

# Fulfilling information needs by classifying complex patron needs

Classifying  
complex  
patron needs

39

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Received 5 July 2020  
Revised 24 September 2020  
4 October 2020  
Accepted 5 October 2020

## Abstract

**Purpose** – This paper aims to describe how public librarians can better address complex information needs. First, librarians should classify the degree of complexity of the need by using Warner's classification model; then they can use Popper's three world theory to anticipate and respond to complex information needs by following specific steps.

**Design/methodology/approach** – After examining the information science literature, appropriate models were selected to support public librarians. Our information science scholarship, coupled with our practical experience, informed our search and selection.

**Findings** – This paper details specific steps that public librarians can take to anticipate and respond to individual information needs. Doing so is imperative as the information needs of the public continue to become increasingly complex.

**Originality/value** – This paper improves information practice because it offers specific steps to aid public librarians to anticipate and respond to complex information needs. It draws upon an existing model and theoretical framework. This paper also highlights selected examples of how public librarians across the USA have anticipated information needs, and developed partnerships with organizations external to the public library to address complex information needs.

**Keywords** Library services, Public libraries, Librarians, Partnering, Librarianship, Library studies

**Paper type** Conceptual paper

## Introduction

The public library is asked to fulfill the information needs of patrons who may call, email, visit a library website or walk into the library. Connecting people to information has always been one of the core purposes of public libraries. Due to economic hardship and increased



The authors wish to acknowledge the institutionals who have supported the work that has informed this research. The authors also wish to acknowledge the support of Karen Parry and the East Brunswick Public Library in addition to the Rutgers University School of Social Work.

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demand for social services, which has been exacerbated by the COVID-19 pandemic, public librarians are receiving increasingly diverse information requests. In this paper, we focus on complex information needs in three areas:

- (1) health and wellness;
- (2) legal; and
- (3) social services (Kouameet *et al.*, 2005; Bishop, 2016; Dankowski, 2018).

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Complex needs are those that require multifaceted, precise responses, in part because an inadequate response may harm the patron (e.g. managing money, comparing forms of birth control and locating online cancer support communities) (Westbrook, 2015). An information need is the desire to locate or obtain information which will satisfy a conscious or unconscious need (Bopape *et al.*, 2017).

To fulfill complex information needs, public librarians must first understand the information need. Next, they must access requisite information which may require sources external to the public library (Taylor *et al.*, 2012). To understand these complex information needs, public librarians must call upon assorted skills as they assume various roles, such as informal counselors, social workers, therapists and friends (Halder, 2009). For example, understanding and addressing complex information needs related to concerns about the opioid epidemic requires knowledge of the patron and of health information (e.g. Is the pain medication my doctor prescribed for me an opioid and if so, is it safe for me to take it?). Also, responding to information needs which emanate from shifting perceptions and citizenship policies often requires both building trust with the patron and legal knowledge (e.g. Where can I safely access legal services if I have questions about citizenship?). Lastly, understanding patrons' information needs may require considerable empathy and emotional support as information needs may stem from stigmatized issues, such as unstable housing due to financial barriers (e.g. Where can I get help to pay my rent?). Public librarians have expressed challenges in their attempts to fulfill complex information needs as they often must reach beyond their expertise and comfort zones (Westbrook, 2015). For example, to fulfill an information need concerning the availability of safe housing public librarians may need to provide a shelter address, call a shelter to confirm availability of beds and eligibility requirements and provide a bus route to the shelter (Westbrook, 2015). Fulfilling these types of complex information needs can be challenging for public librarians because they often do not have specific health, legal or social service training. This paper can help better prepare public librarians to anticipate complex information needs and be better prepared to fulfill them.

Patrons are increasingly turning to public libraries to help them fulfill their complex information needs (Kouameet *et al.*, 2005; Bishop, 2016; Dankowski, 2018). As patrons' information needs continue to shift from simple research-based reference questions to more complex information needs, public librarians feel unprepared to address them (Wahler *et al.*, 2020). For example, in one study about offering nutrition programs and information, librarians described that they "often felt unprepared to offer these services", which would result in librarians having to do more research and create relationships with outside organizations beyond their own library system to offer adequate information (Lenstra and D'Arpa, 2018). Librarians have developed collaborations with social workers, lawyers, law librarians and medical librarians to enable them to respond to these complex information needs (Petrin Lambert, 2020). Public librarians must be aware of relevant support organizations in their communities, and they must have the skills to connect patrons to these organizations (Scott, 2011).

Given that public librarians often face difficulty in anticipating, assessing and responding to complex information needs (Westbrook, 2015), we aim to aid public librarians in their charge to help these patrons. Currently, no universal framework exists for public

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librarians which helps them anticipate and build capacity to address these increasingly complex needs. We selected two existing models to help public librarians both determine the complexity of the information needs and a framework to use to address them: Warner's classification model and Popper's three world model. Taken together, these models present a unique method to address complex needs. Warner's classification model enables *classification* of the complexity of the information need (Warner, 2001) and Popper's three world model informs how to *fulfill* the information need (Popper, 1978). Applying Warner's classification model then Popper's three world model provides a novel, creative way to *anticipate* and *fulfill* complex information needs. We elucidate how public librarians can determine the complexity of information needs and build capabilities to respond to these needs. We identify and describe public library patrons' changing information needs, informed by the literature and our experiences in our roles as librarians and information science scholars. We posit that determining the level of complexity of information needs is vital to anticipating information needs and creating capabilities to address them. Doing so will result in enhanced efficacy of public libraries as information organizations.

### Literature review – health, legal and social service information

Health, legal and social service information needs are categorically complex, in part because addressing them can challenge the common public library policy of remaining neutral (Smith, Hundal and Keselman, 2014). On a technical level, The American Library Association's (ALA) Reference and Users Services Association (RUSA) guidelines stipulate that reference librarians in public libraries assess the quality and credibility of particular resources without obtaining personal information from the patron. Oftentimes, patrons' information needs come in the form of needs for help regarding issues in which they may expect the librarian to insert their personal views. These circumstances pose a challenge to the librarian to avoid the influence of their personal preference about a specific issue (e.g. political affiliation). This is an example of tension between the library's role of occupying a neutral, nonthreatening and nonpartisan space; and the individual librarian's desire to help a patron by providing accurate information tailored for the patron's own experience (Smith and Eschenfelder, 2013). However, neutrality, which has been a key tenant of library science training is no longer pragmatic given the diversity of patrons and their specific information needs. Our review found debate that vestiges of LIS training which may emphasize neutrality, oversimplify maintaining neutrality in practice, and how doing so is incongruent with accelerating movement towards diversity, equity and inclusion (Macdonald and Birdi, 2019). In addition to maintaining neutrality, respecting the patron's privacy is another challenge. For example, the ALA RUSA guidelines for addressing medical, legal and social service information needs stipulate that reference librarians should "identify the issue" in a patron's need "without intruding on the user's privacy" (RUSA, 2001). In contrast, the (US) National Association of Social Workers Code of Ethics allows their professionals to "solicit private information" if that information is "essential to providing services" and if that information is then held confidential (Kouameet al., 2005; NASW, 2008). While the social work profession is guided to obtain sensitive, personal information, public librarians cannot get the personal information often needed to appropriately help their patrons. RUSA guidelines only direct librarians to "advise users regarding the relative merits of sources" and "make recommendations regarding library materials when appropriate" (RUSA, 2001). Literature describes how public librarians feel ill-equipped to address personal, sensitive reference questions. Specifically, health and legal information needs, compared to social service information needs, are particularly challenging for librarians to avoid providing information influenced by their own biases (Smith and Eschenfelder, 2013). Addressing

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these information needs require librarians to walk the fine line between neutrality and sensitivity.

### *Health*

Community members regard the public library as a vital source of health information. The public library's mission includes addressing information needs for all members of the community it serves, thus public libraries are on the front lines of medical librarianship today (Smith, 2006). Nationwide, 40% of public librarians help patrons with health information needs at least "a few times a month" (Luo and Park, 2013). A national survey found that 73% of Americans over age 16 perceive the library's role as a source of health information (Horrigan, 2015). Also, the Free Library of Philadelphia reports that about one-third of patrons visit the library for health information (Shubik-Richards and Dowdall, 2012). There are various health information needs that patrons pose to public librarians (Kouame *et al.*, 2005). These needs broadly address the topics like diseases and symptoms, treatment options, medical concepts and fitness and nutrition (Luo and Park, 2013). Our recent experiences working in public libraries since the onset of the COVID-19 pandemic have included addressing specific health information needs which patrons may pose via chat reference, email reference or phone references while the physical spaces have been closed.

Health information needs may also push the limits of librarians' knowledge of health information. In a survey of library directors in Pennsylvania, over half of respondents reported "sometimes or often not knowing how to answer their patrons' health questions" (Whiteman *et al.*, 2018). A nationwide survey of librarians reports 34.2% of respondents reported a "lack of knowledge about available medical/health information sources" (Luo and Park, 2013).

In our own experience, these needs have ranged from assistance identifying hospitals for specific health concerns to dietary needs for health conditions, like diabetic-friendly recipes. The broad topics of health information needs received by public librarians nationally include diseases and symptoms, treatment options, medical terminology and fitness and nutrition (Whiteman *et al.*, 2018). Additionally, through our work at public library reference desks and participation in Library and Information Science (LIS) professional organizations, we have direct experience with understanding how patrons turn to public libraries for health information. Health information needs, may challenge the public librarian to provide credible, actionable information (Westbrook, 2015).

According to a 2015 Pew Report, many Americans see the public library as having an important role in providing health information, i.e. "73% of all those ages 16 and over say libraries contribute to people finding the health information they need". Three co-authors (KEM, SB, KBM) in their roles as public librarians, have received needs on topics ranging from the best hospitals for specific procedures to the most effective exercises to stave off muscle decline, to what foods are gluten-free and clarification on the definition of a diabetic-friendly diet. In a 2017 survey of libraries across Pennsylvania, nutrition and exercise were reported as common categories for information needs, with 70 and 66% of respondents, respectively, reporting assisting patrons in these areas (Whiteman *et al.*, 2018).

### *Legal*

Legal information needs are also categorically complex (American Association of Law Libraries, 2014; Bishop, 2016). Addressing legal information needs is wrought with various nuances and intricacies, including differences among jurisdictions. Individuals turn to public libraries concerning legal issues as they attempt to understand their rights, or as they

attempt to decipher legal jargon. Patrons may need information to help them navigate court rules and procedures that appear opaque to them; they also may need information on how to access affordable legal resources (Mancini, 2013; Harmon *et al.*, 2018). In a 2017 survey of Pennsylvania public librarians, 52% of respondents indicated that they fill legal information needs (Whiteman *et al.*, 2018). Patrons who present these legal information needs may be self-represented litigants (SRLs)—who either choose not to hire an attorney or cannot afford to do so (Bilson *et al.*, 2017). SRLs frequently turn to public librarians to get information and legal forms regarding issues ranging from family law and landlord-tenant law to medical malpractice and contracts (Dyszlewskiet *al.*, 2015). One co-author (KBM), who currently works in a law library that is open to the public, regularly encounters information needs from SRLs who come to the library with needs spanning veterans' benefits, court rules, divorce proceedings, estate planning and procedures for appealing cases to a higher court. The aforementioned co-author is faced with information needs which she believes would be more appropriately addressed by an attorney because, for example, legal information needs require interpretation or application of the law to a specific situation. In these instances, the co-author must explain that while librarians can help patrons find and use legal resources, they cannot give definitive legal answers or advice.

Legal information needs are sometimes best fulfilled using e-government documents (e.g. tax forms) or other government resources (e.g. congress.gov, govinfo.gov, the Federal Register, the Code of Federal Regulations, state legislative websites, etc.). Patrons' information needs regarding government information and services are evolving, and related reference questions vary widely. Such needs may pertain to topics like: unemployment benefits, voter registration, taxes, processes for filing Federal Emergency Management Agency (FEMA) claims, eligibility for housing vouchers (Taylor *et al.*, 2014), support for small businesses (Bishop, 2016), social security eligibility and details concerning student loan payback terms (Snead, 2014). As government agencies continue to shift towards making government forms exclusively available online, the need for e-government access has increased (Taylor *et al.*, 2014, S19). Bishop (2016) posits that "understanding government websites and filling out the related online forms could be the most sustainable information need in society" (320). Public librarians often act as trusted intermediaries between the public and the government, and a common example of them playing that role is the regular practice of helping patrons access government information online (Taylor *et al.*, 2014, S20; Snead, 2014; Bilson *et al.*, 2017). According to the 2011–2012 Public Libraries Funding and Technology Access Study – when less government resources and forms were digitized than they are now – over 96% of surveyed public libraries indicated that staff assisted patrons with applying for or accessing e-government services. Furthermore, 9 out of 10 public libraries indicated that their staff assisted patrons "in *understanding* how to access and use e-government websites" (Taylor *et al.*, 2014, S20). In fact, public libraries have been dubbed "justice entry points" (Bilson *et al.*, 2017, p. 115) for those who need to conduct legal research or learn about the court system. Public libraries, in their charter to be trusted and welcoming spaces, play a unique role in reducing the "justice gap" experienced by individuals who may lack the resources to access legal services (Bilson *et al.*, 2017).

### *Social service*

The public library is a gateway to social services information and librarians understand that fulfilling social service information needs is complex because doing so frequently demands more than a simple information referral (Westbrook, 2015). Since the late-2000s recession and subsequent housing crisis the number of individuals seeking social services has increased, and many of those individuals turn to public libraries for information

(Dankowski, 2018). Underserved and marginalized individuals – at-risk teenagers, the recently incarcerated, and the socioculturally marginalized – can have diverse social service information needs. Public librarians fulfill these information needs through their ability to successfully navigate the gray area between their professional responsibilities and those of other service professionals, like social workers (Westbrook, 2015).

Public library patrons pose information needs regarding social services available in their community to address issues such as hunger, domestic violence, substance abuse, health and mental health issues, grief and loss, aging-related challenges and employment (Luo *et al.*, 2012). The skill set required of public librarians is expanding; some librarians find that they are taking on the role of the *de facto* social workers (Westbrook, 2015). Consequently, public librarians have formed alliances with entities outside the public library to create services and programs to meet the varying personal information needs of marginalized communities (Westbrook, 2015).

Public librarians are stepping outside of their profession and into that of the social worker (e.g. the library has become a “day shelter”). Individuals with nowhere to go, find solace at the public library and this population has a different set of information needs. While librarians are not formal case managers, and their involvement may end with asking a disruptive person to leave or by calling the police, they are also faced with fulfilling social service information needs (Cathcart, 2008). Serving as a *de facto* homeless shelter is not explicitly part of the library’s mission; however, serving as one illustrates a need for enhanced increased collaboration with social service agencies may be beneficial to ensure the information needs of this population are being appropriately met. The opportunities to provide deliberate, active and deeply engaged support for communities in need can challenge the cursory limits of professional responsibilities (Collins *et al.*, 2009). As librarians are faced with this shift in their profession, some are deeming specific information needs “inappropriate” as they are not social workers (Westbrook, 2015). For instance, “Annette DeFaveri, national coordinator for Canada’s innovative Working Together: Library-Community Connections program, relates an all-too-common example of a librarian refusing to help a homeless teenager look for a shelter” (DeFaveri, 2005). Public librarians are expected to fulfill the information needs of the patrons who approach their desks, call their libraries or post questions on their website. Librarians are not social workers; however, they assume the position of the *de facto* social worker, oftentimes without specific social worker training. Thus, public libraries across the USA are partnering with both social workers and Masters of Social Work (MSW) students to address the information needs of their diverse communities (Johnson, 2019).

### **Demographics and community resources**

Demographics and the availability of community resources are two factors that influence the types and volume of information needs posed to public librarians (Bopape *et al.*, 2017). Understanding community demographics helps public librarians anticipate and prepare for information needs. Also, understanding the availability of existing, often location-specific community resources (e.g. homeless shelters which provide information on housing support) can help inform steps to prepare to fulfill these information needs, such as programming that informs patrons of resources to help support access to stable housing (Hertel and Sprague, 2007). Thus, understanding community demographics and anticipating gaps in community information sources enables public librarians to continually anticipate and better respond to patrons’ information needs.

Serving diverse patron populations results in diverse information needs. Public librarians engage with communities diverse in race, ethnicity, religion, age, gender, physical



ability, sexual orientation and social status (Caidi and Dali, 2017). A Pew Research Center analysis of the United States Census Bureau data from 2018 describes the “post-Millennial” generation (individuals born between 1997 and 2012) as the most racially and ethnically diverse generation (Fry and Parker, 2018). Another Pew study from 2016 found that 53% of Millennials (individuals born between 1981 and 1996) indicated that they used a public library in the previous 12 months, compared to 45% of Gen Xers (individuals born between 1965 and 1980), 43% of Baby Boomers (individuals born between 1946 and 1964) and 36% of those in the Silent Generation (individuals born between 1925 and 1945) (Geiger, 2017). In addition to addressing information needs from individuals belonging to each of these generation groups, individuals from marginalized groups also turn to the library to find information pertaining to homelessness, mental illness and substance abuse, among other personal issues (Richter *et al.*, 2019). For example, a Spanish-only speaking Baby Boomer may have different information needs than a homeless mother who is suffering from mental illness. Librarians are currently serving the most diverse patron population ever to visit public libraries (Fry and Parker, 2018). This expanding demographic diversity reinforces the need for public librarians to be aware of information needs. The volume and diversity of information needs result from the increasing diversity of communities and the diminishing information resources within them (Mehra and Davis, 2015). The information needs of the post-Millennial generation are evolving, in part because it is the most racially and ethnically diverse generation. Having to address diverse information needs is becoming more common for the public librarian (Mestre, 2010).

#### *Gaps in information sources*

When information resources are not readily available or accessible in communities, individuals turn to their local public library to meet their information needs (Williment, 2019). For instance, a co-author (KEM) was a reference librarian for a county library system which is one of the few in New Jersey that does not offer county-based housing support. Consequently, the county library system receives various housing inquiries from patrons, such as the availability of beds in shelters or affordable housing in the area. Information voids cause patrons to turn to the public library for both information and support (Williment, 2019). The increasing demand on public libraries to address information needs is described in the literature:

[...] many social service agencies (do not provide enough) opportunity for the homeless to comfortably walk through their doors to ask for help. As the public library welcomes anyone and everyone, it (can be) more comfortable (for them) to ask these types of questions in confidentiality in a place where everyone is welcome (Westbrook, 2015).

#### **Classification of information needs**

To anticipate and respond to information needs, public librarians should classify information needs according to complexity because doing so enables a quick and easy way to identify requisite information sources to meet the needs. For instance, the librarian may answer a health information need based on their own knowledge of health information. Alternatively, addressing the information need may require that the librarian access a health information system or database. For even more complex needs, the librarian may need to call upon a medical librarian or health-care professional. Classifying information needs also enables patterns to emerge which help facilitate learning about patrons' information needs. For instance, if a library is receiving numerous needs concerning legal issues, the public library could create a partnership with a legal services organization to help

provide legal information, in addition to serving as a referral source for patrons. Lastly, classifying information needs can help to convey meaning and make it easier to communicate that meaning. For instance, if a public library is receiving various complex social service information needs, the public library may create a formal relationship with social service agencies to provide answers to the complex social service information needs which cannot be addressed by librarians and staff.

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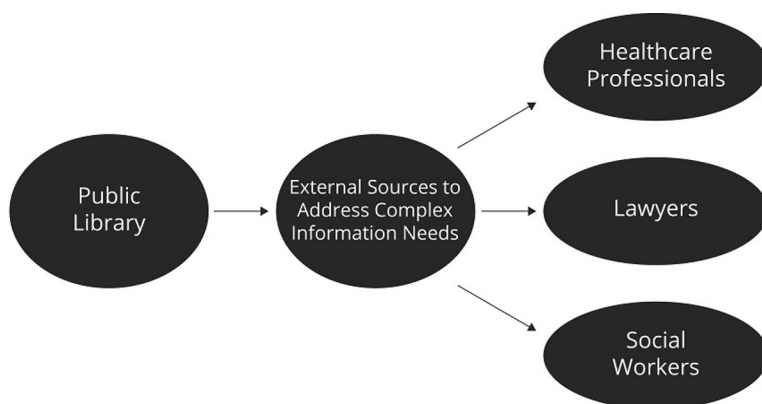
### *Information needs differ by level of complexity*

It is important to classify information needs according to level of complexity because it can help inform how the public librarian can anticipate and address information needs. Level of complexity is determined on a spectrum, from simple to complex. To fulfill simple information needs the public librarian does not require any external information sources or personal knowledge of the patron. For example, an inquiry for how to get to the local hospital is a simple need. Addressing this information need only requires the public librarian to provide directions, which may include knowledge of bus schedules and cost. However, a complex information need requires external information sources, such as where to access stable, safe housing support services. An information need is complex if the answer requires the public librarian to both understand the patron's individual factors and/or search for information to fulfill the need. Fulfilling a complex information need requires an awareness of the context of the issue (e.g. how the patron may define "safe housing") as well as an awareness of resources which may be available in the patron's community (e.g. shelters, nonprofit organizations which provide housing support). Fulfilling complex needs, such as knowledge of federal programs to help provide pathways to citizenship, may require the public librarian to search for current e-government information and forms, and these types of complex needs are becoming more prevalent at public libraries across the country (Gibson *et al.*, 2009). Also, health and wellness information needs may require the public librarian to have knowledge of insurance forms and how to access them. In this case, the public librarian may need to understand any existing coverage, and the applicable insurance forms required to augment current coverage or start new coverage. Thus, most of these types of questions – health, legal and social service – require the accurate, or as Westbrook (2015) indicates "good" answers. Public librarians must provide "good" answers because inaccurate or inadequate answers can result in significant distress for the patron (Westbrook, 2015). Given that patrons may pose a variety of complex information needs, we focus on three common types of needs: health, legal and social services (Shubik-Richards and Dowdall, 2012; Luo and Park, 2013; Horrigan, 2015).

### **Influential models and frameworks**

Public librarians must quickly identify requisite sources to fulfill complex information needs, often which may be outside of their internal resources. Therefore, we found that public librarians have built relationships and collaborations with outside organizations to augment in-house information sources. For example, public librarians have anticipated information needs and initiated relationships with health-care professionals and organizations (Parry, 2010; Flaherty, 2016), lawyers and law libraries (Dixon, 2016; Mancini, 2013; Harmon *et al.*, 2018) and social workers or social work graduate students (Zettervall, 2012; Dankowski, 2018; Johnson, 2019). These relationships enable the library to expand its efficacy as a provider of information (Figure 1).





**Figure 1.**  
Augmented information sources

*Classifying complex information needs: Warner’s classification model*

Classifying information needs is imperative to anticipating them because categorizing enables the librarian to assess the frequency and characteristics of types of information needs. This helps determine where the librarian must access external information sources to fulfill the information need. Additionally, when a librarian can link information to other information they have previously encountered, they can predict how to respond to the information need. We selected the Warner model to do so (Nims *et al.*, 2013). Debra Warner and her fellow librarians at the University of Texas Health Sciences Center at San Antonio created the model in 2001 to track data on reference needs, as many libraries heavily depend on statistics for planning and managing reference services. The model has since been applied to general reference services (Nims *et al.*, 2013). Warner’s model categorizes patron reference needs into four increasing levels of complexity. The level is determined by the requirements to fill the information need. The four levels are: Level 1 (non-resource based), Level 2 (skill-based), Level 3 (strategy-based) and Level 4 (consultation-based) (Meserve *et al.*, 2009; Table 1).

Warner’s classification model enables the public librarian to determine the complexity of the information need, which is necessary to determine the information sources which may be required to fulfill the information need. After the public librarian determines the appropriate complexity classification per Warner, they can more effectively decide which external

Warner’s classifications	Descriptions/examples
Level 1 Non-resource-based	Does not require a resource to respond; may be addressed by signage or help sheet; directional or policy questions, i.e. what time do you close?
Level 2 Skilled-based	May require a demonstration to respond, i.e. how do I search for a specific bus schedule online?
Level 3 Strategy-based	Formulation of a strategy or selection of resources may be required to respond; may require individual subject approach, i.e. can you find me articles and resources on bile duct cancer?
Level 4 Consultation-based	Longer encounters outside the regular desk duty; research recommendations or preparation for consultation, i.e. can you help me find stable housing with open beds?

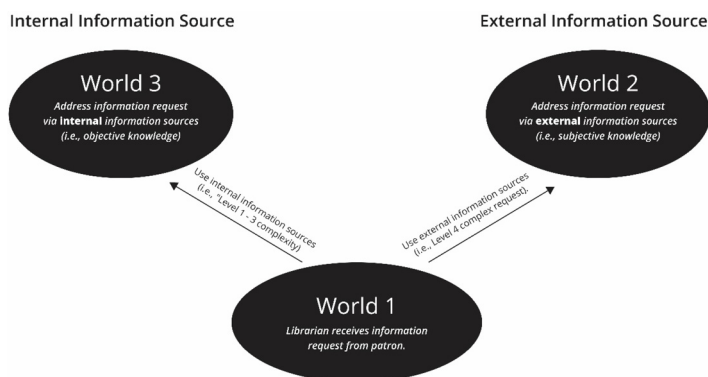
**Table 1.**  
Adapted from Meserve *et al.* (2009)

information sources may be required to fill the information need. Warner's model is helpful to anticipate external information sources which may be necessary to fulfill these types of needs (Levels 3 and 4). For example, establishing and formalizing a partnership with a legal aid organization could result from anticipating complex information needs concerning citizenship, per [Figure 1](#).

### *Fulfilling complex information needs: Popper's three worlds*

We selected Popper's three world model to determine if external or internal (i.e. within the library) information sources (Popper calls "knowledge"), are required to fulfill complex information needs ([Figure 2](#)). World 1 is the physical world of objects and events; world 2 is the world of mental processes or subjective knowledge; world 3 is the world of objective knowledge. Thus, we apply this theory to the processing of the complex information need to appropriately respond to the complex information needs. World 1 represents the public librarian receiving the information need (e.g. in-person, chat, phone, email, question posted on a message board, etc.). World 2 is the world of subjective knowledge; thus, it represents the requirement of external information sources needed to fulfill complex information needs. World 3 the public librarian using their own knowledge and internal information sources such as databases offered by their library. [Figure 2](#) can be used to supplement professionals and organizations in the absence of inadequate specialized information at the public library.

Popper's three world model of depicting what he terms "reality" is useful and applicable for public librarians to determine which information sources are required to fulfill complex information needs; it enables categorization of the myriad of information sources needed to fulfill complex information needs. The information source required determines the world. Again, in World 1, the librarian receives the information need from the patron. Then, the librarian must assess the complexity of the information need using Warner's model. Needs at Levels 1–3 complexity can be fulfilled using only internal information sources (e.g. What time do you close? Do you have this specific book?) These comparatively simple information needs represent world 3, the world of objective knowledge. The librarian can fill the information need by using the library's internal sources (i.e. internal databases, personal knowledge). However, for more complex information needs (i.e. Level 4 complexity), the librarian would need to call upon external information sources to fulfill the information need (i.e. health-care professionals, lawyers, social workers, outside organizations, etc.). Upon receiving the information need the librarian should determine complexity and determine if fulfilling the need requires internal (World 3) or external (World 2) information sources.



**Figure 2.**  
Adapted from [Popper \(1978\)](#)

Together, both Warner and Popper’s frameworks inform a process model for public librarians to use in practice (Figure 3). Categorizing the complexity of the information need streamlines the librarian’s fulfillment process. There is an information need, the assessed level of complexity depending on the information need, and then the librarian’s response which requires both knowledge and information sources. Information sources consist of library programming, different hiring and training processes, in addition to external sources like relationships with health, legal, and social work organizations per Figure 1.

First applying Warner’s classification model, then Popper’s three world model provides a novel, effective way to *classify* and *fulfill* complex information needs. Warner’s classification model enables determination of the degree of complexity of the information need, which helps the librarian understand how they will fulfill the information need. Then, using Popper helps to identify the information source necessary to fill the information need. Examining these needs is important to anticipate external information sources which may be necessary. This assessment informs the development of necessary collaborations to make readily available required information sources to help fulfill similar needs. For instance, using this model, public librarians can decipher the need (e.g. what external information sources may be required to address a “citizenship” information need?) and then determine the information necessary to fulfill the need (e.g. partnership with legal aid non-profit). Referring to these models in an iterative, systematic fashion, enables the anticipation of external needs and will drive an approach to collaboration or creating internal information sources to fulfill similar information needs (e.g. partnership with healthcare professionals, then build a program like Just for the Health of It) (Parry, 2019). This iterative process informs a continuous process of the capacity to fulfill complex information needs (Figure 3).

### Discussion and conclusion

Use of Warner’s classification model followed by Popper’s three worlds model can help librarians classify and access requisite information sources to fulfill complex information needs. There is no singular, simple formula that systematizes the multitude of complex reference questions received at the public library. There is no one method to detail and gauge how to fulfill the information needs received from an increasingly diverse patron population. Our intent is that referring to this process will help alleviate some of the ambiguity that public librarians may feel as information needs can be difficult to anticipate as they continue to shift from simple information needs (e.g. do you have this book?) to complex health, legal and social service information needs (Westbrook, 2015). Establishing a process to understand requisite information sources enables public librarians to better anticipate complex information needs, thus facilitating the establishment and nurturing of information sources required to fulfill them. Public librarians may systematically establish and nurture collaborations with external entities which serve as information sources, like social service and legal aid organizations, and individuals such as social workers, medical librarians and law librarians (Westbrook, 2015).

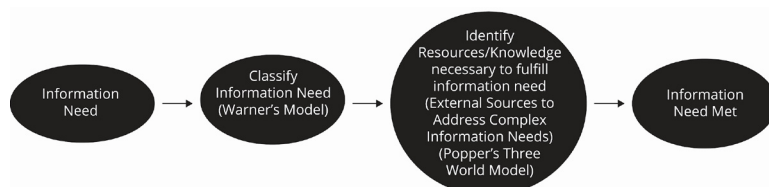


Figure 3.  
Complex information  
need process model

For many highly complex information needs (Level 4) whose answer requires a World 2 response, the public librarian should anticipate these needs and access the external sources required to fulfill them, such as a social worker, law librarian or medical librarian (Westbrook, 2015). A number of these types of needs would, for example, provide rationale for establishing a specific program in response to a prevalent need (e.g. Just For the Health of It, Parry, 2010; Hertel and Sprague, 2007); or a response that requires considerable research to locate the information source (Robinson, 1989). Table 2 details selected examples of how public librarians have anticipated information needs and undertaken considerable effort to decipher and develop partnerships with external information sources required to respond to them. The table depicts the information need and the response to that specific need.

We focus on health, legal, and social service complex information needs as a proxy for describing the process of accessing external information sources required to fulfill

Information need	Response	Description
Health	East Brunswick (NJ) Public Library “Just for the Health of It” (Parry, 2010)	“Just for the Health of It” helps patrons locate health information, provides health programming, and a directory of links and health-care providers. (2010, Central NJ)
	Medical Library Association’s (MLA) Consumer Health Information Specialist certification courses (Flaherty, 2016)	MLA offers specific training for librarians to provide consumer health information services to patrons (2016)
	National Network of Libraries of Medicine partnering with ALA—Libraries Transform: Health Literacy Toolkit (ilovelibraries.org, 2018)	Libraries Transform: Health Literacy Toolkit focuses on health and wellness tools that libraries provide (2018)
Legal	Lawyers in the Library program: Brief Advice Clinics at the Cleveland Public Library (Dixon, 2016)	Various branches of the Cleveland Public Library host legal professionals from The Legal Aid Society of Cleveland, offering free advice clinics for low-income individuals with civil legal issues (2016, Cleveland, OH)
	Self-Help Centers (Harmon et al., 2018 discusses different models of help center, best practices, etc.)	Jenkins Law Library [pilot program]: Law librarians go to the Philadelphia Family Court Help Center to assist SRLs with simple, no-fault divorces (2018, Philadelphia, PA)
	Self-Represented Litigant (SRL) Workshops: King County Law Library (Mancini, 2013; Meserve, 2009)	Attorneys or other legal professionals present workshop series for SRLs on representing themselves in civil trial court and on family law
Social service	Social Workers in Libraries (Dankowski, 2018)	Licensed social workers and social work interns are present in the library to provide social services (2018)
	Whole Person Librarianship (Zettervall, 2012)	A program created to educate librarians and library staff on relevant social work concepts and tools (2012)
	American Library Association’s (ALA) Hunger, Homeless, and Poverty Task Force (Gieskes, 2009)	Fosters greater awareness of the dimensions, causes, and ways to end hunger, homelessness and poverty (2008)

**Table 2.**  
Library responses to complex (Level 4, World 2) information needs

complex information needs. However, this process can be used for any complex information need (e.g. financial services, vocational education and environmental issues). It is our hope that the process described will support public librarians in their mission to fulfill complex information needs. By anticipating information needs which may require external information sources, public libraries can systematically create and nurture relationships with external individuals and organizations. We provide a model that public librarians can consider addressing the diversity of patrons' information needs. Determining the complexity of the information need, deciphering the information need and locating the requisite source to fulfill the information need will help anticipate and fulfill information needs. Doing so will enhance the public library's role as information organizations.

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