} \underbrace{p(l)}_{\text{Label prior}}, \quad (5)$$

where I is the image, r is a rectangle, and $l \in \{\text{door, drawer, shelf}\}$ is a class label. The shape and label priors can easily be modeled using standard machine learning techniques. For the shape prior, we extract the width and height of the rectangle relative to the size of the region of interest as well as its aspect ratio and then use kernel density estimation with a Gaussian kernel. Modeling the appearance likelihood, however, is more challenging.

Many traditional appearance-based classification methods make use of strong visual cues such as color and/or

texture. However, due to the mostly uniform appearance of furniture items, those features often are not sufficiently discriminative. Instead, we build our appearance likelihood based on the observation that interaction elements of a certain class tend to exhibit particular traits such as handles at distinct positions (*e.g.*, many drawers have a handle at the center). These traits are visible in a gradient magnitude image as regions with strong gradients (Figure 3).

We design the appearance likelihood in terms of a codebook of such traits. For this, we resize the appearance of an interaction element in the gradient magnitude image to a uniform size of $M \times M$ pixels and use this as a feature vector of dimensionality M^2 . Let $v_{r,I} \in \mathbb{R}^{M^2}$ be the feature vector for the rectangle r in the image I . The idea is to represent $v_{r,I}$ in terms of a linear combination of codebook vectors called *codewords*. We learn one codebook per class. Given the codewords $p^{(1,l)}, \dots, p^{(J,l)} \in \mathbb{R}^{M^2}$ for class l , we express the appearance likelihood as

$$p(I | r, l) \propto \max_{\substack{\pi \in [0,1]^J \\ \|\pi\|_1 \leq 1}} \exp \left(- \left\| v_{r,I} - \sum_{j=1}^J \pi_j p^{(j,l)} \right\|_2^2 \right). \quad (6)$$

Hence, the likelihood is large if there exist coefficients π such that the feature vector $v_{r,I}$ can be approximated well (in the l^2 -norm) by the linear combination $\sum_{j=1}^J \pi_j p^{(j,l)}$. In order to evaluate this expression, the optimal coefficients have to be determined. Taking the negative logarithm yields the quadratic program

$$\begin{aligned} \min_{\pi} \quad & \left\| v_{r,I} - \sum_{j=1}^J \pi_j p^{(j,l)} \right\|_2^2 \\ \text{subject to} \quad & \pi_j \geq 0, j = 1, \dots, J \\ & \sum_{j=1}^J \pi_j \leq 1 \end{aligned} \quad (7)$$

whose solution is the optimal coefficient vector.

Codebook learning. Let $v^{(1)}, \dots, v^{(N_i)}$ be the feature vectors corresponding to the groundtruth rectangles of class l . We learn the codebook for each class independently by executing the following algorithm.

1. Initialize the codewords by assigning $p^{(1,l)}, \dots, p^{(J,l)}$ randomly to some feature vectors
2. While the decrease in the objective function (8) is significant
 - (a) For each $n \in \{1, \dots, N\}$ determine $\pi^{(n)}$ by solving the quadratic program (7) with $v_{r,I} \equiv v^{(n)}$.
 - (b) Update the codewords by solving the quadratic

program

$$\min_{p^{(1,l)}, \dots, p^{(J,l)}} \sum_{n=1}^N \left\| v^{(n)} - \sum_{j=1}^J \pi_j^{(n)} p^{(j,l)} \right\|_2^2 \quad (8)$$

subject to $p_m^{(j,l)} \geq 0, j \in [J], m \in [M]$

where $[J] = \{1, \dots, J\}$ and $[M] = \{1, \dots, M\}$.

The iteration over step 2 is required due to the alternating optimization of $\pi^{(n)}$ and $p^{(1,l)}, \dots, p^{(J,l)}$. This concept of learning a codebook is closely related to the field of sparse coding where one usually minimizes an l^1 -regularized squared loss. Because our feature vectors are discrete probability distributions, we included additional constraints to reflect this setup. While intuition might suggest that constraining the problem to guarantee that the learned codewords form probability distribution themselves should be the best design choice, the opposite is the case. We want the codewords to reflect class specific visual traits. However, usually only a fraction of the entire probability mass is concentrated on these traits. Thus, they do not form probability distributions themselves. Therefore, we only constrain the codewords to be non-negative.

4. Proposal Selection by Energy Minimization

In the second step of the system, we compute the semantic segmentation by selecting the *most modular* subset of proposals. To this end, we define an energy function that scores the modularity of a selection of IE proposals by the number of *forced merges* in the *modularity tree* that we introduce in the next section. We minimize the energy function using an MCMC-based optimization technique called *simulated annealing* [5, 18, 3].

4.1. Modularity Tree

In order to score the modularity of a fixed selection of IE proposals, we build a *modularity tree*. The modularity tree inductively finds and merges constellations of similarly sized rectangles in a bottom-up fashion. Each node in the tree is labeled with a rectangle that tightly encloses the rectangles of its child nodes and a flag that indicates whether or not the node is a result of a *forced merge*. A forced merge always occurs if there are no two similar rectangles that can be merged, see Figure 4. Algorithm 1 shows the main loop of the tree building algorithm.

The tree is initialized using all rectangles as leaf nodes (INITIALIZETREE). Each iteration of the while loop adds a new layer to the *modularity tree*.

The FINDCLUSTERS function. It takes as argument a set of rectangles and returns a set of clusters. The clusters are found by maximizing the number of rectangles that are contained in clusters and minimizing the total number of clusters. From this objective it follows that some rectangles might not be merged in an iteration. These rectangles will

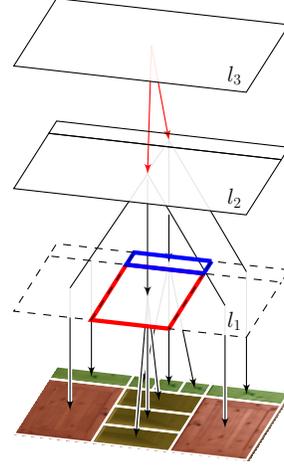


Figure 4: The modularity tree for the ground truth segmentation of the cabinet shown in figure 1 (d). There is a forced merge from level l_2 to level l_3 of the tree.

Algorithm 1 Build the modularity tree \mathcal{T} from a selection of non-intersecting rectangles. Here, $d(r, p)$ is the *merge distance* between the rectangles r and p . If the union rectangle of r and p does not intersect with any other rectangle, then $d(r, p)$ is the sum of the width and height differences. Otherwise, it is infinity.

```

function BUILDMODULARITYTREE( $r_1, \dots, r_K$ )
   $\mathcal{T} \leftarrow$  INITIALIZETREE( $r_1, \dots, r_K$ )
   $N \leftarrow \{r_1, \dots, r_K\}$ 
  while  $|N| > 1$  do
     $\mathcal{C} \leftarrow$  FINDCLUSTERS( $N$ )
     $f \leftarrow false$ 
    if  $|\mathcal{C}| = 0$  then
       $(r, p) \leftarrow \arg \min_{r, p \in N, r \neq p} d(r, p)$ 
      if  $d(r, p) = \infty$  then
        return Error
       $C \leftarrow \{\{r, p\}\}$ 
       $f \leftarrow true$ 
    for  $C \in \mathcal{C}$  do
       $N \leftarrow N \setminus C$ 
       $m \leftarrow$  GETUNIONRECTANGLE( $C$ )
       $\mathcal{T} \leftarrow$  ADDPARENTNODE( $\mathcal{T}, C, m, f$ )
       $N \leftarrow N \cup \{m\}$ 
  return  $\mathcal{T}$ 

```

not be added to \mathcal{C} . In the concrete example of Figure 4 the first iteration (level l_1) will only contain the red and the blue cluster.

FINDCLUSTERS first exhaustively lists all *valid* clusters and then selects the best subset of non-intersecting (set intersection) clusters. A cluster $\mathcal{C} = \{r_1, \dots, r_L\}$ is *valid* if

1. the contained rectangles are of approximately the same size, and
2. the union (bounding) rectangle *only* significantly over-

laps with the elements of the cluster.

As a consequence, the second requirement *e.g.* ensures that two rectangles of the same size that are separated by a third rectangle of a different size cannot form a valid cluster.

Runtime. While the theoretical runtime of the algorithm is exponential in the number of rectangles, it is not a problem in practice. This is due to the small number of rectangles (Usually, $K < 15$) and a search strategy where we examine the most promising clusters first in the exhaustive search.

4.2. Energy function

Our objective is to find the most modular (*i.e.*, least number of forced merges) set of IE proposals that forms a rectangle cover. We can formalize this using a multi-objective optimization approach. Let $(r_1, l_1), \dots, (r_K, l_K)$ be a set of IE proposals. Then, the energy function is given by

$$\begin{aligned}
 & E((r_1, l_1), \dots, (r_K, l_K)) \\
 &= \lambda_1 \underbrace{\sum_{n \in \mathcal{T}} \mathbb{I}[f(n)]}_{\text{Modularity score}} - \underbrace{\sum_{k=1}^K p(l_k | I, r_k)}_{\text{Label energy}} \\
 &+ \lambda_2 \underbrace{\sum_{n \in \mathcal{T}} \sum_{\substack{c_1, c_2 \in \text{child}(n) \\ c_1, c_2 \text{ leaf nodes}}} \mathbb{I}[l(c_1) \neq l(c_2)]}_{\text{Label smoothing}} \quad (9)
 \end{aligned}$$

where $f(n)$ indicates whether node n is the result of a forced merge and $l(c_i)$ is the label that is assigned to the rectangle corresponding to the leaf node c_i . By choosing λ_1 sufficiently large, we can prioritize modularity. This results in the optimum being the most modular selection of candidate rectangles with the best labels.

4.3. MCMC-based Optimization

We optimize the problem (9) using simulated annealing. Simulated annealing is an MCMC-based stochastic optimization method. It is particularly suitable for our problem because it works well for combinatorial optimization problems with arbitrary energy functions. Simulated annealing works by constructing a Markov Chain with a stationary distribution that concentrates all probability mass on the global minima of E . The Markov Chain can be understood as a random walk through the state space. If P is the current state, then we sample a new state \tilde{P} with conditional probability $p(\tilde{P} | P)$. If $E(\tilde{P}) \leq E(P)$, then we accept the new state and set $P := \tilde{P}$. Otherwise we only accept the new state with a probability proportional to $\exp\left(-\frac{E(\tilde{P}) - E(P)}{t_n}\right)$ where $n \in \mathbb{N}$ is the current iteration and t_n is a monotonically decreasing *cooling schedule* with $t_n \rightarrow 0$. By slowly decreasing the *temperature* t_n over time, accepting a worse state becomes less likely. In the limit $t_n \rightarrow 0$, we only accept globally optimal states.

Algorithm 2 The MCMC-based optimization algorithm for selecting the best segmentation for a fixed $K \in \mathbb{N}$. Parameters and notation: $T_{start} > T_{end} > 0$ are the start and end temperatures, respectively, $\alpha > 0$ controls how quickly the temperature decreases over time, and \mathcal{U}_A is the uniform distribution over the set A .

```

function SELECTPROPOSALS( $((r_1, l_1), \dots, (r_N, l_N))$ )
   $P \leftarrow ((r_1, l_1), \dots, (r_K, l_K))$ 
   $t \leftarrow T_{start}$ 
  while  $t > T_{end}$  do
    // Decrease the temperature
     $t \leftarrow \alpha t$ 
    // Sample a state in the neighborhood
    Sample  $k \sim \mathcal{U}_{\{1, \dots, K\}}$ 
    Sample  $p \sim \mathcal{U}_{\{(r_1, l_1), \dots, (r_N, l_N)\}}$ 
     $\tilde{P} \leftarrow P$ 
     $\tilde{P}(k) \leftarrow p$ 
    // Accept the state with a certain probability
    Sample  $u \sim \mathcal{U}_{[0, 1]}$ 
    if  $\exp\left(-\frac{1}{t}(E(\tilde{P}) - E(P))\right) \geq u$  then
       $P \leftarrow \tilde{P}$ 

```

For our application, we chose a *geometric cooling schedule* of the form $t_n = \alpha t_{n-1}$ with $\alpha \in (0, 1)$. Further information about simulated annealing can be found in [3].

Let $\mathcal{D} = \{r_1, \dots, r_N\}$ be the set of candidate rectangles. For a fixed $K \in \mathbb{N}$, the state space for our problem is given by the set of all sets of proposals of size K . We sample a new state \tilde{P} from the neighborhood of a given state P by uniformly sampling a proposal in P that we replace with a uniformly sampled proposal in the state space. Hence, P and \tilde{P} only differ in a single proposal. In order to guarantee that we only choose the optimal state among the possible (ϵ, δ) -rectangle covers of size K , we add a penalty term to the objective function that is large if two rectangles intersect more than δ or less than a portion ϵ of the region of interest is covered by rectangles. This procedure is motivated by the use of barrier functions in interior point methods. Algorithm 2 depicts the entire optimization procedure.

We run the optimization algorithm for each $K \in \{K_{min}, \dots, K_{max}\}$ where K_{min} and K_{max} are the sizes of the minimal and maximal rectangle covering, respectively (Section 3.2). As the final segmentation, we choose the selection with the smallest number of forced merges. In the case that the minimum number of forced merges is achieved for more than one $K \in \{K_{min}, \dots, K_{max}\}$, we choose the segmentation with the largest number of interaction elements.

5. Evaluation

We evaluate our approach on a novel dataset of 140 images from the IKEA online furniture catalog [1] showing cabinets for which we provide ground truth annotations. All

Edge detector	Precision	Recall
Random forest	65.6%	97.3%
Canny	56.2%	78.9%

Table 1: The table shows the pixel-wise classification accuracy of the random forest-based edge detector and the Canny edge detector.

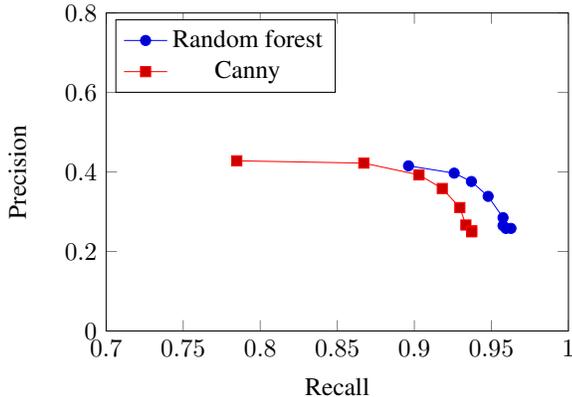


Figure 5: IE candidate generation results for varying acceptance thresholds. Note that we generate an over complete set of rectangles. Therefore, a low precision is to be expected.

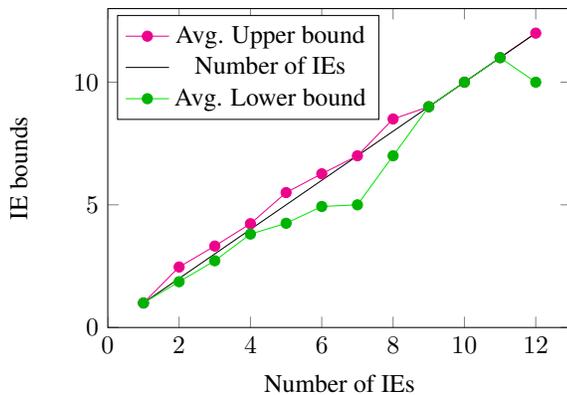


Figure 6: The tightness of the obtained bound on the true number of interaction elements.

reported results are averages obtained from a 5-fold cross-validation. We count an interaction element as detected if its intersection over union score (IoU score) with a selected IE candidate is greater than 0.65.

5.1. IE Candidate Evaluation

In the first stage of our approach (Section 3) we generate an over-complete set of IE proposals from rectangles detected in a semantic edge map. The semantic edge map is generated by a random forest (Section 3.1). We compare the pixel-wise classification performance of the random forest-based approach to the Canny edge detector. To this end, we

IE class	Detection rate
Door	86.9%
Drawer	85.4%
Shelf	64.3%

Table 2: The table shows the percentage of interaction elements whose rectangles have correctly been identified during the proposal selection stage.

		Prediction		
		Door	Drawer	Shelf
Truth	Door	87.4%	3%	9.6%
	Drawer	1.9%	91.1%	7%
	Shelf	16.3%	32.7%	51%

Table 3: The confusion matrix for the labeling of the rectangles.

accumulate class votes for each pixel and then apply hysteresis thresholding on the votes image in order to obtain a comparable edge map. Table 1 reports the classification accuracy. We see that the random forest-based edge detector finds more semantic edges (higher recall) while at the same time producing less irrelevant edges (higher precision).

In order to further illustrate the performance contributions obtained from choosing the random forest-based approach over a standard edge detector, we investigate the performance of the subsequent rectangle detector. The rectangle detector directly uses the semantic edge map in order to find IE candidates. Figure 5 reports the rectangle detector performance by varying rectangle acceptance thresholds. Again, the random forest-based edge detector consistently outperforms the Canny edge detector.

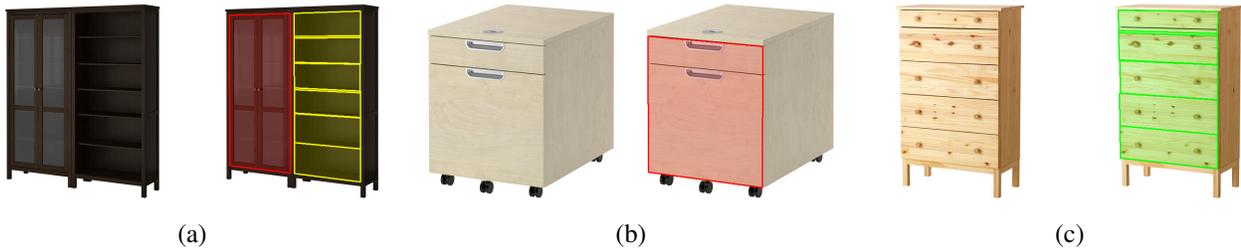
In the final stage of the IE candidate generation step, we prune the initial detector output and obtain upper and lower bounds on the possible number of interaction elements. A significant increase in precision from 37.6% before pruning to 73.9% after pruning while only reducing the recall from 93.7% before pruning to 88.0% after pruning indicates that the pruning step removes a considerable number of irrelevant rectangles while keeping most of the relevant ones. Furthermore, the obtained bounds on the number of parts are correct for 95.2% of all images. Finally, Figure 6 shows the average upper and lower bounds for furniture items having different numbers of parts. We see the bounds enclose the true number of parts tightly.

5.2. Proposal Selection Evaluation

In the second stage of the pipeline (Section 4), we select proposals by minimizing an energy function. We report two interesting measurements to assess the performance of this stage. First, in Table 2, we measure the accuracy of the selected rectangles regardless of their predicted labels. The results show that the correct number of rectangles have been



Figure 7: Some successfully segmented images. Doors are red, drawers are green, and shelves are yellow.



(a)

(b)

(c)

Figure 8: Failure cases. (a) The boundary of the two individual doors has not been found; (b) as selecting the two correct interaction elements would result in a forced merge, the wrong rectangle has been selected; (c) the top most drawer is misaligned. In this case, the strong wooden texture induces significant edges that led to the incorrect rectangle being detected.

detected in most test cases. Second, we measure the accuracy of the predicted labels for those interaction elements whose rectangles have correctly been found. Table 3 shows the label confusion matrix. Our overall accuracy is 84.6%.

While we obtain strong classification results for doors and drawers, the classification accuracy of shelves is lower. This is the result of several factors. First, shelves exhibit considerably fewer visual cues than most doors and drawers. Hence, they can easily be mistaken for drawers or doors without handles. Second, shelves are similar in size and aspect ratio to drawers. Therefore, the confusion between shelves and drawers is higher than the confusion between shelves and doors. Finally, the data set is imbalanced in the sense that the number of shelves is significantly smaller than the number of doors and drawers. This results in a lower prior probability for shelves. Figures 7 and 8 show some qualitative results and common failure cases.

6. Conclusion

In this paper, we have proposed a method for the semantic segmentation of modular furniture. In two stages, we first generate an over-complete set of proposals and then select a subset of proposals that minimize an energy function across multiple scales. We have demonstrated the performance of our approach on a novel data set with ground truth annotations which is publically available². This paper marks a first step in the direction of detailed semantic segmentation of indoor scenes. At this level of detail, semantic segmentations open up new possibilities to robustly use autonomous robots in indoor environments.

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²www.vision.rwth-aachen.de/furniture

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NOTES

WHAT'S GOOD FOR THE GAYS IS GOOD FOR THE GANDER: MAKING HOMELESS YOUTH HOUSING SAFER FOR LESBIAN, GAY, BISEXUAL, AND TRANSGENDER YOUTH

Ernst Hunter

Across the United States, lesbian, gay, bisexual, and transgender (LGBT) youth are grossly overrepresented in the homeless youth population. These youth are at an increased risk of being victims of violence in homeless youth housing facilities. This Note examines the causes of the overrepresentation of LGBT youth in the homeless youth population. Additionally, this Note suggests the following changes to the regulation of homeless youth housing programs to make them safer for these youth: (1) placing low maximum limits on the occupancy capacity at which these programs may operate, (2) requiring that all showering facilities provide individual privacy, (3) prohibiting anti-LGBT discrimination in the provision of services, (4) requiring nondiscrimination and sensitivity training, and (5) promoting the creation of LGBT-specific homeless youth housing programs.

Keywords: *homelessness; transgender; lesbian; gay; foster care; youth; discrimination; homeless shelters*

INTRODUCTION

Eighteen-year-old Kelly R.¹ was homeless. At the age of sixteen, her parents kicked her out of her home because she is transgender. Subsequently, she ran away from the group home in which she had been placed by the Administration for Children's Services. When the weather got too cold for her to sleep outside and she could not earn enough money from prostitution to rent a hotel room, she stayed at a large emergency youth housing facility in lower Manhattan. The staff regularly forced her to bathe in an open showering facility with the shelter's male occupants. One day in the shower, a group of these males attacked her. They beat her against the cement floor until her entire body was inflamed with contusions. They did not stop until her jaw was ripped from her face. This all occurred with staff present. This actually happened to a transgender girl in 2002.² Sadly, similar acts of violence against lesbian, gay, bisexual, and transgender (LGBT) youth in emergency and transitional housing programs for homeless youth are very common.³

A large segment of the homeless youth population is composed of LGBT youth.⁴ Those who occupy homeless youth housing facilities are at a great risk of being assaulted and otherwise harassed.⁵ In order to better protect LGBT youth in these housing programs from violence, social service agencies must adopt regulations aimed at curbing all violence in homeless youth housing programs as well as regulations addressing the particular problems faced by LGBT youth. These regulations should require, among other things, that all

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showering facilities in youth housing programs be private;⁶ that housing programs have low occupancy limits;⁷ that housing programs be prohibited from discriminating on the basis of sexual orientation or gender expression in providing any service;⁸ and that these programs provide LGBT nondiscrimination and sensitivity training to all staff.⁹ These training and nondiscrimination requirements should apply to all programs regardless of whether they are operated by religious organizations, which may believe that homosexuality and transgenderism are immoral.¹⁰ These agencies should also promulgate regulations to ensure that there are housing programs created specifically to serve the needs of homeless LGBT youth.¹¹

This Note will discuss these proposed policies and the problems faced by homeless LGBT youth with reference to homeless youth housing programs in New York City, San Francisco, and Houston and the laws governing programs operated in those jurisdictions. This discussion is intended to provide an examination of the interplay among the laws, organization policies, and care of homeless LGBT youth in these jurisdictions, in order to formulate policy solutions to improve the homeless youth systems' responsiveness to LGBT youth nationwide. Thus, this Note advocates that these solutions be adopted in all jurisdictions. As used in this Note, the term "homeless youth housing program" includes the following: shelters housing youth between the ages of sixteen and twenty-one on an emergency basis for short periods of time, transitional living facilities providing housing for youth within the same age range for longer periods of time, and services to help youth transition to independent living.

The first part of this Note presents an overview of the prevalence of LGBT youth in the homeless youth population, examines why they are overrepresented in this population, and describes the violence many of these youth face in homeless youth housing programs. The next part introduces the agencies that are empowered to regulate homeless youth housing programs in New York City, San Francisco, and Houston. The next part proposes regulations to reduce violence against all youth, both LGBT and non-LGBT, in homeless youth housing programs. The final part recommends regulations aimed at reducing violence against LGBT youth specifically and creating LGBT-affirming living environments.

DISTINCTIONS BETWEEN SEXUAL ORIENTATION AND GENDER IDENTITY

As a preliminary matter, it is important to explain the difference between sexual orientation and gender identity. Gender identity describes the gender with which an individual identifies.¹² While most people identify with the gender that corresponds to their birth sex, transgender people, in contrast, identify with the gender that does not correlate with their anatomical birth sex.¹³ This disparity between inward identity and outward appearance often causes distress for transgender people, which they may compensate for by feminizing or masculinizing their outward gender expression.¹⁴ For example, a male-to-female transgender person may dress in women's clothing, wear women's makeup, and undergo gender reassignment therapy.¹⁵ Sexual orientation, which describes the gender or sex to which an individual is attracted in relation to his or her own gender or sex, does not necessarily correspond to that individual's gender identity.¹⁶ For instance, a female-to-male transgender person may be attracted to men, women, or both.¹⁷ Legally, gender identity and sexual orientation are two distinct concepts and it is not uncommon for discrimination on the basis of sexual orientation to be proscribed while discrimination on the basis of gender identity is permitted.¹⁸

THE EXPERIENCES OF HOMELESS LGBT YOUTH: COMMON PATTERNS

LGBT youth make up a disproportionate segment of the homeless youth population in America.¹⁹ Even by the most liberal of estimates, LGBT people make up only ten percent of the general population.²⁰ Yet, according to studies conducted across the United States, their prevalence in the homeless twenty-one-and-under population is several times this percentage.²¹ These estimates range from thirty percent in Houston²² to between forty percent and fifty percent in New York.²³ In San Francisco this proportion is estimated to be thirty-three percent.²⁴

There are a number of paths by which LGBT youth become homeless. For the most part, these youth either run away or are thrown out of their homes. For many of these youth, family problems begin when their sexual orientation is discovered by their families. An estimated one third of LGBT youth are physically abused by a family member after their sexual orientation or gender identity is discovered.²⁵ Approximately twenty-five percent of LGBT youth run away or are thrown out of their homes.²⁶ Approximately forty percent of LGBT youth who leave home do not enter the child welfare system before becoming homeless.²⁷

One reason for the disproportionate number of homeless LGBT youth may be the comparatively late time at which LGBT youths' family problems generally begin. If a youth is thrown out of her home or runs away in her late teens, she may not be placed in foster care before aging out²⁸ of the system. Additionally, social service agencies may decline to place older youth with foster families.²⁹ For instance, in New York City, the Administration for Children's Services will not place youth sixteen and older with foster parents.³⁰ In practice, even youth who enter the foster care system before reaching the age of sixteen often are not placed with foster families because of the lengthy placement process.³¹ Many of those LGBT youth who are placed in foster care ultimately run away because of abuse in the foster home, ending up on the streets.³²

Often the emotional and physical abuse that caused an LGBT youth to be thrown out of, to be removed from, or to run away from home, continue in foster care.³³ One study found that, of those LGBT youth placed in group homes, one hundred percent were verbally harassed and seventy percent physically assaulted because of their sexuality or gender expression while living at the group home.³⁴ Consequently, as many as seventy-eight percent of LGBT youth in foster care run away.³⁵ This helps account for the fact that sixty percent of homeless LGBT youth were previously in foster care.³⁶

For the most part, those LGBT youth who end up homeless are left with the choice between sleeping outdoors, exchanging sex for housing, or rooming at homeless youth housing programs. One prominent activist for homeless LGBT youth estimates that fifty percent of LGBT youth in homeless youth emergency housing programs are physically assaulted.³⁷ This abuse is particularly severe at large emergency youth shelters, which may house two hundred or more occupants.³⁸

In addition to creating a risk to physical health and safety, violence against LGBT youth in shelters contributes to their emotional and behavioral problems. LGBT youth who are physically assaulted are more likely to attempt suicide.³⁹ They are more likely than other LGBT youth to abuse drugs and alcohol.⁴⁰ They are also more likely to engage in high-risk sexual activity, increasing the likelihood that they will contract HIV and other health-impairing sexually transmitted infections.⁴¹ They also perform worse in school and are less likely to pursue a college education than LGBT youth who are not assaulted or harassed.⁴²

These conditions decrease the prospects of homeless LGBT youth transitioning into stable living arrangements. Many homeless LGBT youth choose to live on the streets or exchange sex for a place to stay rather than continue to face the pervasive anti-LGBT physical abuse, intimidation, and denigration which they encounter in homeless youth housing programs. This exposes them to the additional dangers of being assaulted on the street, engaging in risky sex-for-money and sex-for-housing exchanges, and all of the inimical effects of low self-esteem and depression including suicide, substance abuse, and stifled motivation.

AGENCIES THAT REGULATE HOMELESS YOUTH HOUSING PROGRAMS IN NEW YORK CITY, HOUSTON, AND SAN FRANCISCO

In New York, the New York State Office of Children and Family Services certifies homeless youth housing programs serving youth aged sixteen through twenty.⁴³ The New York City Department of Youth and Community Development has jurisdiction to allocate funding to and regulate these programs.⁴⁴ The New York City Department of Homeless Services has concurrent jurisdiction to regulate and fund homeless youth housing programs serving youth aged eighteen through twenty and has jurisdiction to regulate and fund homeless youth housing programs serving 21-year-old youth in New York City.⁴⁵

California's Department of Housing and Community Development Programs is empowered to regulate homeless youth housing programs in California by placing conditions on the grant of funding.⁴⁶ Its jurisdiction applies to homeless youth housing programs serving youth aged eighteen through twenty-one and those housing emancipated minor youth.⁴⁷

In Texas, the State's Department of Family and Protective Services has broad authority to regulate homeless youth housing programs. This authority extends only to programs housing youth under the age of eighteen.⁴⁸

POLICIES TO REDUCE VIOLENCE IN HOMELESS YOUTH HOUSING PROGRAMS GENERALLY

Before any of the proposals discussed in this Note can be implemented, regulatory agencies must more robustly regulate homeless youth housing programs, where they are empowered to do so, and state legislatures must extend their powers where they are limited. The following proposals are not specifically tailored to the needs of homeless LGBT youth, but would, nonetheless, help to curb violence against this population, by reducing violence against all youth in homeless youth housing facilities.

Effective regulation of homeless youth housing programs should be accomplished through licensure and monitoring. This Note's proposed policies for reducing violence generally in homeless youth housing programs would require, as a condition of licensure, that all showering facilities provide individual privacy and that low occupancy caps be maintained.

REQUIRING LICENSURE

The first necessary step in regulating homeless youth shelters is to place them within the scope of an agency's regulatory reach. To do this, agencies must require that all shelters

housing persons twenty-one and under be licensed in order to operate. Currently, neither the New York City or State⁴⁹ Administrative Codes nor the California Administrative Code⁵⁰ require that all shelters housing youth twenty-one and under be licensed in order to operate. This has contributed to the decreased accountability of homeless youth housing programs in these jurisdictions.

Illustrating this minimal accountability, in New York City, for instance, the two largest homeless youth shelters serving youth between the ages of eighteen and twenty-one house between one hundred sixty-four and two hundred fifty youth.⁵¹ These facilities also still use group showering facilities.⁵² These are substantial deviations from the standards established under the current regulations of the New York State Office of Children and Family Services,⁵³ which require that homeless youth shelters maintain private showering facilities⁵⁴ and which prohibit the shelters from operating at an occupancy capacity of more than twenty without being granted a variance by the Office.⁵⁵ It is within the Office's delegated power to take a more proactive role in regulating homeless youth housing programs that serve youth aged sixteen to twenty⁵⁶ and it is necessary to better serve those youth who inhabit them, many of whom are LGBT.

Similarly, in California, programs housing emancipated minor youth or youth between the ages of eighteen and twenty-one are only minimally regulated.⁵⁷ The regulation of these programs is achieved primarily by placing conditions on state grants to homeless youth housing programs.⁵⁸ Despite the broad powers the Department of Housing and Community Development Programs has been delegated to condition grant funding in such a way as to "ensure that the program[s] are] administered in an effective and efficient manner," there are few regulations placing conditions on these grants.⁵⁹ Similarly, the Texas Department of Family and Protective Services is empowered to "license, register, and enforce regulations applicable to" housing programs for homeless youth under the age of eighteen.⁶⁰ These agencies must exercise their powers more fully to fulfill their obligations to protect youth in homeless youth housing programs. Further, the Texas legislature should extend broad regulatory power over programs housing homeless youth aged eighteen to twenty-one to the Department of Family and Protective Services. Additionally, other states that have not already done so should require that homeless youth housing facilities be licensed.

PRIVATE SHOWERS

To better protect youth in homeless youth housing programs from assault, agencies should require that all showering facilities in these programs be private. As is illustrated by the opening narrative, group showering in homeless youth shelters can often precipitate the assault of an LGBT occupant.⁶¹ This is likely due in part to the increased discomfort that homophobic and transphobic individuals may feel when their nudity is exposed to the view of LGBT people. As the National Gay and Lesbian Task Force notes, group showers can be particularly dangerous for transgender individuals, who are vulnerable to attack by those who react in disgust when they observe that a transgendered individual's sex is not the same as the gender to which he or she conforms.⁶² The danger of violence in the shower is heightened by the facts that people's entire bodies are exposed to assault when naked⁶³ and showering facilities are less likely to be monitored by staff than other areas of a housing facility. This increases the danger to non-LGBT people in open showering facilities as well. In fact, even non-LGBT youth are subject to attack on a homophobic premise in open showering facilities.⁶⁴

Requiring that all showers provide occupants individual privacy is a simple step that could reduce some of the violence against both LGBT and non-LGBT youth in homeless youth housing facilities.⁶⁵ This would entail only a modest change in the regulating agency's facility requirements. California already requires that showers in foster care group homes be private.⁶⁶ The regulations of the New York State Office of Children and Family Services require that all showering facilities in homeless youth housing facilities be private.⁶⁷ However, this requirement is not consistently enforced.⁶⁸ The Texas Department of Family and Protective Services does not require that bathing facilities at emergency shelters be private.⁶⁹ Adding this requirement to the Texas regulations of homeless youth shelters, extending this requirement for foster care group homes to homeless youth housing programs in California, and enforcing it in New York would make an important difference in the safety of homeless LGBT and non-LGBT youth. Private showering facilities should be required in homeless youth housing facilities nationwide.

OCCUPANCY CAP

Placing low caps on the number of occupants homeless youth housing programs can house will reduce overall levels of violence.⁷⁰ The homeless youth housing programs that responded in a recent survey of programs housing no more than ten occupants stated that there had been approximately one violent incident for every fifty occupants per year (two percent attacked per year) at their facilities and that none required medical attention.⁷¹ Compare this with the above-cited study indicating that at least seventy percent of LGBT youth in New York City group homes have been physically assaulted while in their group homes.⁷² There are two explanations for these divergent results. First, much of this difference is attributable to the fact that the low-occupancy-capacity housing programs cited serve LGBT youth exclusively.⁷³ Clearly, if seventy percent of LGBT youth are assaulted in their group homes because of their sexuality or gender expression,⁷⁴ this problem would be removed by housing LGBT youth separately from non-LGBT youth.⁷⁵ Second, as is discussed below, it is likely that housing programs with higher occupancy rates have a greater incidence of violence.⁷⁶

There is a large body of social psychology research on "bystander effect," which suggests that the lower incidence of violence in the cited programs is at least partly attributable to an increased propensity for violent acts against both LGBT and non-LGBT youth in housing programs with higher occupancy rates.⁷⁷ "Bystander effect" holds that there is a reduced likelihood in larger groups that someone will intervene to defend another who is being attacked.⁷⁸ This theory suggests that not only is each witnessing individual's own likelihood of intervening reduced, but that there is a decreased likelihood of any intervention at all.⁷⁹ This results in a reduction in deterrence against violence, a logical corollary of which is increased violence. Furthermore, as illustrated by the opening narrative, it is probable that there will be more *severe* violence in housing programs with higher occupancy rates, if only because there will be more occupants to "gang up" on an individual.⁸⁰

Currently, the administrative codes of California and Texas do not place strict upper limits on the number of youth a homeless youth shelter can house.⁸¹ The only shelter currently providing housing for homeless youth between the ages of eighteen and twenty-four in San Francisco has the capacity to house forty youth.⁸² The New York Office of Children and Family Services has placed a 20-person occupancy limit on homeless youth housing facilities.⁸³ However, a shelter may apply for a variance to increase this limit.⁸⁴ The result

of this is that some youth shelters housing youth between the ages of eighteen and twenty-one in New York City have been permitted to operate with approximately ten times the occupancy limit regularly required under these regulations.⁸⁵

Placing a limit of ten occupants on homeless youth shelters would reduce violence against LGBT youth in these shelters by reducing violence generally. A capacity limit of ten occupants would be an appropriate limit because 10 to 1 seems to be the generally agreed upon occupant-to-staff ratio in youth housing programs.⁸⁶ However, this limit should not be imposed on community care facilities for the elderly, hotels, dormitories, facilities housing occupants who share particular medical or psychiatric needs, or other facilities with greater staffing needs or a minimal incidence of violence.⁸⁷

LGBT-SPECIFIC PROPOSALS

Because so many LGBT youth in congregate care facilities are targeted for violence specifically because of their sexuality or gender expression,⁸⁸ and because LGBT youth are so grossly overrepresented in the homeless youth population,⁸⁹ administrative agencies should regulate homeless youth housing programs, specifically taking into account the particular problems faced by LGBT youth. Regulations enacted in furtherance of this end should prohibit homeless youth shelters from discriminating on the basis of sexual orientation or gender identity.⁹⁰ They should also mandate that all staff at these programs be trained on how to promote a more welcoming environment for LGBT youth and on how to intervene in anti-LGBT harassment before it becomes violent.⁹¹ Further, these regulations should promote the creation of housing programs operated to serve the unique needs of homeless LGBT youth.⁹² This can be accomplished by designating a portion of the government funding for homeless youth housing to programs specifically targeted at LGBT youth or by mandating that organizations operating homeless youth housing programs operate separate facilities for LGBT youth.

PROHIBITING DISCRIMINATION IN THE PROVISION OF SERVICES

One necessary LGBT-specific policy change is the addition of gender expression and sexual orientation to the list of categories upon which youth shelters may not discriminate in the provision of services.⁹³ The New York State Office of Children and Family Services has promulgated no such regulation applying to shelters housing homeless youth aged sixteen to twenty.⁹⁴ The New York City Human Rights Law does prohibit discrimination in public accommodations on the basis of sexual orientation⁹⁵ and gender expression.⁹⁶ However, it exempts religious charities from this requirement.⁹⁷ Because Manhattan's largest homeless youth housing programs are run by a Catholic charity,⁹⁸ which may claim that opting out of this policy is necessary to promote Catholic principles; this exception leaves a potentially damaging deficiency in the protections provided to LGBT youth.

The California Administrative Code currently prohibits discrimination in all state-supported programs on the basis of sexual orientation.⁹⁹ This policy should be expanded to prohibit discrimination on the basis of gender expression also. Discrimination in the provision of services on the basis of gender expression is already prohibited in foster care in California.¹⁰⁰ Discrimination on the basis of sexual orientation in the provision of *any* public service is also prohibited in California.¹⁰¹

The Texas Department of Family and Protective Services regulations currently prohibit discrimination against persons under eighteen years old in social service housing programs on the basis of race with respect to admissions to a program.¹⁰² The Department has no similar policy for sexual orientation or gender expression.¹⁰³ The Department's authority should be expanded to cover programs housing homeless youth twenty-one years old and under. Additionally, its regulations should be expanded to include discrimination based on sexual orientation or gender expression and to include discrimination in the provision of any service.

Although a survey of those other states that have not yet adopted such anti-discrimination laws is beyond the scope of this Note, laws prohibiting discrimination in the provision of homeless youth housing services on the bases of sexual orientation and gender identity need to be adopted nationally in order to adequately protect these youth.

NONDISCRIMINATION AND SENSITIVITY TRAINING

Education on LGBT non-discrimination policies and sensitivity to LGBT youth should be a mandatory part of training for all staff at homeless youth shelters.¹⁰⁴ Training youth shelter staff on their obligation to provide protection and other services on a non-discriminatory basis will do more to reduce violence against LGBT youth if accompanied by sensitivity training. Sensitivity training will decrease violence against LGBT youth in two ways: first, by making it easier for staff to identify and intervene in anti-LGBT harassment before it becomes violent; and second, by creating an environment in which LGBT youth feel that they are respected by the staff, making it more likely that they will report violence against themselves.

Studies document that LGBT people are less likely than others to report violence against themselves.¹⁰⁵ In a recent study, for instance, sixty-seven percent of LGBT students who were harassed at school never reported this harassment, compared to fifty-seven percent of all students harassed at school who did not report the harassment.¹⁰⁶ A reason commonly cited by individuals for not reporting harassment is distrust of the organizations responsible for their protection.¹⁰⁷ This lack of trust is likely exacerbated for LGBT youth who were rejected by their families because of their sexual orientation or gender expression.¹⁰⁸ Training shelter staff on how to act respectfully towards LGBT youth clients and gain their trust will make shelters safer for these clients.¹⁰⁹

A central part of attaining LGBT youths' trust is being mindful of the effect of one's choice of words on these youth.¹¹⁰ For instance, staff should refer to transgender youth by the gender pronoun corresponding to the gender with which they identify.¹¹¹ Accordingly, the staff should refer to male-to-female clients as "she" and female-to-male clients as "he."¹¹² Another example of how staff can earn the trust of LGBT youth through respect is by not assuming anyone's sexuality.¹¹³ Other ways that shelters can be made more sensitive to LGBT youth include providing information on LGBT sexual practices in discussions on safer sex,¹¹⁴ and displaying the shelter's non-discrimination policy prominently.¹¹⁵ In addition to making these programs safer for LGBT youth, sensitivity training will promote an environment more conducive to their healthy emotional growth, making it more likely that they will grow into stable, independent adults.

The Administration for Children's Services in New York City has a policy requiring that staff be trained on LGBT youth issues.¹¹⁶ However, this policy only applies to foster care group homes and covers only sexual orientation, not gender expression.¹¹⁷ Recently, New York City's Department of Homeless Services adopted a policy requiring that homeless

housing staff be given transgender sensitivity training.¹¹⁸ However, because neither the New York State Office of Children and Family Services nor the New York City Department of Youth and Community Development have adopted such a policy, sensitivity training is currently only mandated in those homeless youth housing programs that house youth who are eighteen and older.¹¹⁹ Further, this policy does not mandate sensitivity training on sexual orientation. Texas has no similar policy in place.¹²⁰ The California Department of Social Services currently does not require that foster care staff receive non-discrimination or sensitivity training.¹²¹ No such requirement exists in the California Administrative Code's regulations on personnel requirements for community care facilities either.¹²² The regulations of these jurisdictions should be altered to mandate LGBT sensitivity and non-discrimination training in homeless youth housing programs in addition to foster care group homes. Such a requirement will promote the safety and well-being of LGBT youth in these programs. These policies should also be adopted nationwide in all jurisdictions in which they have not already been adopted.

SEPARATE LGBT FACILITIES

One of the most effective ways administrative agencies can increase the safety of LGBT youth in homeless youth housing programs is by promoting the creation of programs specifically for LGBT youth.¹²³ LGBT youth are markedly less likely to be assaulted in facilities specifically reserved for them than they are in facilities where they are housed with non-LGBT youth.¹²⁴ In a recent survey of LGBT-specific housing programs, only two percent of occupants were assaulted on their premises per year.¹²⁵ This is a striking contrast to the estimated seventy percent of LGBT youth assaulted because of their sexuality or gender expression in group homes housing LGBT and non-LGBT youth.¹²⁶ Since this figure does not include assaults perpetrated for other reasons, it is likely that even more than seventy percent of LGBT youth living in group homes are assaulted in their group homes.¹²⁷

These data indicate that perhaps the most effective way to curb violence against homeless LGBT youth is to provide them with separate housing facilities so that they are not targeted for violence because of their sexual orientation or gender expression.¹²⁸ Although when couched in terms of "segregation" placing LGBT youth in separate facilities may seem controversial, this approach to creating welcoming living arrangements for homeless LGBT youth is already being used effectively by multiple housing programs. Examples include the Larkin Street Youth Project in San Francisco,¹²⁹ which operates emergency and transitional housing programs for LGBT youth, and Sylvia's Place,¹³⁰ the Ali Forney Center,¹³¹ and Green Chimneys,¹³² which operate such programs in Manhattan.¹³³

Any concern about the importance of integrating LGBT youth with the larger youth population is outweighed by the great risk of serious physical injury which LGBT youth face in homeless youth housing programs. Measures to increase the accountability of housing staff for the violent actions of youth in their care will only curb violence in these programs to the extent that violent youth themselves are deterred by the consequences imposed on them. Creating homeless youth housing programs specifically for LGBT youth will do much to ensure that LGBT youth have safe housing.

There are two ways by which I suggest that LGBT-specific homeless youth housing programs be created. First, states can require as a condition of licensure that organizations operating homeless youth housing programs maintain separate facilities for LGBT youth and that at least twenty percent of the aggregate occupancy capacity of shelters operated

by each such organization be represented by LGBT-specific facilities. Thus, if an organization operates facilities with a gross occupancy maximum of one hundred, it would be required to operate LGBT-specific facilities with a total occupancy capacity of at least twenty. The second method would require that a minimum of thirty percent of funds designated by regulating agencies to homeless youth shelters be designated to shelters housing only LGBT youth. New York City's Ali Forney Center for homeless LGBT youth, for instance, receives approximately one third of its funding from the City.¹³⁴

In addition to greatly reducing violence against LGBT youth, creating homeless youth housing programs specifically for LGBT youth would not entail the same increase in program costs that may arise out of mandating shelters with lower occupancy rates. Additionally, any potential increase in immediate costs resulting from the implementation of such homeless youth housing programs is likely to be at least partially offset by decreased future government expenditures, because in the long-term such programs will greatly decrease the criminality and social service needs of youth who participate in them.

The success of LGBT-supportive housing programs in reducing violence against LGBT youth has been demonstrably accompanied by all the incidents of living in a household conducive to emotional growth. For instance, one hundred percent of youth between eighteen and twenty-four who completed the transitional housing program last year at Larkin Street Youth's Avenues to Independence based in San Francisco were able to move into stable, independent living arrangements.¹³⁵

CONCLUSION

Nationwide state and municipal agencies are doing far too little to protect homeless LGBT youth in transitional and emergency housing programs and to provide them with social services conducive to their emotional growth, to assist them in transitioning to stable, independent adult lives. This inaction is particularly egregious given the large percentage of homeless youth who are LGBT. For the most part, these government agencies have deferred excessively to private organizations in the operation of homeless youth housing programs, particularly those only housing youth who are eighteen or older. Perhaps this acquiescence is due to a belief that these older youth, being still homeless, have failed the system, and that their evidently entrenched behavioral and emotional deficiencies will forever hinder their prospects.

However, for homeless LGBT youth at least, it is the system that has failed. In the foster care and homeless youth systems, LGBT youth almost universally face the same violence, homophobia, and transphobia which often caused them to leave home in the first instance. Too often these youth descend into dangerous patterns of substance abuse, prostitution, and suicidality.

In order to address these problems, government agencies must more fully exert their powers to regulate homeless youth housing programs. To diminish violence against all occupants, regulations should require that all bathing facilities provide individual privacy and should impose low maximum limits on the occupancy capacity at which these programs can operate.

Additionally, because LGBT youth are particularly vulnerable to abuse in homeless youth housing facilities and they constitute such a large percentage of the youth that agencies regulating these facilities are charged with protecting, these agencies must enact regulations specifically addressing the problems faced by homeless LGBT youth. These

regulations should include non-discrimination policies, mandated LGBT sensitivity training, and policies promoting the formation of homeless youth housing programs specifically for LGBT youth. Such regulations are an important step toward remedying the widely unaddressed problems faced by homeless LGBT youth.

NOTES

1. Interview with Bill Torres, Dir. of Community Resources, Ali Forney Ctr., in N.Y., N.Y. (Aug. 29, 2006) (on file with the author) [hereinafter *Interview with Bill Torres*]. (For privacy, this name is used in place of the actual name of the victim in this incident. All other facts presented in this narrative are substantially accurate.)

2. *Id.*

3. ROB WORONOFF ET AL., CHILD WELFARE LEAGUE OF AM. & LAMBDA LEGAL DEFENSE AND EDUCATION FUND, OUT OF THE MARGINS: A REPORT ON REGIONAL LISTENING FORUMS HIGHLIGHTING THE EXPERIENCES OF LESBIAN, GAY, BISEXUAL, TRANSGENDER, AND QUESTIONING YOUTH IN CARE 37 (2006).

4. Youth OUTreach, <http://www.qrd.org/qrd/www/orgs/avproject/youth.htm> (last visited Mar. 11, 2008) (citing a study estimating that 40% of homeless youth are lesbian or gay).

5. WORONOFF ET AL., *supra* note 3.

6. ACCORD LISA MOTTET & JOHN M. OHLE, NAT'L GAY & LESBIAN TASK FORCE POL'Y INST. & NAT'L COALITION FOR THE HOMELESS, TRANSITIONING OUR SHELTERS: A GUIDE TO MAKING HOMELESS SHELTERS SAFE FOR TRANSGENDER PEOPLE 30 (2003), available at <http://www.thetaskforce.org/downloads/reports/reports/TransitioningOurShelters.pdf>.

7. *Accord* Interview with Michelle Maraziti, Dir. of Assessment Ctr., Ali Forney Ctr., in N.Y., N.Y. (Oct. 24, 2006) (on file with the author) [hereinafter *Interview with Michelle Maraziti*].

8. *Accord* WORONOFF ET AL., *supra* note 3, at 40.

9. *Accord Id.*

10. *Accord Id.* at 112–119.

11. *Accord Id.* at 40.

12. Arnold H. Grossman & Anthony R. D'Augelli, *Transgender Youth: Invisible and Vulnerable*, 51(1) J. HOMOSEXUALITY 111, 112–113 (2006).

13. *Id.*

14. *Id.* at 114–115.

15. *Id.*; Gender reassignment therapy consists of the physical alteration of one's biological sex. For example, it may include hormone replacement therapy, electrolysis (for those transitioning from male to female), and sex reassignment surgery. See PREMERA BLUE CROSS, CORPORATE MEDICAL POLICY ON GENDER REASSIGNMENT SERVICES 1 (2007), available at https://www.premera.com/stellent/groups/public/documents/medicalpolicy/dynwat%3B6016_596280265_3684.pdf.

16. Grossman & D'Augelli, *supra* note 12.

17. AM. BAR ASS'N, REPORT TO THE HOUSE OF DELEGATES ON RESPONSIVENESS OF THE HOMELESS YOUTH AND FOSTER CARE SYSTEMS TO LGBTQ 6 (Aug. 2007) (on file with the author).

18. See Transgender People in the Workplace, <http://www.lambdalegal.org/our-work/publications/facts-backgrounds/page.jsp?itemID=31986950> (last visited Mar. 11, 2008).

19. See, e.g., Sarah Viren, *Gay Families Sought/Counseling Center Hopes to Keep Gay Teens from Street Life*, HOUSTON CHRON., Aug. 14, 2006, at B1, available at http://www.chron.com/CDA/archives/archive.mpl?id=2006_4170406.

20. *Interview with Bill Torres*, *supra* note 1.

21. See, e.g., David Pumo, Director, Lesbian & Gay Youth Project, Alternative Advocacy Models for Working with At-Risk LGBT Youth: Bringing Legal Services Directly to Youth Clients, in Symposium, *Client-Centered Advocacy on Behalf of At-Risk LGBT Youth*, 26 N.Y.U. REV. L. & SOC. CHANGE 221, 231 (2000–2001).

22. Viren, *supra* note 19.

23. Pumo, *supra* note 21.

24. E-mail from Eliza Gibson, Chief of Programs, Larkin Street Youth Services, to the Author (Oct. 24, 2006, 14:29 EST) (on file with the Author) [hereinafter *E-mail from Eliza Gibson*].

25. Joseph J. Wardenski, Comment, *A Minor Exception?: The Impact of Lawrence v. Texas on LGBT Youth*, 95 J. CRIM. L. & CRIMINOLOGY 1363, 1378 (2005).

26. Pumo, *supra* note 21, at 232.

27. *Id.* (stating that six out of ten homeless LGBT youth have been in foster care).
28. “Aging out” occurs when a youth is no longer eligible to remain in the foster care system because of his or her age. See AM. BAR ASS’N, RECOMMENDATIONS FROM THE ABA YOUTH AT RISK INITIATIVE PLANNING CONFERENCE 2 (2006).
29. Interview with Bill Torres, *supra* note 1.
30. New York City Admin. Code § 21-104 (2007).
31. Interview with Michelle Maraziti, *supra* note 7.
32. NAT’L CTR. FOR LESBIAN RIGHTS, LGBTQ YOUTH IN THE FOSTER CARE SYSTEM 1 (2006) [hereinafter *LGBTQ Youth in the Foster Care System*].
33. Mimi Laver & Andrea Khoury, *Improving the Legal System’s Approach to LGBTQ Youth in Foster Care*, Powerpoint Presentation (LGBT youth from Jacksonville formerly in foster care stating: “I was in a religious foster home where it was not okay for me to be gay. I had my own lunchbox with my stuff in it. They broke into [it] one day when I was in school. When I got home they had me all packed up: because I was gay. I left town.”) (LGBT youth from Denver formerly in foster care stating: “Because of my status as being gay, I was often in homes for only one day. I have been in 36 different placements. One family I was with spoke predominantly Spanish, and the father would use the feminine form when addressing me.”) (on file with the author).
34. *LGBTQ Youth in the Foster Care System*, *supra* note 32, at 2.
35. *Id.*
36. Pumo, *supra* note 21, at 232.
37. NICHOLAS RAY, NAT’L GAY & LESBIAN TASK FORCE, AN EPIDEMIC OF HOMELESSNESS 87 (2006), available at <http://thetaskforce.org/downloads/reports/reports/HomelessYouth.pdf>.
38. Interview with Bill Torres, *supra* note 1.
39. Tracie L. Hammelman, *Gay and Lesbian Youth: Contributing Factors to Serious Attempts or Considerations of Suicide*, J. GAY & LESBIAN PSYCHOTHERAPY, Vol. 2(1) 1993, at 77, 79.
40. Brief for PFLAG as Amici Curiae supporting Respondent at 9, *Boy Scouts of America v. Dale*, 530 U.S. 640 (2000).
41. See Darline Hunter, *Under Attack: Emotional Abuse and Violence Against GLBT Youth in America’s Homes and Public Schools*, VISTA ONLINE, 2006, <http://counselingoutfitters.com/Hunter2.htm> (last visited Mar. 11, 2008) (discussing the correlation between harassment and alienation of LGBT youth and high-risk sexual behaviors).
42. GLSEN’s 2005 National School Climate Survey Sheds New Light on Experiences of Lesbian, Gay, Bisexual, and Transgender (LGBT) Students, <http://www.glsen.org/cgi-bin/iowa/all/library/record/1927.html> (last visited Mar. 11, 2008) [hereinafter *GLSEN’s 2005 National School Climate Survey*].
43. Runaway and Homeless Youth Act of Nineteen Hundred Seventy-Eight, N.Y. CODE ANN. ch. 18, § 532-a (McKinney 2005) (“For the purposes of this article the term: 1. ‘Runaway youth’ shall mean a person under the age of eighteen years who is absent from his legal residence without the consent of his parent, legal guardian or custodian. 2. ‘Homeless youth’ shall mean a person under the age of twenty-one who is in need of services and is without a place of shelter where supervision and care are available.”); N.Y. CODE ANN. ch. 8 § 532-e (McKinney 2002) (“The office of children and family services shall: (a) visit, inspect and make periodic reports on the operation and adequacy of approved runaway programs and transitional independent living support programs; (b) certify residential facilities providing care to runaway and/or homeless youth . . .”).
44. 9 N.Y. Admin. Code § 182-1.2 (h) (2006); New York City, N.Y., Charter § 733 (2005) (“a. The department shall have all the powers and duties of a youth bureau as prescribed in article nineteen-a of the executive law and the regulations promulgated thereunder, and shall in addition have the following powers and duties: . . . 9. to disburse available city, state and federal funds to programs throughout the city and, when practical, coordinate such funds with available funding from the private sector; . . . 11. to promulgate rules for the operation of facilities, services and programs under the department’s jurisdiction”).
45. New York City, N.Y., Charter § 612 (a) (8) (2007).
46. CAL. HEALTH & SAFETY CODE ANN. ch. 11.5, § 50801.5 (West 2006).
47. CAL. CODE ANN. tit. 2, § 11139.3 (West 2007) (“(2) ‘Homeless youth’ means either of the following: (A) A person who is at least 18 years of age, but not older than 24 years of age, and meets one of the following conditions: (i) Is homeless or at risk of becoming homeless. (ii) Is no longer eligible for foster care on the basis of age. (iii) Has run away from home. (B) A person who is less than 18 years of age who is emancipated pursuant to Part 6 (commencing with Section 7000) of Division 1 of the Family Code and who is homeless or at risk of becoming homeless. (3) ‘Housing for homeless youth’ means emergency, transitional, or permanent housing tied to supportive services that assist homeless youth in stabilizing their lives and developing the skills and resources they need to make a successful transition to independent, self-sufficient adulthood.”).
48. TEX. CODE ANN. tit. 2 § 40.002 (Vernon 2006).

49. *Interview with Michelle Maraziti, supra* note 7; Telephone Interview with Kevin Stark, Covenant House, in N.Y., N.Y. (Oct. 23, 2006) (on file with the author) [hereinafter *Interview with Kevin Stark*].

50. 22 Cal. Admin. Code § 80007(a)(7) (exempting from licensure “[a]ny house, institution, hotel, homeless shelter, or other similar place that supplies board and room only, or room only, or board only, which provides no element of care and supervision”).

51. *Interview with Kevin Stark, supra* note 49.

52. *Interview with Bill Torres, supra* note 1.

53. New York State Office of Children and Family Services Home Page, http://www.ocfs.state.ny.us/main/news/agency_overview.asp (last visited Mar. 11, 2008) (stating that, “[t]he Office of Children and Family Services (OCFS) was officially created on January 8, 1998, by merging the programs of the former state Division for Youth, the developmental and preventive children and family programs administered by the former state Department of Social Services, and the Commission for the Blind and Visually Handicapped.”).

54. 9 N.Y. Admin. Code § 182-1.10 (d) (3) (2006) (“All toilets and showers shall be enclosed to provide privacy.”).

55. 9 N.Y. Admin. Code § 182-1.2 (t) (2006) (“*Runaway and homeless youth shelter* shall mean a residential facility operated for a maximum of 20 youth, all of whom are either under the age of 18 years or between the ages of 16 and 21 years.”); 9 N.Y. Admin. Code § 182-1.4 (d) (2006) (“An applicant seeking to operate a runaway and homeless youth shelter may request in its application that the maximum capacity limit, as defined in this Subpart, be increased. The county submitting such application to the division for approval shall demonstrate that the request for an increase of the maximum capacity limit is warranted in order to serve the needs of the runaway and homeless youth population in the county.”).

56. Runaway and Homeless Youth Act of Nineteen Hundred Seventy-Eight, N.Y. CODE ANN. ch. 18, § 532-a; N.Y. CODE ANN. ch. 8, § 532-e.

57. CAL. CODE ANN. tit. 2, § 11139.3.

58. *See* 25 Cal. Admin. Code § 7950; 25 Cal. Admin. Code § 7959.

59. CAL. HEALTH & SAFETY CODE ANN. ch. 11.5, § 50801.5.

60. TEX. CODE ANN. tit. 2, § 40.002.

61. *Interview with Bill Torres, supra* note 1.

62. MOTTET & OHLE, *supra* note 6, at 30–31.

63. *Id.*

64. Studies have shown that even youth who do not identify as LGBT are subject to harassment because of their perceived sexuality or gender non-conformity. *See GLSEN’s 2005 National School Climate Survey, supra* note 42 (noting that “[o]ver a third (37.8%) of [all] students experienced physical harassment at school on the basis of sexual orientation and more than a quarter (26.1%) on the basis of their gender expression”).

65. MOTTET & OHLE, *supra* note 6, at 30–31.

66. 22 Cal. Admin. Code § 84088 (b) (4) (“Individual privacy shall be provided in all toilet, bath, and shower areas.”)

67. 9 N.Y. Admin. Code § 182-1.10 (d) (3) (“All toilets and showers shall be enclosed to provide privacy.”).

68. *Interview with Bill Torres, supra* note 1.

69. 40 Tex. Admin. Code § 720.921.

70. *Accord interview with Bill Torres, supra* note 1.

71. *Interview with Michelle Maraziti, supra* note 7; *E-mail from Eliza Gibson, supra* note 24.

72. *LGBTQ Youth in the Foster Care System, supra* note 32, at 2.

73. *Interview with Michelle Maraziti, supra* note 7; *E-mail from Eliza Gibson, supra* note 24.

74. *LGBTQ Youth in the Foster Care System, supra* note 32, at 2.

75. *Accord* WORONOFF ET AL., *supra* note 3, at 40.

76. *Interview with Bill Torres, supra* note 1 (asserting that larger youth housing programs are more violent); *Interview with Michelle Maraziti, supra* note 7 (agreeing with Bill).

77. *See e.g.,* Peggy Chekroun & Markus Brauer, *The Bystander Effect and Social Control Behavior: The Effect of the Presence of Others on People’s Reactions to Norm Violations*, 32 EUR. J. SOC. PSYCHOL. 853 (2002).

78. *Id.*

79. *Id.*

80. *Interview with Bill Torres, supra* note 1.

81. 22 Cal. Admin. Code § 80028 (a) (“A license shall issue for a specific capacity.”); 40 Texas Admin. Code § 720.912 (4) (“An emergency shelter must not accept more children than the maximum number specified on the license or children whose age and gender violate the conditions of the license.”)

82. Lark-Inn for Youth Program Page, <http://www.larkinstreetyouth.org/programs/larkinn.php> (last visited Mar. 11, 2008).

83. 9 N.Y. Admin. Code § 182-1.2.

84. *Id.*

85. *Interview with Kevin Stark, supra* note 49.

86. 22 Cal. Admin. Code § 84065.5 (a) (“From 7 a.m. to 10 p.m., there shall be one on-duty child care staff person to each ten children, or fraction thereof, present.”); 40 Tex. Admin. Code § 720.541 (a) (“During waking hours, at least one child care staff for every 10 children must be on duty.”).

87. The California Administrative Code provides a good model for defining these categories of excluded community care facilities. *See* 22 Cal. Admin. Code § 80007.

88. *LGBTQ Youth in the Foster Care System, supra* note 32, at 2.

89. *See e.g., Viren, supra* note 19 (citing an estimate that 30 percent of Houston’s homeless youth are LGBT); Pumo, *supra* note 21 (stating that between 40 and 50 percent of New York City’s homeless youth are LGBT); *E-mail from Eliza Gibson, supra* note 24 (stating that approximately 33 percent of San Francisco’s homeless youth are LGBT).

90. *Accord* WORONOFF ET AL., *supra* note 3, at 40.

91. *Id.*

92. Included among these needs are the particular health and mental health needs of transgender youth; family conciliation services focusing on the rejection of LGBT youth by their families; and LGBT-inclusive sex education; *Id.*

93. *Id.*

94. *See* 9 N.Y. Admin. Code §§ 182-182-2.17.

95. NEW YORK CITY, N.Y., CODE tit. 8, § 8-107 (“4. Public accommodations. a. It shall be an unlawful discriminatory practice for any person, being the owner, lessee, proprietor, manager, superintendent, agent or employee of any place or provider of public accommodation, because of the actual or perceived race, creed, color, national origin, age, gender, disability, marital status, partnership status, sexual orientation or alienage or citizenship status of any person, directly or indirectly, to refuse, withhold from or deny to such person any of the accommodations, advantages, facilities or privileges thereof, or, directly or indirectly, to make any declaration, publish, circulate, issue, display, post or mail any written or printed communication, notice or advertisement, to the effect that any of the accommodations, advantages, facilities and privileges of any such place or provider shall be refused, withheld from or denied to any person on account of race, creed, color, national origin, age, gender, disability, marital status, partnership status, sexual orientation or alienage or citizenship status or that the patronage or custom of any person belonging to, purporting to be, or perceived to be, of any particular race, creed, color, national origin, age, gender, disability, marital status, partnership status, sexual orientation or alienage or citizenship status is unwelcome, objectionable or not acceptable, desired or solicited.”)

96. NEW YORK CITY, N.Y., Code tit. 8, § 8-102 (“When used in this chapter: . . . 23. The term ‘gender’ shall include actual or perceived sex and shall also include a person’s gender identity, self-image, appearance, behavior or expression, whether or not that gender identity, self-image, appearance, behavior or expression is different from that traditionally associated with the legal sex assigned to that person at birth.”)

97. NEW YORK CITY, N.Y., Code tit. 8, § 8-107 (“12. Religious principles. Nothing contained in this section shall be construed to bar any religious or denominational institution or organization or any organization operated for charitable or educational purposes, which is operated, supervised or controlled by or in connection with a religious organization, from limiting employment or sales or rentals of housing accommodations or admission to or giving preference to persons of the same religion or denomination or from making such selection as is calculated by such organization to promote the religious principles for which it is established or maintained.”).

98. Mark Stricherz, *The Success of Covenant House*, CRISIS MAGAZINE, Sept. 2, 2002, available at <http://www.crisismagazine.com/september2002/feature1.htm>.

99. 22 Cal. Admin. Code § 98101; CAL. CODE ANN. tit. 2 art. 9.5 (West 2006).

100. WORONOFF ET AL., *supra* note 3, at 2.

101. COLLEEN SULLIVAN ET AL., LAMBDA LEGAL DEFENSE AND EDUCATION FUND, *YOUTH IN THE MARGINS: A REPORT ON THE UNMET NEEDS OF LESBIAN, GAY, BISEXUAL, AND TRANSGENDER ADOLESCENTS IN FOSTER CARE INCLUDING A SURVEY OF FOURTEEN STATES AND PROPOSALS FOR REFORM 42* (2001).

102. 40 Tex. Admin. Code § 720.416 (c) (“Admission must not be denied to any child on the basis of race.”)

103. SULLIVAN ET AL., *supra* note 101, at 158.

104. This recommendation was partly fashioned after Lambda Legal Defense and Education Fund’s recommendations for foster group homes *in* SULLIVAN ET AL., *supra* note 101, at 129–130.

105. *See* BILL RYAN & MICHAEL CHERVIN, *GAY & LESBIAN HEALTH SERVICES OF SASKATOON, FRAMING GAY MEN’S HEALTH IN A POPULATION HEALTH DISCOURSE 50* (2000), available at doc.ilga.org/content/download/4320/26458/version/5/file/www.glhs.ca

106. Gay, Lesbian, and Straight Education Network, Summary of *From Teasing to Torment: School Climate in America—A National Report on School Bullying* (Oct. 11, 2005), <http://www.glsen.org/cgi-bin/iowa/all/library/record/1859.html> (last visited Mar. 11, 2008).

107. Patricia Marrone Bennett, *The Co-Occurrence of Youth Violence and Family Violence in Geographically Specific Neighborhoods* at 102 (2004) (Ph.D. dissertation, Fielding Graduate Institute), available at www.resourcedevelopment.net/projects/files/PBennettDissertation.pdf.

108. See WORONOFF ET AL., *supra* note 3, at 39.

109. See MOTTET & OHLE, *supra* note 6, at 11.

110. *Id.* at 14.

111. *Id.*

112. *Id.*

113. WORONOFF ET AL., *supra* note 3, at 8 (“By not considering the possibility that the girl may have not a boyfriend but a girlfriend, he has sent a message, however unwittingly, that he is comfortable discussing the child’s personal relationships only if those relationships are heterosexual.”).

114. See SULLIVAN ET AL., *supra* note 101, at 15–16.

115. *Id.* at 30

116. *Id.* at 129–130.

117. *Id.*

118. New York City Department of Homeless Services Procedure for Transgender and Intersex Clients, available at http://srp.org/documents/DHS_trans_policy.pdf.

119. The policies of New York City’s Department of Homeless Services only apply to programs housing those who are 18 and older.

120. SULLIVAN ET AL., *supra* note 101, at 161 (discussing foster care group homes).

121. *Id.* at 45–46.

122. 22 Cal. Admin. Code § 80065.

123. Accord WORONOFF ET AL., *supra* note 3, at 40.

124. Interview with Michelle Maraziti, *supra* note 7; E-mail from Eliza Gibson, *supra* note 24; *LGBTQ Youth in the Foster Care System*, *supra* note 32, at 2.

125. Interview with Michelle Maraziti, *supra* note 7; E-mail from Eliza Gibson, *supra* note 24.

126. *LGBTQ Youth in the Foster Care System*, *supra* note 32, at 2.

127. *Id.*

128. Accord WORONOFF ET AL., *supra* note 3, at 40.

129. See Larkin Street Youth Homepage, <http://www.larkinstreetyouth.org/> (last visited Mar. 11, 2008).

130. See Sylvia’s Place Homepage, <http://www.sylviasplace.org/> (last visited Mar. 11, 2008).

131. See Ali Forney Center Homepage, <http://www.aliforneycenter.org/> (last visited Mar. 11, 2008).

132. See Green Chimneys LGBTQ Programs Homepage, http://www.greenchimneys.org/our_programs/nycp.html (last visited Mar. 11, 2008).

133. Additionally, it is worth noting that until recently the New York City Department of Correction operated a separate dormitory for gay and transgender prisoner, in order to preserve their safety. See Associated Press, *NYC Closing Jail Dorm for Gays*, Dec. 29, 2005, available at <http://www.cbsnews.com/stories/2005/12/29/national/main1172229.shtml>.

134. Paul Schindler, *Building a Humane Model: Ali Forney Center Attacks Queer Homelessness with Tools Aimed at Leveraging Strengths*, Volume 5, No. 39 GAY CITY NEWS (Sept. 28–Oct. 4, 2006), available at http://www.urbanjustice.org/pdf/press/gay_city_news_28sep06.pdf.

135. Avenues to Independence Page, <http://www.larkinstreetyouth.org/programs/avenues.php> (last visited Mar. 11, 2008).

Ernst Hunter is a recent graduate of Hofstra University School of Law. During law school, Ernst volunteered regularly at the Ali Forney Center and the Peter Cicchino Youth Project in Manhattan, both of which were established to serve the homeless LGBT youth population. While in law school, Ernst also collaborated with the American Bar Association’s Youth at Risk Commission to draft a report and policy resolution urging changes to the foster care and homeless youth systems to make them better serve LGBT youth. This policy resolution was ratified by the American Bar Association’s House of Delegates in August 2007. Additionally, Ernst has worked with the Center for Children, Families and the Law at Hofstra University School of Law to educate lawyers on ways to improve the treatment of LGBT youth in foster care. Ernst is currently seeking admission to the California Bar.



INCIDENCE AND VULNERABILITY OF LGBTQ HOMELESS YOUTH

SPECIAL POINTS OF INTEREST:

- > Incidence and prevalence of homelessness among LGBTQ youth
- > Characteristics and risk elements for LGBTQ homeless youth
- > Causes and experiences of homeless LGBTQ youth

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Introduction

Severe family conflict, abuse, neglect, and abandonment all contribute to family displacement and homelessness for lesbian,¹ gay,² bisexual,³ transgender,⁴ and queer/questioning⁵ (LGBTQ) youth in America. This issue brief offers an overview of research indicating that each year hundreds of thousands of LGBTQ youth will experience homelessness.

LGBTQ youth are over-represented in the homeless youth population, but studies also indicate that this population experiences greater physical and sexual exploitation while homeless than their heterosexual peers. Unfortunately, most U.S. communities lack adequate programs and resources to prevent and end homelessness for LGBTQ youth. Once homeless, LGBTQ youth experience instability, abuse, and exploitation during a critical development stage. Without residential stability, nurturance, and opportunities for positive youth development, LGBTQ homeless youth are susceptible to further challenges as adults.

This brief reviews research concerning LGBTQ homeless youth and offers suggestions for interventions with positive outcomes for homeless adolescents and young adults.

Incidence of homelessness among unaccompanied, homeless youth in America

Homeless youth are typically defined as unaccompanied youth ages 12 to 24 years who do not have familial support and who are living in shelters, on the streets, in places not meant for human habitation (e.g. cars, abandoned buildings), or in others' homes for short periods under circumstances that make the situation highly unstable (also known as "couch surfing").

While most studies and community-based service providers agree that the population is substantial and widespread in every state and across demographic characteristics, there are not accurate figures on its size. The few research studies that quantify the number of homeless youth in America are incomplete. National studies typically focus only on minors (youth under 18 years) and have findings that vary from 575,000⁶ to 1.6 million⁷ or 1.7 million⁸ to 2.8 million.⁹ These estimates do not include 18 to 24 year olds who are homeless. Further, these incidence studies do not record the length of time the youth spent homeless. Some youth will remain homeless for only short periods of time (a few nights) while others will experience long periods of homelessness and become street-dependent.

In 1998, a large study of the adolescent population found that each year 5 percent (1.6 million) experienced one episode of homelessness.¹⁰

Prevalence of homeless LGBTQ youth

Reports, news articles, and anecdotal stories from nonprofit organizations serving homeless youth have long recorded the over-representation of LGBTQ youth among homeless adolescents.¹¹ Increasingly, studies on the demographics of unaccompanied homeless youth indicate alarming rates of over-representation of LGBTQ youth. LGBTQ youth are estimated to be 10 percent of the general youth population.¹² In contrast, research (Table 1) forms a cluster of findings that show 15 to 25 percent of homeless youth self-identify as LGBTQ. A conservative estimate would be that one out of every five (20 percent) of homeless youth are LGBTQ or twice the number of the general youth population. Thus, LGBTQ youth are disproportionately experiencing homelessness.

Extrapolating the cluster of research studies indicating that 15 to 25 percent of homeless youth self identify as LGBTQ to the research findings that 1.6 million youth under the age of 18 experience at least one episode of homelessness each year,³⁰ would result in an estimate that each year between 240,000 and 400,000 LGBTQ youth experience at least one night of homelessness in America.

There are however studies which do not indicate that LGBTQ youth are disproportionately represented among homeless youth (Table 2). One explanation for this variation is that these studies include primarily teenagers and not young adults. Additionally, if studies were shelter-based they might be missing LGBT youth who may not access shelter because they fear the environments are not inclusive or safe.

Causation and pathways to homelessness

Studies show that there are often multiple factors which cause both heterosexual and LGBTQ youth

to become homeless: severe family conflict, physical abuse, sexual abuse, neglect, substance abuse, mental health disabilities, abandonment, and rejection by parents and guardians due to the youth's sexual orientation or gender identity.³⁶ A multiplicity of family dynamics builds up forcing a youth out of her/his home.³⁷ For example, an eight city survey of homeless youth in 2005 found that 75 percent of LGB homeless youth and 63 percent of heterosexual homeless youth reported having family members with severe alcohol and drug problems.³⁸ Youth consistently report severe family conflict as the primary reason for their homelessness but also report multiple barriers to reunification.³⁹ Behavioral issues on the part of the youth may be a source of the conflict, but this is not always the case.

It is certainly true that a significant minority of LGBTQ youth report being thrown out of their homes due to their sexual orientation or gender identity. One survey noted that 25 percent of LGBT homeless youth report family rejection as the primary cause of their homelessness.⁴⁰ Another study of 63 LGB youth in four Midwestern states showed that 39 percent of gay males had left home due to a conflict regarding their sexuality.⁴¹

However, some studies indicate that familial rejection of sexual orientation or gender identity are not the primary cause of homelessness in a majority of case histories for LGBTQ youth.⁴² In a survey of 84 LGB homeless youth in Seattle, 14 percent left home because of conflict with parents over their sexual orientation. And, in a state-wide survey of homeless youth in Minnesota, of the 11 percent of the homeless youth that self-identified as LGBT, 25 percent reported that primary reason they left home was intolerance in response to the youth's sexual orientation or gender identity.⁴³ Beyond the individual and family problems, youth homelessness is also fed by lack of affordable housing, poverty, and child welfare and juvenile correction systems that fail to protect youth from shelters and the streets.

TABLE 1. Research Indicating Over-Representation of LGBTQ Youth in the Homeless Youth Population

STUDY AUTHOR	LOCATION	AGE RANGE	PERCENTAGE OF HOMELESS YOUTH SELF-REPORTING AS LGBTQ
Adlaf & Zdanowicz, 1999 ¹³	Toronto, Ontario, Canada	13 to 24 years	18 percent LGBTQ
Clatts, 1998 ¹⁴	New York, NY	12 to 17 years	50 percent LGB
Cochran, 2002 ¹⁵	Seattle, WA	13 to 21 years	22 percent LGB
Johnson, 2005 ¹⁶	Illinois statewide	12 to 21 years	14.8 percent LGBTQ City of Chicago: 23.1 percent Cook County: 22.4 percent
Kennedy, 1991 ¹⁷	San Francisco, CA	Does not specify	21 percent LGB
Kruks, 1991 ¹⁸	Los Angeles, CA and Seattle, WA	Does not specify	25 to 45 percent LGB
Milburn, 2006 ¹⁹	Los Angeles, CA Melbourne, Australia	Under 25 years	24 percent LGBT
Owen, 2006 ²⁰	St. Paul, MN	Under 21 years	9-14 percent LGBT
Owen, 2003 ²¹	St. Paul, MN	Under 21 years	12-17 percent LGBTQ
Rew, 2001 ²²	Central Texas	15 to 22 years	36 percent LGB
Solorio, 2006 ²³	Los Angeles, CA	12 to 20 years	25 percent LGBT
Tenner, 1998 ²⁴	Seattle, WA	14 to 21 years	37 percent LGB
Unger, 1997 ²⁵	Hollywood, CA	12 to 23 years	18 percent LGB
Van Leeuwen, 2006 ²⁶	Colorado, Illinois, Minnesota, Missouri, Utah	Under 25 years	22 percent LGB
Wagner, 2001 ²⁷	Seattle, WA	13 to 23 years	39 percent LGBT
Whitbeck, 2004 ²⁸	Iowa, Missouri, and Kansas	16 to 19 years	15 percent LGB
Yates, 1988 ²⁹	Los Angeles, CA	12 to 24 years	16 percent LGB

LGBTQ homeless youth face greater harm than their heterosexual homeless peers

LGBTQ homeless youth run away more frequently and are exposed to greater victimization while on the streets than their heterosexual peers.⁴⁴ One study found that LGBT homeless youth ran away from home an average of twelve times as compared to seven times for heterosexual homeless youth.⁴⁵ Initially, before becoming homeless, LGBTQ homeless youth are exposed to higher levels of physical and sexual abuse from caretakers or family members.⁴⁶ Even if not

homeless, in general, LGBTQ youth are at greater risk for substance abuse and suicide and they are at high risk for being both victims and perpetrators of physical violence compared to the general adolescent population.⁴⁷ Additionally, LGBTQ youth may face stigma, verbal harassment, high rates of sexual coercion, lack of support, homophobia, involvement in sex at an early age, and potential exposure to multiple partners.⁴⁸ Conversely, LGBTQ youth experience barriers to healthcare and mental health counseling.⁴⁹

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TABLE 2. Research Indicating Under-Representation of LGBTQ Youth in the Homeless Youth Population

STUDY AUTHOR	LOCATION	AGE RANGE	PERCENTAGE OF HOMELESS YOUTH SELF-REPORTING AS LGBTQ
Cauce, 2000 ³¹	Seattle, WA	13 to 21 years	7 percent LGBT
Greenblatt, 1993 ³²	Los Angeles, CA	13 to 17 years	Less than 10 percent
Rotheram-Borus, 1992 ³³	New York, NY	12 to 18 years	6 percent males GB
Rotheram-Borus, 1996 ³⁴	New York, NY	11 to 18 years	7 percent had history of same-sex sexual activity
Whitbeck, 1999 ³⁵	Iowa, Missouri, Nebraska, and Kansas	16 to 20 years	4-5 percent LGB

Mental Health Risk: Once homeless, LGBTQ youth are at higher risk for victimization and experience higher incidence of mental health problems. A study of homeless lesbian and gay youth found that lesbians were more likely to experience post-traumatic stress syndrome, conduct disorder, and alcohol and substance abuse than heterosexual homeless young women. Gay homeless males are less likely to meet criteria for conduct disorder and alcohol abuse than their heterosexual homeless peers but were more likely to meet criteria for major depressive episodes.⁵⁰ LGB homeless youth are also more likely to attempt suicide (62 percent) than their heterosexual homeless peers (29 percent).⁵¹

Sexual Exploitation Risk: Another risk is the youth's exposure to sexual abuse and exploitation. LGBTQ homeless youth experience an average of 7.4 more acts of sexual violence than their heterosexual peers.⁵² LGBTQ youth may have twice the rates of sexual victimization than their heterosexual homeless peers and LGBTQ youth report double the rates of sexual abuse before age 12.⁵³ LGB homeless youth are solicited to exchange sex for money, food, drugs, shelter, and clothing more often than heterosexual homeless youth.⁵⁴ Consequently, more LGB homeless youth than heterosexual homeless youth report engaging in the sex trade to meet their basic needs.⁵⁵

Chemical Abuse Risk: Finally, LGBTQ homeless youth may be at greater risk for drug abuse. A Seattle, Washington study of 84 homeless LGB youth, found that they used substances more frequently than their heterosexual peers, with significant differences noted in the rate of consumption for cocaine, crack, and crystal methamphetamines. However, study results appear to highlight experimental drug usage and not drug dependency among homeless youth. The study revealed that the mean use of these substances by the youth in the preceding six month period was never more than 2 times for each drug.⁵⁶ At least one study has noted that amphetamine and injection drug use is more prevalent among LGBTQ youth than their straight peers.⁵⁷

The role of foster care and juvenile delinquency systems as contributors to LGBTQ youth homelessness

The transition to adulthood for former foster or juvenile delinquency youth is often complicated by their experience with multiple placements and numerous disruptions to their schooling. One study found that more than 30 percent of foster youth experienced eight or more placements with foster families and group homes.⁵⁸ Court-involved youth (foster youth and youth in the juvenile justice system) are often discharged into communities with few resources and numerous challenges.⁵⁹ As a result, former foster care and

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incarcerated youth have difficulty finding employment and affordable housing and are disproportionately represented in the homeless youth population.

Foster Care Youth: Every year, about 20,000 youth ages 16 and older transition from foster care to legal emancipation, or “age out” of the system. There is little research on the number of LGBTQ youth in child welfare systems, but, some studies suggest that these youth make up between 5 and 10 percent of the total foster youth population.⁶⁰ The actual percentage may be higher since LGBTQ youth experience high rates of physical and sexual abuse histories, which puts them at risk for entry into child protective services and foster care.⁶¹ One study found that LGB homeless youth were more likely to have a history of out-of-home placement than heterosexual homeless youth.⁶² Additionally, a 2006 study found that 65 percent of 400 LGBT homeless youth reported having been in a child welfare placement in the past.⁶³

A sizable minority of foster youth will experience at least one episode of homelessness after discharge. Studies indicate that from 12 to 36 percent of emancipated foster care youth (heterosexual and LGBTQ) report being homeless at least once after discharge from care.⁶⁴ Most episodes are short in duration. Even if not homeless, however, studies indicate foster youth in transition experience barriers to obtaining independent housing.⁶⁵

Juvenile Justice Involved Youth: Every year, approximately 100,000 juveniles and young adults ages 10 to 24 years are released from secure correctional facilities and reenter their communities.⁶⁶ Studies indicate that close to 25 percent of formerly incarcerated youth will experience homelessness upon discharge from custodial placement.

Ending homelessness for LGBTQ youth through prevention, shelter, family reunification, and youth housing models

While there is a growing body of research on methodologies and services that prevent or end homelessness for youth, there is little research on interventions specifically for LGBTQ homeless youth. Given the absence of research on solutions specific to LGBTQ youth, the following recommendations are based on research for the general youth population. On the positive side, most homeless youth do not experience long-term homelessness. Homeless youth often go home, find relatives, or make it on their own as young adults. In a seven year longitudinal study of 249 homeless youth as compared to a matched sample of 149 housed youth, ages 13 and 17 years, most of the adolescents returned fairly quickly to their families of origin.⁶⁷ Nearly 93 percent were no longer homeless after seven years of study. However, not all were successfully reunified with parents. One third lived with their families, about one fifth lived with relatives or friends, and over a third (34 percent) lived on their own. Therefore, the pathway out of homelessness sometimes

Welcoming and Nurturing Environments as a Best Practice

LGBTQ homeless youth do not simply want to be tolerated. Tolerance is a negative form of acceptance. Youth understand and feel the difference between program services and agencies that tolerate versus nurture and celebrate them as persons. Programs serving LGBTQ homeless youth must recognize the prevalence of abuse, exploitation, neglect, abandonment, and conflict these youth have experienced in their families and communities. Merely tolerating their existence in a program often leads to barriers to building trusting relationships and engaging youth in opportunities for growth and change. Shelters, drop-in centers, housing models, counseling centers, and case advocates must consciously strive to exhibit behaviors, practices, and policies that nurture and celebrate LGBTQ homeless youth.

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focuses on parents, sometimes focuses on kin and extended family, and sometimes focuses on independent living.

Community planners and youth service agencies should design service systems in three modules to have the greatest impact in ending youth homelessness: prevention and family preservation services, crisis emergency shelters with case managers seeking family reunification, and youth housing with positive youth development services.

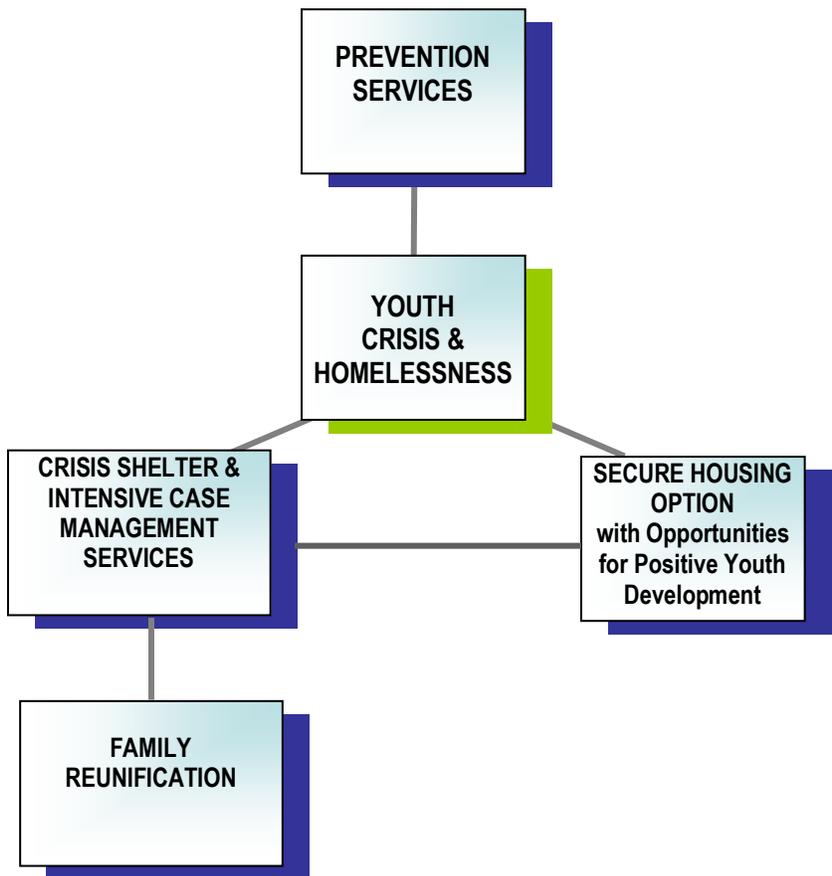
Early Intervention and Prevention Services

Early intervention and prevention services can often meet the crisis needs of a family and prevent homelessness and/or foster care placement. Two forms of mental health services have been identified that show positive results in decreasing youth anti-social behavior and aggression: multi-systemic therapy (MST)⁶⁸ and functional family therapy (FFT).⁶⁹ These are delivered in a family

context and help stabilize the family by dealing with the mental health issues of adults and/or youth. Additionally, youth who are experiencing abuse or neglect at home could be diverted away from costly out-of-home placements and homelessness through Family Group Conferencing or Family Group Decision Making programs. These program models allow extended family, kin, and important people in the life of the youth to come together to implement a plan for the continued safety, nurturance, and permanency of the youth. These programs show remarkable success in stabilizing youth. Research on Family Group Decision Making found reductions in re-abuse, increased family involvement, decreased residential instability, and more extended families accepting care of the youth.⁷⁰

Shelter care coupled with intensive case management services to rapidly reunite homeless youth with their families

Emergency shelter coupled with case management services have proven effective at reuniting homeless youth – even those with troubled histories – with their families. Homeless youth and their families benefit from respite shelter that works to resolve conflict or crisis with counseling and supportive services. Intensive Case Management (ICM) programs work with a family (in conjunction with teachers and other helping professionals) to develop an individualized comprehensive service plan. Case Managers who are professional and specially trained conduct an assessment and assist in coordinating supports and services necessary to help children and adolescents live successfully at home and in the community. The case loads are small (1 to 10 or 1 to 12) and offer round-the-clock access. One study noted that homeless



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Cultural Proficiency to Serve LGBTQ Youth of Color

LGBTQ homeless youth may also disproportionately be youth of color. African American and American Indian youth are disproportionately represented in the homeless youth population. Further, homeless youth tend to come from low-income communities and their families are disproportionately poor or working class. It is recommended, therefore, that shelter, housing, and supportive services for LGBTQ homeless youth be staffed with professionals with skills and proficiencies to support youth from multiple cultures. The ability to identify with youth's ethnic culture and socio-economic culture, in addition to their sexual orientation and gender identity, may offer greater opportunities for relationship building and voluntary agreement by the youth to accept services.

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youth receiving ICM services showed improved psychological well-being, less aggression, and satisfaction with their quality of life.⁷¹ Hopefully, these lead to more stable housing.

Housing programs for youth who will not be able to return to their families

Many LGBTQ homeless youth have been rejected or abandoned by their families. Some experience unresolved family issues that threaten their safety and welfare. When family reunification is not an option, communities must rely on housing programs designed for adolescents to prevent and end youth homelessness. Examples of youth housing models include: host homes, shared housing, community-based group homes, dormitories, scattered site transitional housing, single-site transitional housing, permanent scattered site housing with supportive services, and foyer (employment-focused) housing. At their best, these models incorporate life skills training, connection to caring adults, and opportunities for growth, mistakes, and positive youth development. Many LGBTQ homeless youth rely on such housing options when family members are unwilling or unable to care for them.

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The implication of these three strategies is that the first and best option is to reconnect youth with their families, and only after this fails should independent living options be considered.

CONCLUSION

A growing, but inadequate, body of research finds that between 240,000 and 400,000 LGBTQ youth experience at least one episode of homelessness each year in the United States. A review of research literature finds that not only is there a disproportionate representation of LGBTQ youth among homeless youth populations, but this population experiences greater physical and sexual exploitation while homeless than their heterosexual peers. Unfortunately, a national shortage of youth shelters and housing programs result in many youth being denied meaningful assistance. Local programs funded under the federal Runaway and Homeless Youth Act (Department of Health and Human Services) made contact with over 660,000 youth through street outreach services in 2007, but about 47,000 (less than 10 percent) actually received shelter or housing.⁷² The lack of accessible housing resources is of grave concern for both heterosexual and LGBTQ homeless youth. The experiences of LGBTQ homeless youth with histories of familial abuse, homelessness, and exploitation in street environments occur during a critical human developmental stage – adolescence – setting them up for further challenges as adults.

Several intervention models provide hope: early intervention and prevention services, intensive case management services coupled with shelter centers, and youth housing models with youth development services. Lack of federal, state, and local funding is a primary barrier to communities wishing to address the needs of LGBTQ homeless youth. Broader community recognition of

the problem in the adult LGBTQ community and support for it's solution could make a difference. Homelessness among LGBTQ youth can be abated. Greater understanding of this special population and tailor-made interventions offer American communities the opportunity to dedicate resources that offer promise in preventing and ending youth homelessness.



Endnotes:

1. A lesbian is a woman whose emotional, romantic, and sexual attractions are primarily for other women.
2. A gay person is a person whose emotional, romantic, and sexual attractions are primarily for individuals of the same sex, typically in reference to men. In some contexts, the word gay is used as a general or unifying term for gay men and lesbians.
3. A bisexual is a person who is emotionally, romantically, and sexually attracted to both men and women.
4. Transgender is an umbrella term that can be used to describe people whose gender expression is non-conforming and/or whose gender identity is different from their assigned sex at birth. This term can include transsexuals, gender queers, cross-dressers, and others whose gender expression varies from traditional gender norms.
5. The word queer was a historically derogatory term for a gay man, lesbian, or gender-nonconforming person. The term has been widely reclaimed, especially by younger LGBT people, as a positive social and political identity. It is sometimes used as an inclusive, or umbrella, term for all LGBT people. More recently, *queer* has become common as a term of self-identification for people who do not identify with the restrictive and binary terms that have traditionally described sexual orientation (for instance, gay, lesbian, or bisexual only). Some LGBT community members still find *queer* an offensive or problematic term. The term questioning youth is used for those individuals in an active process of exploring their own sexual orientation and/or gender identity and questions the cultural assumptions that they are heterosexual and/or gender conforming. Many LGBT people go through this process before "coming out." Not all people who question their identities end up self-identifying as LGBT.
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Learning Journals

Learning Journal 1

Name: Maxwell Pickett

Date: 09/17/2019

What did you learn from the Tours? What did you learn from the panel of professionals? What was your personal take-away from these experiences? Did you enjoy the experiences? Was there anything that surprised you?

When traveling to different locations to tour for class, we learned a lot about topics we were not familiar with. We learned about how the Dorothy Day food pantry is run and different procedures that happen in a day's work. Visiting the Churches United location really opened my eyes as a designer as to what we need to do to design a space for people who are battling homelessness. The tours were informative and full of impactful moments. My personal take away from the tours is how we can transform a space for people who are struggling with being homeless and creating a space that is inclusive and accepting. I enjoyed the experiences very much, they helped inform my decisions as a designer and as an individual in the Fargo, Moorhead community. The things that I learned from the panel of professionals is that anything that the youth wants, we want too. This statement really struck me because we are the same, just different by where we are housed. As a designer I want to make this upcoming project as great as I can so that the "fictional" youth Chase and I are designing for can have an enjoyable experience in our space.

L G B T Q I A + H o u s i n g

Learning Journal 2

Name: Maxwell Pickett

Date: 09/26/2019

Throughout Phase 1 of the project there were a lot of things that went well for Chase and me. I believe that Chase and I work very well together as a group. We communicate effectively and are not afraid to tell each other what is wrong and what we do not like. Input or feedback from each is the best thing because we were consistently communicating. The negative side of the project that just cannot be dealt with is that AutoCAD and SketchUp do not have a cloud-based software, so the users are not able to work on a project at the same time. Chase and I found a solution to this bump in the road very quickly. We decided right at the beginning that we would pass around my flash drive and update each other's documents and communicate what we had completed. This method worked great because it felt like we equally contributed to the project as a whole. For this project Chase and I attempted to approach it like we have not in the past. Seeing a video of Anna Wintour for a Master Class online, she says "You are driven by your heart, you're driven by your talent, and you're driven by your instinct, and if you start to question and look at what people are doing to the left of you or to the right of you, you are going to lose that clarity of thought. Listen to the information, at the end it has to come from who you are. Own your decisions and own who you are, but without apology." We took this information from her and really believed in it. We did not allow ourselves to look at other's projects to help us create the best version of our project that we possibly could. Overall, group projects are amazing, they allow us, as students, to create wonderful things because we are allowed to use more than one mind to find solutions for the interior environment.

L G B T Q I A + H o u s i n g

Learning Journal 4

Name: Maxwell Pickett

Date: 11/21/2019

What was the most valuable information you were able to locate that had the greatest impact on your design solution for the second phase of project 1? What has been your biggest challenge for the second phase of project 1? How are you overcoming this challenge? What aspects of your project, beyond accessibility, support the goal of having an inclusive project? What are some challenges that you have had, or currently have, with ensuring the design of the space is as inclusive as possible?

A valuable piece of information that was found when searching for research that will have a large impact on the designer's project is how one can include wellness and inclusivity in the design through minimalistic ways. By including these attributes, the designer can also add in fun ways of wayfinding through the interior environment. The wellness aspect is so important and crucial to this project because these kids/teenagers/young adults are vulnerable and broken. They need a space to be uplifted and revived. The wellness attribute helps guide the designer to create a space that IS uplifting and revived for the user. The biggest challenge of phase II of project one thus far has been being able to incorporate all the features that one wants to include in the apartment for the user. There are so many sections of design that must be met and the designer wants to use the space to its full capabilities. In every project a designer faces these challenges, but the designer solves these issues with creative design solutions. The last challenge the designer has faced has been trying to ensure that EVERYONE has a space, and that everyone feels included. The design of the project is inclusive because it harvests community and togetherness throughout the community area, living area, and kitchen. The interior pushes the users to use the space together and bond with one another. Inclusive design is seen through the space by making sure that each and every individuals' needs that inhabit the space are met, both physically and emotionally. These needs can be met physically and emotionally through design choices such as color, textures, and the physical layout of the interior.

Learning Journal 5

Name: Maxwell Pickett

Date: 12/05/2019

What professional skills have you gained while working on the projects in this course? What was the most valuable take-away from project 1 phase 1? What was the most valuable take-away from project 1 phase 2? What was the most valuable take-away from project 2?

The professional skills that I have gained while working on project in this course cover a couple topics. One thing that I have noticed is how fast I have gotten using different software programs such as AutoCAD and SketchUp. I have gotten a lot better on how I organize my files and how I label documents to access in a more accessible way. The most valuable take-away that I have noticed is how well Chase and I work together as group. We communicate very well together and are not afraid to tell each other our opinions. The most valuable take-away from project 1 phase 2 is being efficient in time and being able to manage time and produce a large project in a short amount of time. The most valuable take-away from project 2 was the overall perspective of participating in a competition and being in such a short time crunch.

