The public library as institutional capital: towards measures for addressing social inclusion and combating poverty

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Abstract
Much has been written about measuring the contribution of public libraries to society. Using a transformative paradigm, this article addresses the development of measures with regard to the public libraries' role in fostering social inclusion and alleviating poverty in South Africa. The approach taken is based on Sachs's notion of capital endowments. It employs a thematic analysis of the literature and easily sourced statistics to show how to describe the status of a selected site, and a heat map to show the results. This planning tool could be of use in garnering government and public support for the key role played by libraries.

Keywords
public libraries, institutional capital, social inclusion, poverty eradication, multi-criterion dashboards, South Africa, 'heat maps'

The tools provided here could be adapted and used to garner support for the key role played by public libraries.

"To measure progress ... in monetary terms also neglects the welfare contribution of non monetisable social and environmental services, from parents, neighbours and friends, from communities, [from libraries] ... " (Ayres 1996: 120).

Introduction and research problem

Much has been written about the use of measures to assess the contribution of public libraries to society. Sumsion, Hawkins and Morris (2002) sought to measure the economic value of public library services to the user. Liu (2004) examined the relationship between public libraries, literacy and economic productivity using path analysis. Albright and Kawooya (2007) focussed on libraries in a time of Acquired Immunodeficiency Syndrome (AIDS). The value of robust data collection and measurement is demonstrated in the Gates Foundation's Global Libraries Program (Global Libraries n.d.) and in the Edge initiative (About Edge 2013), which seeks to involve

public libraries in systematic measurement. The Global Libraries Program (n.d.:1) focuses primarily on access to information via the Internet through technology available in public libraries. It points out that "economic, educational, health, and social opportunities increasingly depend on access to the Internet" and that "lack of access means lack of opportunity". It explains that "through the Internet individuals search for employment, access government programs, learn new skills through online courses, research important health issues, and engage in social interactions with distant family members and friends". This article has a wider focus on access to information through libraries

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using other channels in addition to the Internet. It was developed independently of the Gates Foundation initiatives and is based on the particular challenges of the South African situation.

Twenty years after South Africa's transition to democracy, pressing issues such as food security, health, and basic education on the one hand and access to information on the other remain critical challenges. Advocates of access to information via public libraries compete for funds with services which focus on survival concerns. This article suggests that the issues are related and that the acquisition of the necessary resources could be assisted by robust data collection and measurement which would provide the evidence needed to convince government of the importance of public libraries.

The Edge initiative (About Edge 2013) provides a suite of tools to support public libraries in making strategic decisions and identifying areas for improvement. Its assessment tool will be launched to public libraries in the United States (US) in 2014. This article also puts forward an assessment tool. It motivates the use of multi-criterion dashboards that depict factors that have an influence on public library services and their use. A dashboard is a visual interface that provides "at-a-glance views into key measures relevant to a particular objective or . . . process" (Alexander 2013). The value of the method is that it caters both for the interchangeable nature of the factors influencing social inclusion and for setting targets in a flexible way, depending on a particular community's priorities. The benefits are the knowledge of where to invest resources in a given planning period. The dashboards can also be used to identify areas for collaborative partnerships.

The article tackles the development of measures with regard to the public libraries' role in fostering social inclusion and alleviating poverty. The relationship of public libraries to economic and other opportunities is evident in the Gates Foundation's programmes above. The article bases its argument for this relationship on the work of Sachs (2005). He links economic development and poverty and states that extreme poverty as measured by the World Bank can be eliminated globally by 2025. For Sachs the way forward lies in planned development aid. He sees poverty as the inability of very poor countries to reach the bottom rung of the economic development ladder; and suggests that once this has been reached, a country can commence participating in the global market economy, and the need for outside aid will be diminished. Sachs (2005) endorses the United Nations' Millennium Development Goals (MDGs) as a first step towards eliminating extreme poverty.

Many factors influence a country's ability to enter the world market, including government corruption; legal and social disparities (based on gender, ethnicity, or caste); disease; lack of infrastructure (including transportation, communications, health, and trade), unstable political landscapes, and geographic barriers. Sachs discusses each factor and its potential remedies. International organizations employ his recommendations to eradicate poverty using multifaceted sustainable development interventions in areas such as housing, food, education, basic health, and communications infrastructure. The article argues that public libraries, as part of the communications infrastructure, also play a role in these endeavours.

Social inclusion and poverty are key concepts for the article. There are many definitions of poverty. The World Bank (2010) measures extreme poverty as living on less than US $1.25[i] per day. The United Nations Development Programme (2009) uses a multi-criterion alternative to this measure, the Human Poverty Index (HPI-1), which focuses on the proportion of people in a country who fall below certain threshold levels. The index takes into account "living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and gross enrolment in education) and having a decent standard of living (measured by purchasing power parity, PPP, and income)".

Poverty is linked to social inclusion and exclusion but the latter is broader and covers low material means, an inability to participate effectively in economic, social, political and cultural life, and alienation from mainstream society (Duffy in Muddiman 1999). It is "a mix of linked problems such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown" (Social Exclusion Unit 1998). Social exclusion is persistent, systematic, multiple deprivation rather than disadvantage experienced for short periods of time (Walker cited by Muddiman 1999:2). The term expresses the complexity of exclusion in society (Muddiman 1999). Social inclusion can be seen as its antithesis.

Sachs's (2005) view of economic development provides a structured approach to development efforts and emphasizes the importance of communications infrastructure. Backed by the Gates Foundation's initiatives

above the article elaborates on Sachs's (2005) view of the importance of this infrastructure, including libraries, to economic development. Economic development is seen as a corollary of social inclusion, which becomes the focus of the article.

Sachs (2005) depicts various forms of capital which have a bearing on economic development. His ideas are adapted in this article to develop an approach and an example of tools which could be used by public libraries to measure efforts to foster social inclusion in a given community. Why this is an appropriate role for public libraries is explained below. Sachs's notion of types of capital requires understanding of the role of inputs or types of capital in the economic development process. The methodology used in the article enables the development of a dashboard based on the status of types of capital which have a bearing on social inclusion. The drivers of social inclusion are identified from the literature and then used to develop a set of linked indicators depicted in a dashboard, which are applied to indicate the status of the factors, such as education and literacy, for example. Many of the factors, like literacy, are also prerequisites for public library use.

The idea is that the library would establish baseline data and set targets with appropriate interventions to help the library to achieve its targets. After a predetermined interval positive or negative changes in the indicators could then be measured. The extent to which the targets have been met could then be determined before the next round of targets and interventions was identified. A particular set of indicators was chosen for this article but there is potential for flexibility in the choice of indicators and the targets set for each. The data gathered also allows the generation of a risk analysis in the form of a heat map. The heat map engages with risk analysis, which is a technique in which two or more alternative scenarios, action plans, or policies are compared. A heat map results in a plan of action to avoid risks or minimize their consequences. In this way the heat map provides direction about where to focus investment by libraries.

The end goal was to develop a set of measures that are relatively easy for practitioners to apply to their strategic decisions about where the library could focus more. The intention of the article was to put forward the approach for discussion and comment, with reference to an example from the national level in South Africa. The approach and methods would be refined using the critical comments received and the

actual tools would then be developed for application at more local levels. The research problem was to develop the approach and the example of this measurement tool at the national level.

Research question and subsidiary research questions

The research question addressed is 'What measures can be developed to evaluate the role of public libraries as social institutions in fostering social inclusion and alleviating poverty?' The literature provides ample support for the public library's role in social inclusion. In Britain, Train, Dalton and Elkin (2000:484) observed that the public library had striven to "confront the challenges of social deprivation and disadvantage … with excluded communities" and argued that its services should be equally available to all. In 1999 Muddiman criticized the extent to which public libraries had achieved inclusion. Hendry (2000:335) saw libraries promoting social inclusion by "helping to bridge the gap between those who can afford access to information and those who cannot". He called them "mentors and gatekeepers for those excluded from ICT". Elkin and Kinnell's (2000) study provided comprehensive coverage of the public library's role as an agent of social inclusion. Durrani (2000) provided a set of standards to support this role and Vincent and Linley (2000) focussed on public library policy, women and social exclusion. Wavell, Baxter, Johnson and Williams (2002) addressed the summary of themes in social impact and social inclusion literature reviews. Stilwell (2006; 2011a; 2011b) provides summaries and reviews of these contributions, relating them to the South African situation and motivating the relevance of the concept of social inclusion for local public libraries. She adds examples of such initiatives drawn from two minisurveys of South African library related initiatives. Further support is found in Hart (2007) and in the landmark South African Library and Information Services Transformation Charter (2009:1), which prioritizes social inclusion, social and economic development and poverty eradication in its rationale. More recent support is found in the Edge initiative (About Edge 2013).

To answer the research question the article addressed three subsidiary research questions:

1) Which factors that foster social inclusion can be identified in the literature?

2) Having established these factors, what is the present status of the factors as revealed by the application of measures by the researcher?

3) Are there are areas on which public libraries should focus more, and if so, what are the areas?

The paradigm, framework and literature that assisted with these tasks follow.

Paradigm, conceptual framework and literature review

The study used a transformative paradigm. It is based in the recognition that "realities are constructed and shaped by social, political, cultural, economic, and racial/ethnic values" (Mertens 2007: 1) and is appropriate for research that addresses inequality in society using mixed research methods. As Mertens (2007:1) suggests, "transformative mixed methodologies provide a mechanism for addressing the complexities of research in culturally complex settings" and they can "provide a basis for social change". The study applied both qualitative and quantitative methods.

The following subsections explain the conceptual framework derived from Sachs's (2005) notion of types of capital and draw on a literature analysis to address the following issues: the relationship between economic development, various types of capital and social well-being; the application of types of capital to create a base for decision making; the relationship between public libraries and social inclusion, and the relationship between types of capital and the factors that foster social inclusion.

Sachs's notion of types of capital

Sachs (2005: 245) views capital as a first step towards the "investments needed to end poverty". These involve reaching the bottom rung of the economic development ladder; and the commencement of a particular country's participation in the global market economy. Sachs uses the capital model to talk about ending poverty. This article uses it to talk about ending social inclusion. It is a development model rather than a poverty model, and is applicable to both, as both are development issues. He distinguishes six broad types of capital, of which five are applied in this article:

1. Human Capital: health, nutrition and basic skills required for individuals to be economically productive.
2. Business Capital: machinery, facilities and transport.
3. Infrastructure Capital: roads, power, water and sanitation, airports and sea ports and telecommunications networks.
4. Public Institutional Capital: judicial systems and government services.
5. Knowledge Capital: scientific and technological know-how (Sachs 2005:245)
6. Natural Capital (arable land, biodiversity, and so on) is not used in this article. It is related to factors that have an important bearing on public libraries and the fostering of social inclusion, but to a lesser extent than the other capitals.

Sachs (2005) identifies different public and private entities: governments, businesses, and households, that make investments in certain types of capital. Households play a significant role in the accumulation of capital, which in turn plays a pivotal role in economic development. Households feature in this article because the communities served by public libraries are aggregations of households.

Household investment occurs through direct expenditure on capital goods, or indirectly through paying government taxes (Sachs 2005). Households make capital investments mainly through investments in healthcare, education, and private businesses. They usually make investments in Human, Knowledge and Business Capital (Stilwell 2008). Governments are more likely to invest in Knowledge, Infrastructure, Natural, and Public Institutional Capital. Libraries fall within the last, but are also linked to the other types of capital and form part of other types of capital notably of Knowledge Capital. Public Institutional Capital is especially important in the context of public libraries, which fall into the category of government services.

Government decides on budget allocations to its departments and public institutions. These can make the difference between abject poverty and being able to satisfy basic needs. Besides tax revenues, public money may be derived from foreign aid, bank loans or public-private partnerships (Stilwell 2008). If there is buoyancy in tax payments then there is likely to be better Public Institutional Capital, which could include enhanced library services as well.

The relationship between economic development, various types of capitals and social well-being

Sachs's (2005) list of the types of capital accommodates the relationship between economic activities and social well-being. Changes in the capital available in the economy imply changes in the economic opportunities which exist and therefore in the developmental status of the economy and the consequent well-being of citizens. Libraries contribute to social well-being and economic productivity (Global Libraries n.d.; About Edge 2013). In an ongoing doctoral study, Skelly (2013) examines the impact of public libraries on economic growth and development using path analysis.

Applying capital types to create a base for decision making

This article maintains that suitable indicators provide a solid base for public decision making (Boulanger 2006). Public libraries are integrally bound to public decision making processes. It is also true that " . . . in less economically developed contexts, where good policy advice is often urgently needed, the means to procuring this advice are frequently unavailable" (Stilwell 2008: 25). It is desirable to have a tool that can provide relatively low cost, accurate information for pointing policy processes in the right direction.

There are a number of constraints in terms of the variety and types of indicators that can be used in a given context. Those applied in this article are aligned not only to Sachs's capitals but also to the MDGs. Sachs endorses the MDGs; and Goal 1, for example, aims to eradicate extreme hunger and poverty by 2015. The MDGs cover the types of capital listed by Sachs, such as human capital manifested in improved maternal health, lower infant mortality, combatting HIV/Aids and other diseases, and economic capital in improving employment and knowledge capital in promoting education. The MDGs are well-reported in the literature in relation to libraries (for example, Forsyth 2005) and will be reported on for some time to come despite 2015 being the end point of the initial targets.

The relationship between public libraries and social inclusion

Table 1 depicts the drivers identified in the literature review which influence social inclusion through libraries. The table indicates the type of capital each driver represents. Among the drivers of social exclusion, Train, Dalton and Elkin (2000), Wavell, Baxter, Johnson and Williams (2002) and Lockyer-Benzie (2004) identify low educational attainment, low literacy levels, unemployment, low economic status, poor public transport, and ill-health. Haggis and Goulding (2003) and Lockyer-Benzie (2004) argue for the importance of infrastructure in terms of access to the information and communication technologies (ICTs), and mitigating the digital divide. Petr (2004) focuses on a lack of basic information; Benstead, Spacey and Goulding (2004) address the rural environment, and Stilwell (2011a; 2011b) adds food insecurity.

The last column of Table 1 provides the researcher's broad estimate of the importance of the factors, as high, medium or low, based on their occurrence and the importance attributed to them in the literature.

The relationship between types of capital and the factors that foster social inclusion

The factors promoting social inclusion, its drivers, are access to ICTs and information, educational level, employment, economic status, health and food security, location and access to transport (Train, Dalton and Elkin 2000; Wavell, Baxter, Johnson and Williams 2002; Lockyer-Benzie 2004; Haggis and Goulding 2003; Lockyer-Benzie 2004; Petr 2004; Benstead, Spacey and Goulding 2004; Stilwell and Munyua 2009; Stilwell 2011a). They link in turn to the types of capital (as indicated in Table 1) which have a bearing on social inclusion. The importance of the drivers is demonstrated in the Global Libraries Program's (n.d. :1) argument above, that "economic, educational, health, and social opportunities increasingly depend on access to the Internet", made possible via public libraries. Through using the Internet "individuals search for employment, access government programmes, learn new skills through online courses, research important health issues, and engage in social interactions . . . ".

The capital types applied in this article are regarded as having an important bearing on the availability and quality of public library services and their role in social inclusion. Business Capital has been cast as Economic Capital as it better suits the communities and their circumstances. Figure 1 presents a diagram of how public libraries contribute to the different types of capital in the form of social inclusion initiatives. Public Institutional Capital is used in the

Table 1. Factors as types of capital, their influence on social inclusion through public libraries, and estimates of their importance.

| Factors	Type of capital	Influence on social inclusion through public libraries	Importance (established in the literature) – low medium, high
Access to ICTs	Infrastructure	Access to personal computers and Internet	High
Access to information		Community and other information	High
Location		Overcoming isolation using opportunities for networking Community information	Low, if all other factors are well-provided for
Educational level	Knowledge	Information Literacy training	High
Health	Human	Access to information Opportunities for networking	High
Food security		Library food gardens Community information Networking with local NGOs	High
Employment	Economic	Community and job opportunity information on Internet, in newspapers etc.	High
Economic status		Community information Business Corners	Medium
Access to transport		Community information re bus routes, taxis etc. Opportunities for networking e.g. lift sharing etc., on community notice boards in libraries	High
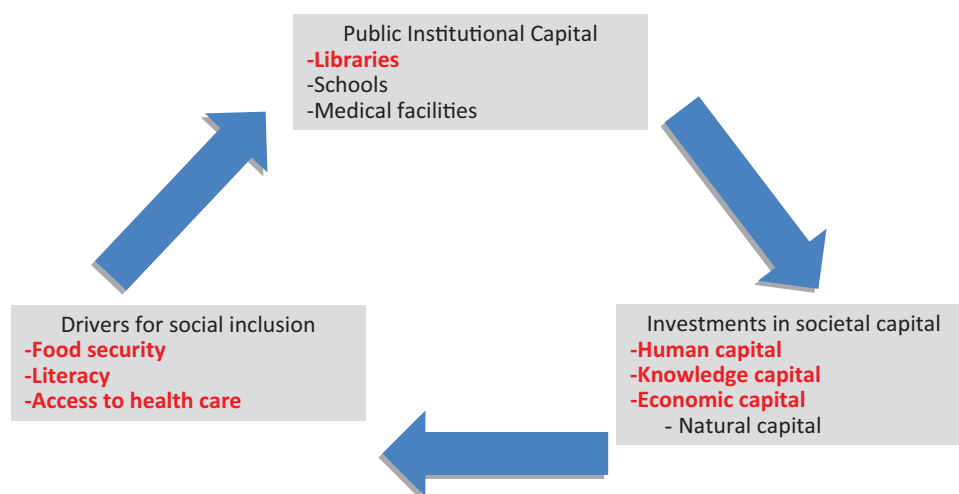
Figure 1. The role of libraries in social inclusion.

diagram as it embraces the library's role and its link to education. Education could also be placed with Knowledge Capital, as in the dashboard in Table 3.

Public Institutional Capital – investment in libraries, schools and medical facilities, for example – fosters investments in societal capital such as Human, Knowledge, and Economic Capital. These types of capital in turn are linked to enhancement of the drivers of social inclusion identified above such as food security, literacy and access to the Internet. These enhance Public Institutional Capital in a cyclical process.

Human Capital is located in health, nutrition and the basic skills required for individuals to be economically productive. People are food secure when they

Table 2. Steps depicting the core tasks and the related research questions.

Step	Task	Research question
Step 1	Establish which factors foster social inclusion using a thematic analysis of the literature.	Which factors that foster social inclusion can be identified in the literature?
Step 2	Set up the dashboard with a grid of drivers for social inclusion and their indicators. It should depict the factors that have bearing and that can be measured using statistical data. The dashboard should indicate the status of the indicators in the matrix.	Having established these factors, what is the present status of the factors as revealed by the application of measures by the researcher?
Step 3	To provide a summarized view of the desirable drivers and their actual status for practitioners to apply in their work towards social inclusion, i.e. to provide a one page view of where investments can/should be made.	Are there are areas on which public libraries should focus more, and if so, what are the areas?

have continuous access to sufficient, safe, nutritious food to maintain a healthy, active life (United Nations World Food Programme 2012). This definition spells out the crucial nexus between food security, nutrition, health and the ability of people to pursue an active life, being able to learn and acquire skills. South Africa has high levels of under-nutrition (Altman, Hart and Jacobs 2009: 13).

Economic Capital is based in economic status such as poverty levels and opportunities for employment. Trevor Manuel (2010), former Minister of Finance, explains that South Africa has not achieved some targets for those MDGs related to employment and income because of unequal access to health care, the high prevalence of HIV/AIDS, and lack of access to quality education. The outcomes are impacted directly by education, as well as life expectancy, which is determined by health conditions. Again, the interlinked nature of the factors is apparent.

Transport is part of Economic Capital and is a key issue in terms of access to work, school and health facilities, particularly in less densely populated rural areas. Lombard et al. (2007:34) report on changes in the use of public transport modes for trips to work in the period 1996 to 2003 in South Africa's nine provinces, giving information about households with access to a car or taxis, buses, or trains. A related area is Infrastructure Capital, which covers roads, power, water and sanitation, airports and sea ports and telecommunications networks. Access to potable water and to sanitation has an obvious impact on health, lifestyle and the burden of work, as does access to electricity. Roads, airports and sea ports are related to transport above. Telecommunications are discussed as part of the communications infrastructure.

Sachs (2005) identifies the area of communications infrastructure as one of the critical pathways upon which development depends. May (2010: 22), who examined poverty and ICTs in East Africa, confirms this view. He investigated the nexus between the various dimensions of poverty and ICT usage and noted that "households without ICT are poorer in all dimensions than those with ICT, particularly in respect of education, services and economic assets". May (2010: 18) identifies a strong association between financial poverty and digital poverty. The Edge initiative (About Edge 2013) uses the term "digital inclusion", emphasizing the point that a lack of access means a lack of opportunity. UNDP (2010) reports, however, that access to the Internet has increased at a much lower rate than access to mobile telephony in South Africa. The proportion of households with Internet access rose from only 7.2 percent in 2007 to 11.1 percent in 2009. Morales (2013) found that 16 percent of South African adults had access to the Internet from home in 2011. The highest levels of access are clustered in areas of high per capita gross domestic product (GDP) – the Western Cape and Gauteng (UNDP 2010). High data costs in South Africa underscore the importance of free access in libraries.

Public Institutional Capital includes judicial systems and government services. Sen (2009: xi) refers to people's life circumstances, noting that "justice is ultimately connected with the way people's lives go . . . " and that institutions "cannot but play a significant role in the pursuit of justice". The judiciary plays a key role in ensuring the consolidation of democracy and in the realization of a better life for all. Public institutions such as government services, including public libraries, implement policy and have

Table 3. Dashboard of interlocking competencies and/or prerequisites and enabling types of capital for access to libraries and information.

Hierarchy of interrelated prerequisites for access	Key Performance Indicator (KPI) (current) Data in %	Data source	Target KPI	Intervention related to Public institutional capital/ libraries/information/ICTS Type of intervention	KPI - what has changed since intervention? Action i.e. i) Record statistics ii) Set next target on level 2 KPI	Promoter factor levels - (moving to capacity for increasingly varied multi-media Library usage as in Library 3.0, 4.00 etc.) Levels
HUMAN CAPITAL						
Current population (for information purposes only)	South Africa 49,320,500	UNDP 2010	–	–	–	–
Health i) Infant mortality ii) HIV/AIDS prevalence 15-24 year olds iii) HIV/AIDS positive with access to ARV drugs	i) 53* (2007) ii) 8.7 (2008) iii) 41.6 (2009)	UNDP 2010	Jan 2016 i) 63 ii) 7.7 iii) 50	Provide & advertise i) space for biweekly visits by maternal and childcare worker ii) & iii) space for mobile AIDS clinic & information in local languages and appropriate formats.	i) Achieved ii) Almost achieved 7.9 iii) Achieved.	Traditional library with some access to Internet
Food Security	20% secure 2005	NFCS 2005 (cited in Altman, Hart and Jacobs 2009). Labadarios et al. 2008 (cited in Altman, Hart and Jacobs 2009).				
ECONOMIC CAPITAL						
Economic status i) Below $1.25 a day % of population	9.7 (2006)	UNDP 2011				
Employment to population ratio (working age 15-64 yrs)	42.5 (2009)	UNDP 2010				
Transport i) Households with access to a car ii) Use taxi, bus, train	i) 26.1 (2003) (access to car) ii) 67 (2003)	Lombard et al. 2007				
KNOWLEDGE CAPITAL						
Education i) Literacy rates (15-24 year olds) ii) Primary education completion (18 year olds) iii) Primary education enrolment	i) 89M 93.1F (2009) ii) 93.8 (2009) iii) 99.4 M 98.8 F(2009)	UNDP 2010				
INFRASTRUCTURE CAPITAL						
ICTs i) Basic knowledge and skills ii) Fixed phone line per 100 head of population iii) Cell phone per 100 head of population iv) Internet access per 100 head of population	i) ? ii) 9.7 (2007) iii) 85.9 (2007) iv) 8.9 (2009)	UNDP 2010				
Level 2 – calculate new targets after interventions and measurement of Level 1						

*rate per 1,000 live births.
Key: F= Female.
M= Male.
NFCS = National Food Consumption Survey.
UNDP = United Nations Development Program.
WB =World Bank.

the potential to provide people with an opportunity to use information "to choose the lives that they have reason to value" (Sen 1992:81). Government has the responsibility of developing and implementing national policy (Parliamentary Monitoring Group 2012). Addressing social exclusion through policy requires infrastructure that enables the communication of information, the formulation and implementation of information policy and opportunities to access training in the use of ICTs, ideally through public libraries.

Knowledge Capital embraces scientific and technical knowhow (Sachs 2005: 245). Manual (2010) points out that access to quality education is unequal for South Africans and education emerged as a key factor in May's (2010) research on combating poverty.

The fostering of social inclusion and combating poverty is a function of the relationships between the various types of capital. It is important to observe the specific trends in the growth of these types in particular situations (Stilwell 2008). For this reason the article puts forward the flexible multi-criterion dashboards approach to selected sites.

Methodology

The methodology used in this article is based on a thematic analysis of the literature and the application of a modified dashboard approach using statistical data. Qualitative methods were used to gather perspectives from the literature, which were then analysed using thematic analysis (Braun and Clarke 2006).

The dashboard approach was adapted from the work of Stilwell (2008) and Stilwell et al. (2010) for application to public libraries. A quantitative approach using commonly available statistical data then demonstrated the outcomes of the approach in the first dashboard. The study used the "best information" approach (Laloë 2007; Stilwell 2011b). This approach is based on Laloë's (2007) notion that research is constrained by practice and the nature of the information that is available. The researcher therefore is reliant on the best information available at present. The core task was to engage in a three step process using the best information available (see Table 2).

Step 1 entailed identifying the factors that foster social inclusion as described in the literature. This step was based on a thematic analysis of the literature. The literature scan and analysis was carried out by means of a search, mostly Internet-based, for credible sets of statistics on the factors linked to Sachs's (2005) types of capitals and the MDGs, as well as for literature that was germane to the study.

Step 2 involved the building of the dashboard containing the statistical data on the indicators. It was an assessment of the status of the drivers of social inclusion after the application of measures by the researcher.

Step 3 entailed the application of risk analysis to the creation of a heat map of the high level risks facing the library in enhancing social inclusion. It took the information gathered in the literature review (Table 1) and the statistical data relating to the types of capital depicted in the first dashboard (Table 3) and plotted them on a second dashboard, the risk matrix.

Results

This section covers the results of the three steps.

Step 1: The link between libraries and social inclusion

This step was covered in the thematic analysis of the literature.

Step 2: The dashboard of drivers for social inclusion and their indicators

Figure 2 depicts a selection of drivers for social inclusion and the indicators to be used together in a simplified version of a portion of the matrix. It does not show all the drivers, as they are all depicted in Table 3. It also gives examples of the types of metrics which were applied to derive the statistics from the sources cited in the matrix. The statistics were those generally available in the literature and were not calculated by the author. The statistics fell into the "best information" category at the time of the study.

Table 3 adds depth regarding the drivers and indicators. The results are depicted in a dashboard showing the statistics that apply at a national level in South Africa. These are categorized by type of capital but depict Public Institutional Capital as the overarching enabling capital. The indicators shown on the dashboard align very clearly with the drivers of social inclusion, access to ICTs, access to education, food security and so on. These drivers – for example, literacy – can also be seen as prerequisites for access to information and libraries. For the first type of capital, Health, the four columns to the right have been completed with fictitious data to provide an example of the sort of content that could be added by the public

Driver	Indicator	Metric
Human capital		
Food security	Expenditure on nutritious food per month per household	Above ZAR 200 per month
Health	Infant mortality HIV/AIDS positive people with access to ARV	Deaths in first year per number of live births. Universal access regardless of ability to pay
Public institutional capital		
Access to ICTs	ICT facilities in the region Access via mobile phone etc.	Within 3 - 5 kilometres Cell phones per head of population

Figure 2. Selected drivers, indicators of social inclusion and the sort of metrics used.

libraries applying the measurement tool. A new KPI would then be set on level 2.

Table 3 depicts the statistics relating to the indicators which were drawn from generally available statistics and the application of an established measure like the poverty line of US $1.25 a day. HIV/AIDS prevalence is included because it poses a serious development challenge to South Africa (UNDP South Africa 2013). This table addresses the second research question "Having established these factors, what is the present status of the factors as revealed by the application of measures by the researcher (to arrive at the Key Performance Indicators)?"

Those selecting the indicators in practice could choose where to source their statistics. For example, in KwaZulu-Natal a profile of the province (Provincial Decision-Making Enabling: PROVIDE 2009) is available. It gives a breakdown by metropolitan region. The national figures could be used and broken down for application to smaller localities.

The dashboard sets up a grid of indicators that can be measured. For the public librarians, having set the KPI in column 4, then made an appropriate intervention (column 5) and achieved the base line target in terms of access to health and access to food security through access to literacy and education (column 6), new targets can be set on Level 2. The last column describes promoter factor levels as the capacity of users to engage with increasingly varied multi-media applications increases. As the levels of prerequisites in the matrix improve and the competency

levels of members of the society increase, the members of society move towards becoming patrons of increasingly higher "point 0" libraries described in "The trajectory of library development" below.

The dashboard is essentially a monitoring and evaluation (M&E) matrix. When the tools are adapted and developed for application at the local level in the next stage of this research the justification for each KPI and the chosen means of intervention would be recorded to inform future planning. As noted in *Engendered Orange-Fleshed Sweetpotato Project Planning, Implementation, Monitoring and Evaluation: A Learning Kit* (2013:75) an M&E matrix is a communication tool and "should contain all the information required to understand, collect, tabulate/analyze, disseminate and report on the negotiated performance indicators".

The drivers selected and the outcome of the assessment of their status

From the drivers of social inclusion certain factors were selected from each type of capital and their status was measured using the readily available statistics. For Human Capital, health and food security were chosen; for Economic Capital, economic status, employment and transport were selected as factors. For Knowledge Capital, education and literacy are indicators; for Infrastructural Capital, ICTs were selected.

The results from the matrix in Table 3, based on commonly accepted norms as reflected in the MDG targets for South Africa (UNDP South Africa 2013)

and other sources cited below, is informed by the background given in the section "The relationship between capital types and the factors that foster social inclusion". These were estimated as follows using the sources indicated:

- The status of education is high at primary school level but still falls short of universal primary education, and the MDG target of universal primary education by 2015 (UNDP South Africa 2013).
- Economic status is medium with 9.7 below $1.25 a day (UNDP South Africa 2013).
- Access to transport is low for access to a car, but medium for access to a minibus and/or train (Lombaard et al. 2007:34-35).
- Employment is low at less than 50 percent of the working age population, which is the bottom of the 2015 MDG target (UNDP South Africa 2013).
- Health is low, for example, in the light of high infant mortality rates and the need for greater progress towards the goal of halting the spread of HIV/Aids by 2015 (UNDP South Africa 2013).
- Food security is low (Altman, Hart and Jacobs 2009:11-17).
- Access to ICTs is high for mobile phones but low for other modes of access (UNDP 2010:110-111).

Personal security and social cohesion are aspects of social capital but are difficult factors to measure[ii]. For these a qualitative description like 'high', 'medium' or 'low' could be noted providing that the criteria for the assessment were explicit. Sumsion, Hawkins and Morris (2002: 663) support a similar approach, stating that "if one universal formula to determine economic value was not evident, then all available circumstantial evidence should be collected and presented".

The next step was to draw the heat map of the status of the indicators.

Step 3 - the heat map and its use in risk analysis

The next step was to provide a summarized view in a heat map of the desirable drivers of social inclusion and their actual status as an example at the national level. The heat map is a methodological tool to enable decision makers (librarians) to make choices regarding their priorities based on risk, measured in terms of impact on social inclusion. The heat map in Figure 3 addresses the last research question: "Are there are areas on which public libraries should focus more, and if so, what are the areas?" For the heat map literacy was singled out from education as a form of Knowledge Capital as it is fundamental to the library's role in social inclusion and is also a prerequisite for most types of library use. Step 3 is depicted next.

The heat map plots key indicators on the X and Y axes. The X axis depicts the importance of the drivers for social inclusion as found in the literature analysis above. The Y axis depicts the status of the indicators after the application of measures (as in Table 3). The result is the plotting of food security, health, literacy, employment, transport and access to ICTS in positions that depict them as priority areas on which the library and its partners should focus more. The heat map thus shows the difference between inherent (notional/theoretical) and residual (actual/practical) status. The heat map addresses both by ranking items in terms of their inherent and residual status.

Questions regarding the heat map would be: What is the inherent risk indicated by low levels of literacy, for example? What measures have been taken to reduce risk as in, for example, government capital invested in education, library support for education and schooling, library support for literacy classes and so on? These measures would help to reduce risk and the residual risk[iii] would be low. However, because of the crucial role literacy plays in access to various factors that enhance social inclusion, and because of its critical role in the use and promotion of libraries, it is depicted as high risk on the map.

Health is depicted as one of the greatest risks to social inclusion; what would be the mitigating factors? These could be the rolling out of antiretrovirals (ARVs), better maternal and child care and so on. Albright and Kawooya (2007:117) are persuasive on the HIV/AIDS related issues, for example, arguing for public libraries providing access to ICTs, information in accessible formats, facilitating access in terms of local languages, promoting indigenous knowledge, and working with other agencies.

Access to ICTs was included because of the nexus established by May (2010) and the Gates Foundation (Global Libraries n.d.; About Edge 2013) between poverty, digital poverty and social inclusion. Food security was chosen because of its link to health. People cannot think and learn on an empty stomach, so its impact on Knowledge Capital is critical. This indicator relates to libraries' partnerships with other agencies.

Employment was seen as a key factor because it secures household income and underpins access to
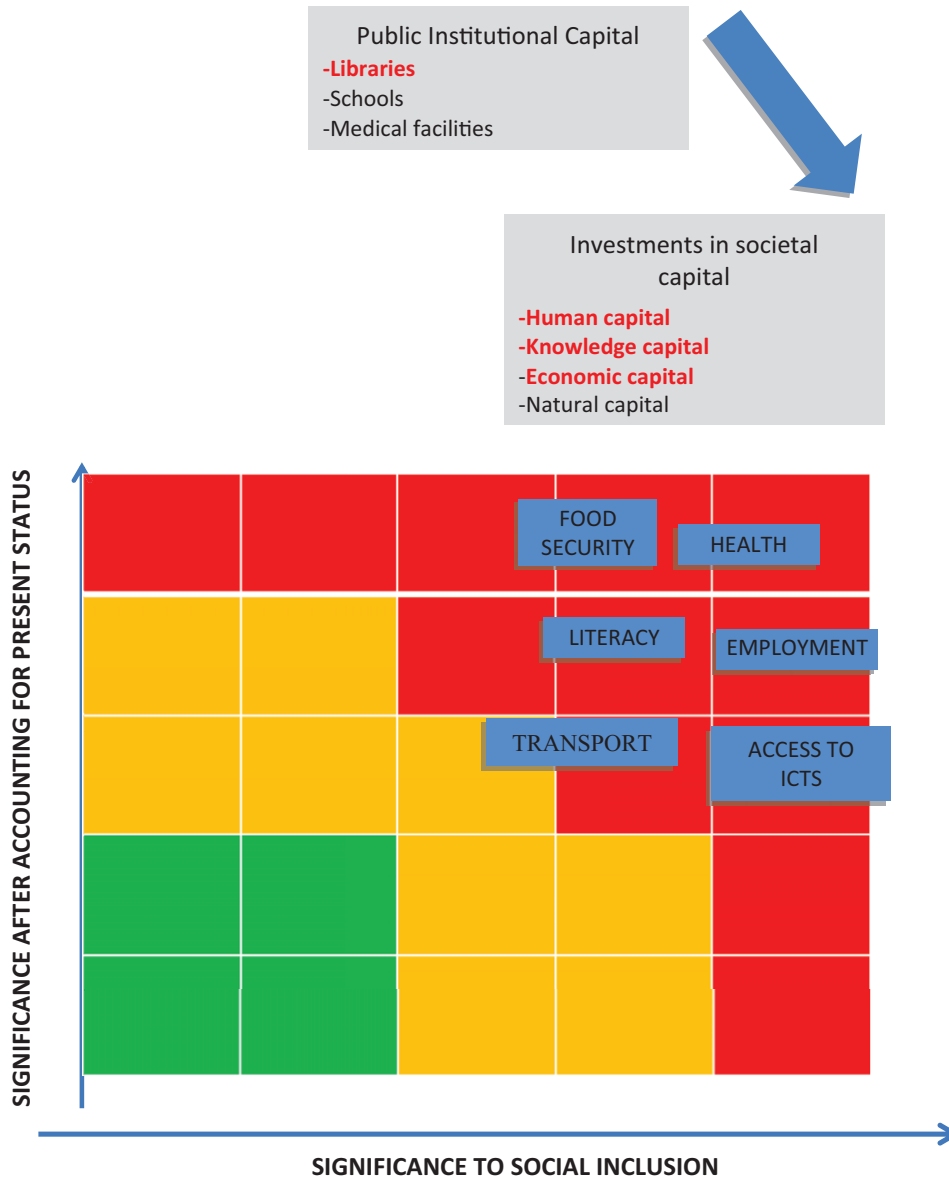
Figure 3. Step 3 - heat map of the health of the indicators and where to focus investment by libraries.

other factors like education and ICTs. It is in turn dependent on access to transport, particularly in isolated rural areas. It is also a promoter factor in terms of Economic Capital. Where suitable data are not available, anecdotal or circumstantial information can be used to enable the estimation of a level, as in the case of social cohesion noted above.

The heat map provides a one-page view of where investments could or should be made. In some cases libraries are a vehicle for delivering these investments. In other cases they will need to form partnerships, for instance, with health and literacy organizations, to ensure delivery. The map depicts priority areas for investment by the public library and also suggests areas for intervention with library partners.

Discussion of the results

This section discusses the findings in relation to the dashboard of drivers of social inclusion; the trajectory of library development, and situations of extremely low levels of Human Capital.

The dashboard of drivers of social inclusion

The dashboard depicts a hierarchy of interrelated drivers of social inclusion. These are also seen as

prerequisites for access enabled through the various types of capital: Public Institutional, Knowledge, Infrastructure and Human Capital. It is assumed that prerequisites (like literacy) become competencies (being functionally literate) if members of society have access to educational opportunities (primary education, adult basic education, and/or literacy classes). Ideally one can postulate a trajectory of increasingly demanding competencies and a trajectory of library development models.

Public Institutional Capital exists in society in institutions such as judicial institutions, tax systems and government services, including library services. This capital is depicted in this article also as a form of intervention, for example, investment in a public library in a given community. The hierarchy of inter-related prerequisites, and the selected capitals, together maximize the potential of the Public Institutional Capital/libraries/information/ICTs combination and work towards the end goal of universal equal access in a given society.

The trajectory of library development

Kwanya, Stilwell and Underwood (2012: 1-2) review the "point 0". terminology for libraries, and observe "the use of labels such as Library 3.0 or 4.0 to denote improved service models" in a trajectory of library development: "The higher the number, the better the product, and the newer the label the later the development, thus Library 4.0 is deemed to be better Library 3.0 which in turn is better than Library 2.0 and other versions before it". They add "The use of version numbers to represent perceived improvement of library services is currently closely tied to the application of the corresponding labels of the World Wide Web". This article suggests that as the levels of prerequisites in the matrix improve and the competency levels of members of the society increase, the members of society move towards becoming patrons of increasingly higher "point 0" libraries (see last column in Table 3 above).

Situations of extremely low levels of Human Capital

There is a link between the level of social inclusion and the appropriate role of the information service provider. Is it possible to have a situation of no Human Capital? Human Capital is seen by Pearce and Barbier (2000, cited by Stilwell 2008) as normally appreciating and seldom depreciating, but as Stilwell (2008: 14) suggests, "poverty trap conditions and the AIDS epidemic are testament to the fact that Human Capital can and does often decline". Looking at the lowest quintiles[iv] of school poverty rankings in some areas in the Western Cape, Zinn (2013) asks whether one would, for example, provide ICTs there or rather start engendering Human Capital in other ways, such as in paying attention to food security, health, and basic education. If these levels are not met, do citizens bother with the library? What is the role of information as an enabler of library use here, and what are its limits? There are different types of information required for different levels of need, as in "who needs Shakespeare when you need to know how to make a mosquito net?" Access to information could possibly assist with the latter question, or in obtaining a free or inexpensive mosquito net. This article cannot claim to answer such complex questions.

Pateman (2008) and Vårheim (2007) are helpful in this regard when they write about a focus on the core library functions which are of benefit to all. Pateman (2008:12) argues that the concepts of social justice and equity can work to the advantage of the entire community. An inclusive public library tailored to the information needs of everyone benefits the previously excluded as well as the included because it is more likely to meet the needs of the community as a whole. Vårheim (2007) emphasizes the role of the library as a social and public place that is neither work nor home, a place to meet, a safe place, a place for reflection, a place to build trust in others where access to free and universal services build information literacy. By providing a "third place" in this way core library functions are deepened and broadened in their reach. For Sumsion, Hawkins and Morris (2002: 666), the uniqueness of the public library lies in its "capability to acquire and to make available material on a communal basis and so provide individual borrowers with a distinct economic gain".

Conclusion

McKaiser (2013:7) states that "Most South Africans do not have access to a community library … Is it surprising that we struggle to deal decisively with poverty, inequality and unemployment?" This article sought to propose measures of the public library's contribution to enhancing social inclusion. The approach taken is based on a transformative paradigm and on Sachs's (2005) views on how to end poverty and his notion of types of capital, as well as the "best information" approach.

The heat map provides an example of where public libraries could focus investment more at the national level. It uses the importance of the drivers of social inclusion identified in the literature, as well as the account of their status after the application of measures. In this way it engages with risk analytics. It offers an example of a tool which could be adapted by public libraries and their partners to plan interventions.

The article puts forward a way to describe the status of the drivers of social inclusion at the national level and to determine if and where public libraries could contribute meaningfully. It uses the concept of how public libraries create capital which enhances social inclusion. It is based on the empirical insights gained. The dashboards are intended to provide an example at the national level of a tool that could be developed and adapted for public librarians to indicate the library's contribution in an effort to acquire greater amounts of capital and move the service along the trajectory of options towards an advanced 'point-0' approach. A secondary outcome was to consider interventions that have the potential to make a contribution to sustainable economic development.

In advocating the enhancing of social inclusion and addressing of poverty the article takes into account measures and levels of poverty and also recognizes that there are also levels of inclusion along a continuum to advanced levels of inclusion. One can measure levels of inclusion by isolating certain indicators. The examples of the tools provided could be adapted and used to garner government and public support for the key role played by public libraries. There are not, however, perfect indicators and therefore one uses a proxy in the form of the best information available. This realization does not detract from the potential of the tools for planning. The approach and examples are offered here to invite comment before the tools are adapted and developed for application at the local level.

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Notes

i According to purchasing-power parity (PPP), 'the number of currency units required to buy goods equivalent to what can be bought with one unit of the currency of the base country or with one unit of the common currency of a group of countries' (United Nations Statistics Division 2007).

ii South Africa's social cohesion campaign, *South African @ Heart: Working together to build a Caring Nation* is driven by the Department of Arts and Culture. It defines social cohesion as 'how we as South Africans, unite and work towards a common goal – it comes down to recognizing our common humanity in meaningful ways which involve meeting basic human needs, amongst them decent shelter, food, meaningful work, tolerance, respect, family and friendship'. It has four pillars which are: diversity, inclusivity, values, and access. A National Summit on Social Cohesion was held in Gauteng in July 2011 and the third phase of the campaign which is about how to implement the values is underway (Nchoba 2011).

iii Residual risk is the 'exposure to loss remaining after other known risks have been countered, factored in or eliminated' (Residual risk 2013).

iv South African public (government) schools are categorized into five groups or quintiles, for purposes of the allocation of financial resources. Quintile one is the 'poorest' quintile, while quintile five is the 'least poor'. The poverty rankings are determined nationally and are based on the poverty of the community around the school, as well as infrastructural factors (Grant 2013).

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