

## **Participating in Critical Discourse: A Critical Research Study of Clinicians' Concerns for a Ghanaian Hospital E-mail System**

### **Abstract:**

A growing body of information systems (IS) literature advocates the explicit use of suitable critical theories to explore power issues in developing countries and make IS research findings more accessible to systems' users and the wider audiences for consumption. We respond to this debate in IS by applying critical research perspectives to discuss the power implications of Internet and e-mail resource distribution in a Ghanaian teaching hospital in a way that addresses clinicians' concerns of using Internet services for healthcare practices. We applied critical qualitative approaches to collect and analyse data from clinicians, healthcare managers and the hospital's internal documents. It was found that managers exercised their powers to allocate Internet facilities selectively on the contestable account that clinicians might misuse the Internet if they were given access and that they would seek to empower themselves as co-planners who could make technology choices and add new value to the existing normative decisions of the managers. The outcomes show that critical researchers can directly relate to decision-making powers, recognise their powers and expose structures that surround them, and emancipate people whose Internet resource needs are restricted to co-involve in technology adoption and distribution processes.

### **Key words:**

E-mail; Internet; healthcare information systems; multiple critical perspectives; power

## 1. Introduction

The evolution of the Internet and its e-mail applications has credibly been attributed with enhancing clinical collaboration and healthcare workers' interactions (Lucas, 2008; Veuillotte *et al.*, 2015). Generally, Internet-based applications and e-mail have the capability to reach many communicative actors and remove geographical barriers to information flow (Palvia & Pancaro, 2010; Choy & Schlagwein, 2016). Shachaf (2005) observed 41 global virtual team employees working in nine countries for a multinational corporation, noting that e-mail communication improves verbal accuracy and alleviates intercultural miscommunication and nonverbal differences among the employees. Evidence also suggests that e-mail has been useful in knowledge sharing in sub-Saharan Africa (Okunoye & Karsten, 2003) where Ghana is situated. Depending on the robustness of message distributing and/or receiving platforms, and the speed of the Internet, e-mail message recipients can react responsively to content or take their time to digest content before responding (DeLuca & Valacich, 2006; Ou, Sia & Kit, 2013). Either way, it is more effective to use e-mails to correspond with a large workforce than relying on the traditional one-way communication memos which are costly and slow for decision making (Vaast, 2004; Shachaf, 2005).

However, there are many problems with e-mail usage at work (Renaud, Ramsay & Hair, 2006; Derks & Bakker, 2010), with employees using it for personal reasons which are not connected with the core tasks assigned to them (Turban, Leidner, McLean & Wetherbe, 2006, p.124). Low usage and disuse due to increasing workload (Liddell *et al.*, 2008), and other negative effects relating to employees' wellbeing in particular, have also been reported (Quintane & Estévez-Mujica, 2017). Derks and Bakker (2010) point us to the fact that high job demands involving frequent e-mail communication have a propensity to deplete employees' energy and cause ill-health. Usage abuse in various forms, either intentionally or unintentionally, is also widespread in the literature (Mazieres & Kaashoek, 1998; Turban *et al.*, 2006), with Kruger, Epley, Parker and Ng (2005) observing that the intended meaning of e-mail messages could be misconstrued by recipients while overconfident communicators may violate the electronic communication etiquettes by misjudging the clarity of the message tone.

Additionally, technical challenges relating to server overload hamper virtual information flow (Mazieres & Kaashoek, 1998) whereas unstable and slow Internet connectivity has characterised sub-Saharan African health Internet-based systems, impeding smooth download

of documents bringing frustrations to users (Bukachi & Pakenham-Walsh, 2007). In contrast with Western countries where larger budgets are allocated for healthcare information technology (IT) systems development (Murphy *et al.*, 2004; Paul, Ezz, & Kuljis, 2012), the progress of healthcare IT implementation in sub-Saharan African countries has been generally slow (Heeks, 2002; Kimaro & Nhampossa, 2005). This is largely due to budgetary constraints (Lucas, 2008; Qureshi, 2016), fixed bureaucratic cultures (Berman & Tettey, 2001) and political influences associated with top-down design approaches (Thompson, 2003; Heeks, 2006) which, in some cases, tend to clash with the emerging and complexity-based IT implementation models (Braa, Hanseth, Heywood, Mohammed & Shaw, 2007).

These challenges may support the recommendations from a recent ICT4D publication that 34 out of 40 African countries need to develop their ICT network, access and usage (Kayisire & Wei, 2016). While this suggestion might be very useful to influence positive IT implementation outcomes in Africa, the scepticism is that the ICT for development field is less inclined towards users and a wider audience who would use research findings to improve IT access and usage in practice (Harris, 2016). Adding to this is, perhaps, the absence of criticality in the way we engage with actors to understand their IT usage predicaments which they have less control to manage (Stahl & Brooke, 2008; Walsham, 2012). On a positive note, many impactful and practically relevant IT investigations have been explored through critical research methods and methodology to question the political and power entrenchments in the developing world's bureaucratic structures, to underlie such studies' information systems (IS) deployment (Walsham, Robey & Sahay, 2007; Avgerou, 2008) and Internet service distribution (Shirazi, 2013).

To this end, some information systems scholars suggest that the progress of developing countries' IS studies should be explicitly critical and draw on suitable critical theories to justify and explore research endeavours that relate to power issues (Stahl, 2008; Thompson & Walsham, 2010). Walsham *et al.* (2007, p. 324) reiterate: "These are precisely the type of issues where critical work can 'open up the black box' of accepted ways of doing things as an aid to deeper understanding". This study applies critical research perspectives to discuss power implications of Internet and e-mail resource distribution in a Ghanaian teaching hospital in a way that addresses clinicians' concerns of using Internet services for healthcare practices. The study allowed the core hospital staff who used e-mails for clinical collaboration to participate

in the critical research, express their e-mail usage frustrations and discuss the power influences that hindered the effective adoption of e-mail and Internet systems more widely, and to bring their views and actions in practice. It will also bridge the critical research application to IS studies gap. Palvia and Kakhki (2016, p. 151) report this perspective as “almost non-existent” from an investigation of the types of articles published in Journal of Global Information Technology Management (JGITM) over a ten-year period from 2006 to 2015, and with comparison with research published in MIS Quarterly (MISQ) and European Journal of Information Systems (EJIS).

The remainder of the article is organised as follows: First, multiple critical research perspectives are debated from the standpoints of Marx (1969), Habermas (1993; 2001), Foucault (1980; 1995) and postmodernists (Kilduff & Mehra, 1997; Alvesson & Deetz, 2006; Mitev, 2006) to understand why and how the assumed and perpetuated power structures should be confronted, in a way to support people whose IS needs are restricted by such power influences. This approach to understanding IS issues that provide a theoretical rationale for research is exemplified by the ‘multiple theoretical concepts’ in an EJIS article (Bartis & Mitev, 2008, p.113-115). Myers and Klein (2011, p.31) support: “... there is much diversity within the critical research philosophy and a single coherent theoretical foundation does not exist.” Secondly, the background of the case is introduced to position the study in context and discuss how the critical qualitative data obtained from a Ghanaian teaching hospital was analysed with a critical discourse analysis. Thirdly, following a critical discourse analysis, the findings are reported to illuminate how users’ voice could shape hospitals’ Internet service adoption and distribution in a developing country context. Finally, the study concludes with research implications that contribute to theory and practice, and highlight the need to involve critical IS researchers and Internet-based users in the process of adopting and distributing modern technology in Africa and similar contexts where there are restrictive technology adoption practices as well as providing directions for future research.

## **2. Multiple critical research perspectives**

Critical research is a way of *knowing* and critiquing social systems and/or *reality* to understand why social and technological systems are unevenly distributed and how they can be improved (Walsham, 2012; Shirazi, 2013). It is rooted in critical theory and points back to a Marxist tradition (Crotty, 1998; Stahl & Brooke, 2008), which takes the view that social structures have

been historically ossified with unwarranted assumptions and are, erroneously, perpetuated as 'real' (Zanetti, 2004). Critical IS theorists take an emancipation view to reform the restrictive information system access and usage (Hirschheim & Klein, 1994; Kanungo, 2004) and aim to set free actors with lesser voice in social, technological and political decision-making (Shirazi, 2013; Aricat, 2015). They go beyond the positivist view of determining the causality in technology adoption factors (Asongu, Nwachukwu & Aziz, 2018) or the usage and economic wellbeing relationship (Evans, 2019) and further surpass the interpretivist idea of describing the current situations of IS implementation and usage through questioning, for example, what, or who, has created fixed or limited technological systems and why and how these have continued (Ngwenyama & Lee 1997; Lamb & Sawyer, 2005; Mansell, 2005).

Yet, critical research has come under the microscope of many researchers who question the quality, legitimacy and merits of what counts as critical research (see Myers & Klein, 2011) and how findings are reported back to research participants and actors who could effect change with critical research outcomes (Harris, 2016). Such concerns arise because critical research pursuits could reveal organisational system issues that might lead to participants losing their own power or they draw broadly on Marxist traditions and other critical perspectives that question the legitimacy of power, authority and capitalism (Schultze & Leidner, 2002). Marxist philosophy, which opposes social inequality and injustices, is for instance, accused of using an unethical approach to addressing power relations and considering any ethic to be capitalist ideology which has to be handled with disapproval (Zanetti, 2004).

Marxist approaches to reforming social systems and technology communication is oriented towards an authentic and austere way of *knowing* and questioning the established systems (Lennerfors, Fors & van Rooijen, 2014). This may explain why some IS studies applying socially critiquing theories to understand people's access to IT (Kvasny & Keil, 2006) or how IT-cultural conflicts are managed (Leidner & Kayworth, 2006) might have avoided the Marxist tradition but ironically adopted Bourdieu's theory of social reproduction which is in part derived from the Marxist philosophy. Bourdieu's theory is based on social order and change principles and questions the legitimacy of perpetuated economic power and unfair class structures, and why these have been culturally and naturally allowed to be reproduced as unavoidable (Myers & Klein, 2011). In terms of critiquing power structures, Bourdieu is not dissimilar to Marx; but the avoidance of Marxism may be attributable to an argument that its

socialist (communist) aggression towards capitalist supremacy (bourgeois property) is paradoxically amoral (Zanetti, 2004; Lennerfors *et al.*, 2014).

The Frankfurt School's communicative rationality provides an alternative approach to the traditional critical theory for challenging the normative assumptions about the way technology should be planned, adopted, distributed and used by organisational and social actors (Ngwenyama & Lee 1997; Kanungo, 2004; Cecez-Kecmanovic, Klein & Brooke, 2008; Shirazi, 2013). This knowledge is credited to Habermas (2001) and describes how speech, an inherent critical enquiry tool of modernity, could provide people the moral critiquing rights to question and analyse background assumptions of ossified structures, with mutual understanding between privileged and unprivileged groups of people (Zanetti, 2004). It might promise a more sensible argument for encouraging emancipation and less quarrelsome instigation of Marxist public anger for technological innovation and use (Kanungo, 2004; Shirazi, 2013).

Yet, there is the assumption that the appropriation of critical theory for social and technological change should neither privilege pure Marxism nor exclusive use of aesthetic critique in Habermasian form, but rather exhibit some contextual crossovers between these two forms of critical knowledge (Kompridis, 2004). Surely, some notable principles of critical research, such as critiquing and emancipation span across the work of Habermas, Marx and other critical theorists (Stahl, 2008; Stahl & Brooke, 2008). In the context of IS, emancipation aims to empower system users to be part of design decisions and discourses (Hirschheim & Klein, 1994; Cecez-Kecmanovic, 2011a) and enables them to overcome bad design or policies that prevent their information and technology usage. However, achieving IS emancipation is not always easy in cultures, institutional structures and settings where there is a perpetuated digital divide between people with access to modern technology and those with little to no access (Brown & Licker, 2003; Kvasny & Keil, 2006; Stahl, 2006). Brown and Licker (2003, p. 22), for instance, reported quantitative findings from South Africa that there was a digital divide in favour of the White minority group who were historically advantaged by colonialism and had "significantly more years experience with the Internet, and greater exposure to technology" than the Black majority group who were historically marginalised by apartheid policies. The emancipatory element provides the assurance that critical IS researchers do not only seek to critique the status quo but also aim to transform weak information and technology management

practices, as witnessed in diverse critical contributions (Doolin, 2004; Avgerou & McGrath, 2007; Stahl, 2006).

For many, critical knowledge should articulate the truth to authority and encourage people to be critics of technology implementation and distribution challenges through the application of Foucault's power/knowledge critical discourse in information system research (Thompson, 2003; Avgerou & McGrath, 2007; Kreps & Kimppa, 2015). Foucauldian power/knowledge critical discourse seeks to promote transparency between power structures and knowledge endowments in a way to legitimise effective ICT development for less developed countries (Thompson, 2003). The contention is, the power/knowledge mutual relations can create subjective and subjugated practices that invoke individuals to accept such practices as the norms of authority (Foucault, 1995; Cecez-Kecmanovic, 2011a). This, in turn, can allow IS implementers to use their power positions to rationalise systems adoption and distribution challenges whereas users can draw on their self-disciplining knowledge and criticisms to resist IS usage when their user requirements are compromised (Doolin, 2004; Stahl & Brooke, 2008; Meissonier & Houzé, 2010).

Actors' self-disciplining knowledge emerges from their natural, moral and idiosyncratic responses to criticise management practices and are devoid of specific established routines (Cecez-Kecmanovic, 2011a). This self-disciplining behaviour exemplifies practice-related knowledge and differs from power dominance (Messner, Clegg & Kornberger, 2008) or the Foucauldian power of norms. Like Marx, Habermas and Bourdieu, critiquing is one of the key elements of Foucault's thesis, as well as advocating ethical values, truth and emancipation to change power-imbued social systems and structures. It also remains that critiquing in Foucauldian critical discourse has its own criticisms. For instance, demarcations between such things as true/false or legitimate/illegitimate in social systems that Foucauldian criticality seeks to address are seen as very thin if indeed they are given attention at all (Mutch, 2005). Regardless, the unfolding discussions illustrate and confirm some convergent areas of different critical research perspectives that question restrictive social and technological systems and enrich our understanding of critical research abstraction in IS studies (Stahl, 2006; Stahl & Brooke, 2008; Myers & Klein, 2011; Cecez-Kecmanovic, 2011a).

Furthering the existing critiquing and transformation objectives of critical research, some key players have yielded to new forms of critical knowledge such as welcoming the postmodernist version as an alternative way of critiquing power and management structures (Myers & Klein, 2011; Cecez-Kecmanovic *et al.*, 2008; Cecez-Kecmanovic, 2011b). Postmodernists combine different perspectives or research techniques to contrast and revolutionise conventional wisdom, represent different cultural practices and open up platforms for marginalised viewpoints to question imperialistic claims (Kilduff & Mehra, 1997; Alvesson & Deetz, 2006; Mitev, 2006). This view has major influences on the Critical Management Studies' (CMS') objective of providing a space “for debating radical alternatives whilst interrogating the established relations of power, control, domination and ideology” (CMS, 2017), which is inspired by Marx, Habermas and Foucault (Adler, Forbes & Willmott, 2007:16).

The discourse from multiple critical perspectives has shed light on many ways that people's needs and information technology requirements could be subverted by socially constructed powers. We have noted that such deprivation could be addressed through critiquing power structures and emancipating the underprivileged groups whose social and technical needs have been threatened or denied (Myers & Klein, 2011). It also means clinching to ethical values, truth and emergent postulates, and exploring alternatives that require user involvement in system implementation processes as a way to make critical research outcomes useful for transforming organisational practices (Doolin, 2004; Adler *et al.*, 2007; Cecez-Kecmanovic, 2011a). The critiquing, emancipation and transformation aspects of critical research emanate through our case study that take the perspectives of critical research to discuss power implications of Internet and e-mail resource distribution in a Ghanaian teaching hospital in a way to address clinicians' concerns of using Internet services for healthcare practices.

### **3. Research context and design**

#### **3.1 Case Background**

This study applied a critical qualitative research tradition to collect data from Garden City Teaching Hospital (pseudonym) in Ghana and reports this as part of a larger research investigation. The Ghanaian Ministry of Health (MoH) is envisioned to create wealth through healthy and productive lives. This is to ensure that the Ghanaian population reproduces itself safely. By this, the Health Sector contributes to the country's vision of achieving middle-



income status of US\$1000 per capita by 2015, as part of its Millennium Development Goals (MDGs). This strategic policy of the MoH carries three interrelated objectives, intended to promote the sector's healthy vision. These are geared towards: Promoting productive lives without increasing risk of injury or death; minimising the risk of morbidity, mortality and disability among vulnerable groups; and lessening inequalities in healthcare accessibility (Ministry of Health, 2007). While the assessment of the country's health-related MDGs indicated some considerable progress, Ghana still lagged behind its overall health development targets (Ghana MDGs Report, 2015). Some of the challenges constraining the progress were limited deployment of skilled health workers, equipment supply and logistics, and poor ICT delivery service.

The MoH conceived that improved and appropriate ICT implementation could advance clinical planning and medical practices for quality patient care (Ministry of Health, 2009). Yet, the Ghanaian healthcare system, of which the Garden City Teaching Hospital formed an integral part, had deficient Internet and information systems to support effective clinical collaboration and decision-making. The poor health information systems had existed as problematic for patient data management and an institutional capacity development issue for many years (Ministry of Health, 2009). Previous policy measures have considered a multi-sectoral approach to guide the development of health information systems (Ministry of Health, 2007) but the impact of these measures have yet to be seen.

The eHealth strategy paper on Ghana highlighted a "clear commitment from the top management to establish a robust and dependable telecommunication infrastructure throughout the country" (Ghana eHealth Strategy, p. 28) but acknowledged that the country was struggling to meet its MDGs relating to the ICT needs for the health sector development, and that there was "still a large digital divide" defined by geographical locations and the levels of income, education and literacy. The assessment of Ghana MDGs in 2015 indicated that Ghana had worked with its private sector to revolutionise its ICTs for development and increase Internet access and usage from less than 0.5 percent of the population in the 1990s to 10.6 percent of the population in 2012 (as compared to Africa's average of 14.4 percent), with a further huge leap to 18.9 percent in 2014. Still, this was below the global average of 40.6 percent. The progress of ICTs to Ghana's GDP contribution was measured as 3.0 percent in 2010 and 4.0 percent in 2012 (Ghana MDGs Report, 2015). This might underlie Evan's (2019) claim that

the Internet can empower Africans to develop a better life and increase their economic well-being.

Despite the articulation by the 2015 Ghana MDGs Report that the improved institutional and regulatory framework for managing the ICT sector had contributed to the “rapid development and deployment of ICT infrastructure and use of ICT in all sectors of the economy” (p.70), there were notable challenges that question the claimed contributing factors of ICTs development in Ghana. Examples of these challenges are: “poor service delivery by the providers”, “low capacity of the National Communications Authority to effectively guide the growth of the sector” (p.71) and general resource constraints. Prior research on factors influencing resource allocation and equity in the health system of Ghana reports that political and administrative commitment to promote equity is one of the important determinants that shapes the effective healthcare delivery (Asante & Zwi, 2009). Asante and Zwi continued that politicians in Ghana influence resource allocation by creating inequities in the distribution of the investment and recurrent budgets, shift healthcare resources from the disadvantaged to the rich and prioritise their own interests of seeking re-election.

Others maintain that politics, culture and technology development in Africa are interlocked with colonialism and their combined understanding is necessary for global IS studies. Berman & Tettey (2001), for example, studied that ICT development in Africa is largely influenced by former colonial administration and its formal institutional structures, which were left for the post-colonial successors and characterised by authoritarian decisions and managerial controls. They reiterate the concerns that political rationalities are used to control information systems in Ghana: “For example, officials of the Ghana Statistical Service revealed that they have, on a number of occasions, been instructed to 'massage' data in order to produce figures that the government feels more comfortable with” (Berman & Tettey, 2001, p.9). Improving equity in health through ICTs in Africa (Qureshi, 2016) would require critical research engagement in politics, to highlight the need to allocate resources for healthcare delivery fairly by people in the positions of power. Berman & Tettey (2001) add that the enthusiasm surrounding ICT adoption in Africa and the reality of its performance should integrate the fix bureaucratic structures and political imperatives. This may echo the view that the framing of global IS usage and adoption should be widened to include cultural and intuitional logics of a different contexts (Jacks, 2017).

Garden City Teaching Hospital is situated in the most heavily populated region in Ghana and serves its regional inhabitants of over 3.6 million people (Asante & Zwi, 2009). The main aim of the hospital is to provide quality services to meet the expectations of all its clients through best-practice and innovation. Its broad services are decentralised into ten specialist clinical directorates and two non-clinical directorates, the operations of which were all supported by 14 decentralised units. However, the hospital has struggled over many years to achieve its care provision objectives, with a 16% medical staff representation of the 2774 hospital-wide labour force, as at 2009, experiencing a huge turnout of patients and a long waiting time.

The hospital has suffered poor communication between various units and directorates, and poor Internet connectivity had hampered effective service delivery. Report on the technical capacity assessment of the hospital identified unclear lines of communication, weaknesses in information systems and lack of supporting tools for staff collaboration as some of the key issues affecting quality care provision. Traditionally, the hospital had been using memos, pieces of circulated paper-based information between and among units/departments, as an official method of internal communication. However, communication through memos received criticism as poor and inadequate to meet the growing numbers of the hospital staff, some delivering very dynamic and complex routines as generally noted in busy teaching hospitals.

A better and modern way of communicating was necessary and, realising the significance of using ICT to enhance clinical practice and improved client expectations, the hospital commissioned the ITech Unit from 2003 to support the hospital's corporate goals. The Unit's main aim, as stated on page 90 of the hospital's 2009 annual report was: "To use technology to achieve institutional missions such as measuring patient outcomes, operating efficiently, cutting costs, educating students, and supporting research." As the need for ICT in medical practices grew, the hospital recognised the prospects of harnessing Internet for improved patient care and staff learning.

Having acknowledged the need for using Internet to communicate the hospital's presence as a care-giving institution to the general public, the ITech Unit used its in-house expertise to design a new website in 2009 with a standard URL address. It also implemented corporate mail systems for all staff in 2010 and issued each individual staff a corporate e-mail address with

access code. To maintain the effective and efficient operations of the hospital's ICT systems, the ITech Unit provided technical support for repairing minor network problems, installing applications and servers, and upgrading software. By these actions, the Unit was envisioned to strengthen the Ghanaian health systems capacity.

### **3.2 Methods**

Critical qualitative data were obtained from twenty-one participants consisting of eleven clinicians, four clinician managers and six non-clinical managers who were invited to the study through a snowballing technique. The participants were selected from six different clinical directorates and six supporting units for an average of 52 minutes one-to-one in-depth interviews per person and two separate focus group interviews with an average time of 43 minutes. Appendix 1 outlines the interview and focus group protocols. We based our selection criteria on the assumption that corporate healthcare managers set strategic objectives and clinical professionals have little contribution to decision making (Myers & Young, 1997) and considered that about 71% participant allocation for clinicians was reasonable for obtaining their views in the hospital's Internet resource distribution that could be useful for the corporate managers' resource allocation decisions. Consent was sought from all participants who took part in the study. Table 1 lists and summarises the background information participants. Participant observations of Internet connection points, Internet speed and e-mail usage were also conducted in the directorate libraries, ITech Unit and at the telemedicine centre, each lasting around 45 minutes and were documented in the first author's field notebook. Institutional documents relating to ICT development and two of the hospital's comprehensive programme of work reports for 2010 and 2011, each consisting of about 500 pages, were also reviewed. The data collection started in October 2010 and lasted one year including a number of post fieldwork e-mail exchange and telephone conversation follow-ups.

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Insert Table 1 here

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Using critical discourse analysis (Alvarez, 2008; Stahl, Doherty & Shaw, 2012), the interviews and focus group data were transcribed manually and analysed with other qualitative data to discover categories and concepts, to understand the implications of decision-making powers on the hospital's Internet resource distribution and explore better ways of adopting and allocating e-mail and Internet services. Critical discourse analysis describes the way speech

acts and textual materials are constructed and communicated back and forth to uncover the unheard voices of underprivileged actors in social settings (Fairclough, 2013b; Aricat, 2015). It analyses how decision-making powers use their positions to limit the freedom, request and actions of others (less privileged) or influence their minds through everyday subtle routines (van Dijk, 1993). The mainstream critical discourse studies literature interweaves critical discourse analysis with multiple perspectives of critical theory and presents it as a theoretical and methodological frame for analysing historical events, teleological obligations, legitimacy, ideology, and socio-political that relate to less privileged groups' concerns or their under-representations (McKenna, 2004).

Critical discourse analysis is interconnected with, or embedded in, the critical theory concepts to critique power ideologies (Wodak & Meyer, 2009; Fairclough, 2013b), and to explore the emancipation of those whose social needs are constrained, and to register their requests for equitable distribution of resources confidently with decision-making powers (Kanungo, 2004; Avgerou & McGrath, 2007; Shirazi, 2013) and seek to transform weak arrangements or improve lives through open discourse (McKenna, 2004; Fairclough, 2013a). Eliciting methodological considerations from critical theory to provide analytical insights for data exploration is not restricted to critical discourse analysis. Lehmann (2001) distilled concepts from grounded theory and critical theory to develop hybrid analytical frameworks for understanding human, social, organisational and technological complexities surrounding international IS case projects. The distinction is the way Lehmann (2001) used a comprehensive set of concepts and constructs from the two theoretical perspectives to build interrelated categories for coding and analysing primary 'text' from the case story.

Critical discourse analysis is applied extensively to analyse and interpret speeches and texts in social research (Fairclough & Fairclough, 2018) and, specifically in IS research, it has been applied to interpret data in different contexts including developing countries (Thompson, 2004; Alvarez, 2008; Shirazi, 2013; Aricat, 2015). Thompson (2004, p.23) assures us that: "Critical discourse analysis might prove an appropriate framework for the analysis of discourse within the more 'mainstream' IS study domain." Taking inspiration from Thompson's (2004) recommendation for applying critical discourse analysis to investigate the relationship between ICT, power and developmental discourse in developing countries, the data were interrogated to objectify participants' concerns of ICT and Internet distribution and usage in Garden City

Teaching Hospital. This involves grounding participants' interview excerpts in the narratives of critical discourse findings (Alvarez, 2008; Aricat, 2015) to unveil the dialectical links between users' technology experience and managers' power positions through which Internet and e-mail resources are enacted.

Guided by the focus and the nature of the study, we analysed the data by following the five thematic linguistic and/or textual constructs deducted from critical discourse analysis, with each relating to at least one of the critiquing, emancipation and transformation concepts of critical theory explored from the literature (see Table 2). The following five critical discourse analysis themes: technological relevance, lexical style, teleological commitment, stress and frustration, and repairs of weak system practices (McKenna, 2004; van Dijk, 2006; Wadok & Meyer, 2009; Talib & Fitzgerald, 2018) were then elicited and compared with the initial cluster of critical theory concepts to develop a critical discourse analytical framework for coding and analysing critical theory based data from the hospital. The connections between the critical theory concepts and the critical discourse analysis themes exemplify the first stage of what Lehmann (2001) considers as a saturation of interrelated categories for writing up a nascent analytical theory of research in IS.

Following the critical discourse analytical framework, we initially categorised the data into five themes that emerged frequently and corresponded naturally with the distilled constructs of critical discourse analysis: E-mail and Internet benefits for practice, slow Internet speed and selective distribution, budget constraints and Internet model fragmentation, Internet and e-mail usage denial and frustrations, and critical research acceptance in practice. We then subcategorised the relevant data into the critiquing, emancipation and transformation concepts of critical theory to expose the essence critical research narratives and express the participants' voice on power implications of the hospital's Internet and e-mail resource distribution. After this saturated point no new insights emerged from the data. As characteristic of qualitative researchers, data that did not fall into any of the categories (critical theory concepts and critical discourse analysis constructs) were investigated carefully before excluding them from the analysis and reporting, to ensure that it would not jeopardise the trustworthiness of the study's outcomes.

The critical discourse analysis framework allowed us to establish connections between the decision-making powers' role in the hospital's Internet resource distribution and its implications on the clinicians' professional work and understand how such interactions are firmly grounded in existing critical discourse analysis and rooted in the key elements of *our* multiple critical theory perspectives (see Table 2). This unique and thoughtful approach to analysing critical text and speeches demonstrates critical IS researchers' commitment and ability to engage in effective technology adoption and distribution discourses with impartiality (Alvarez, 2008).

It also helps clarify the way information technology research in Africa could engage users and a wider audience with findings that could be practically relevant to the African context (Shirazi, 2013; Harris, 2016). Recommendations from the critical analysis of this research were submitted to Garden City Teaching Hospital through its associated research ethics committees to allow participant users to engage effectively with research outcomes in a developing country context. This in turn allows insight into the power relations exercised over a foundational technology, in this case e-mail, and how it affects discourse within the setting. Relating critical and reflexive research outcomes back to participants creates an opportunity for critical researchers to engage in continuous collaboration with participants and participating organisations to use findings to improve their management practices (Doolin, 2004; Ripamonti, Galuppo, Gorli, Scaratti & Cunliffe, 2016).

#### **4 Findings**

Information Systems literature urges IS researchers to apply suitable critical theories and methods to explore power issues in developing countries IS research and make findings more accessible to practitioners and the wider audiences (Harris, 2016; Stahl, 2008; Thompson & Walsham, 2010). We have responded to this advice and applied multiple critical theory perspectives to critical discourse analysis, to develop the critical discourse analytical framework (see Table 2) to guide the analysis and interpretation of our data, as discussed below:

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#### ***4.1 E-mail and Internet Benefits***

The hospital's Internet and e-mail system were noted as potentially critical for promoting knowledge sharing, internal collaboration and research engagements for both clinicians and managers by many participants. In one of the focus group discussions, the specialist paediatrician provided an interesting account of e-mail and virtual platforms as effective collaborative tools for sharing and reviewing clinical cases:

“The other thing is the use of e-mail platforms to discuss emerging issues in the hospital, which we may not be aware of or hidden in some people's files or folders which are not pulled out. If we have such platforms for people to put their knowledge or findings, including observations of cases that have been seen sequentially, then other people can also take note of it and begin to delve into what they themselves are observing”

The managers recognised the economic benefits of using e-mails as a communication tool for exchanging documents between the hospital and external agencies including the MoH departments. This does not only confirm the prospects of using Internet-based resources to transform healthcare practices but also to critically evaluate clinical practices (Thompson, 2004). The senior manager from the Personnel Unit indicated that e-mail was used for submitting processed health insurance information to the National Health Insurance head office while the Compliance head said that it was used to send scanned audit reports to the Ministry of Health Internal Audit Unit, making the audit reports processing and monitoring easier and quicker. The Compliance manager's experience is shown in the following excerpts:

“In terms of MoH, currently we can scan the signature portion of the quarterly report, attach the whole report in the email and forward the entire report to the MoH internal audit unit”

The economic benefits of e-mail were also acknowledged in the way that the technology could be more cost effective for communicating between the hospital's staff as compared to the traditional memos.



“Over here we use memos for passing on just little pieces of information as means of communication but we can make use of e-mails that can actually cut down the costs of paper and circulate information quicker” (ITech Manager)

However, the general appreciation of e-mail as an effective Internet-based tool for knowledge sharing and communication could not match the reality of usage. The critical interpretation of the data reveals negative expressions on the hospital’s Internet system, the AfriConnect.

#### ***4.2 Slow Internet Speed and Selective Distribution***

Amongst the twenty-one interviewees, including the focus group participants, a common concern was raised about the slow speed of the hospital’s Internet. Typically, phrases like: ‘Very poor’, ‘too slow’, ‘not fit for purpose’, ‘difficult to access outside the hospital’, ‘waste of time’, ‘frustrating’, ‘terrible’, ‘quite limiting’ and ‘miserable’ were used to describe the deprived state of the hospital’s Internet. Three Internet usage observations conducted by the first author at different times and dates, and at separate access points confirmed the slowness of the Internet. On the 25<sup>th</sup> October 2010, for example, the failure of a senior specialist physician to sign into the e-mail system over a 10-minute continuous trial was observed. The researcher wanted to know more about the state of the Internet speed and asked the senior specialist physician about the time frame that the hospital had been experiencing the problem. Here is his response:

Researcher asked: “For how long has the system been slow?”

Senior specialist physician replied: “It’s been like this for many, many months”

Critically, the state of the Internet could not be described as an effective and efficient way of using technology to reduce operational costs, promote learning and research or to support patient care, as intended by the hospital. The participants carefully used words that were contextually similar to express negative evaluations of the decision-making powers’ actions on the hospital’s Internet services (see van Dijk, 2006; Wodak & Meyer, 2009). The review of the internal documents revealed that the use of the Internet for patient care was very patchy with only the Accident and Emergency department using a Patient Administration System (PAS) while the Sickle Cell clinic was maintaining patient records in an electronic database.

The reliance on the Internet for medical research and eLearning was not effective or even less developed.

Research observation conducted in the residence room of one directorate, to assess the connection speed of the Garden City Teaching Hospital e-mail confirmed the slow connection claim. The e-mail system failed to connect to the server within ten minutes after the observed clinician had logged into his e-mail account. One specialist physician's description of such connection failure was:

“The Internet system in the hospital was the poorest I have ever come across”.

The specialist physician accused the hospital's lack of Internet vision as the cause of the slow Internet access, citing the selective Internet deployment criteria across the hospital's directorates and units as a disadvantage to the core clinical routines.

Others were upset that the Internet connections were unfairly distributed in the hospital to serve the managers' and non-clinical staff's interests. The Screening & Diagnostic Directorate microbiologist, for instance, could not control his resentments when asked about the criteria for deploying Internet services in the hospital.

“My personal impression is, it is poor here. It is not well organised in the hospital. I think it is the managers that have them. I think when the Internet was set up, it was set up in the offices. I have seen people using Internet for browsing or doing other things but people who may need it for clinical care, immediate evidence-based medicine, don't have it. I don't think majority of clinicians have access” (Microbiologist).

This explains how power positions could be used to subvert and deprive some actors' use of technology. The inquiry suggests that Internet misuse might not be a substantial issue but rather might be way of justifying denial of service to those who would use the email and the Internet productively. It could be, in this sense, a cover story for maintaining control of access. Through participant observation, an inadequate distribution of the hospital Internet facility was also noticed in the Chemotherapy Directorate, where access was only available to the offices of the secretary and the head of the directorate, denying access to other sections. How such limited

provision of Internet could enhance effective clinical collaboration and interactions between the managers, clinicians and other staff was a difficult question to answer.

The Internet misuse appeared to have been used as a marker to refuse a clinician's request for Internet facility in the Chemotherapy Directorate.

“When my physicist asked for Internet access, they said they were not going to put much emphasis on the Internet access because staff may spend too much time on the net while they have to work” (Chemotherapy head).

The critical explanation of this is that the excuse for denying the physicist's Internet access could only be interpreted from the power and control advantages characterised with the traditional managerial positions and the subjective use of authority. Denying a clinician access to the Internet on the assumption that he would spend excessive time online was certainly unreasonable. What would probably be required was to install software to monitor staff online activities at work, something that needed to be considered in the staff IT usage policy to control Internet use.

Challenging the supposed ‘time wasting on the net’ argument for allocating Internet facility, the Chemotherapy head pointed to the hospital's slow Internet as something to blame. He rebutted:

If you click on something and it takes 10 minutes to download a little information, then at the end of the day, people are going spend much more time. If you have a very fast Internet access and want to check your mail it takes you a couple of minutes. If you go around this hospital and you want to check your e-mail at any point where there is an Internet access, it takes you quite a long time.”

Indeed, fast Internet access would mean a quickest possible time for checking corporate e-mails and communicating knowledge that could be translated into effective patient care.

#### **4.3 *Budget Constraints and Internet Model Fragmentation***

Perhaps a stronger argument for explaining the limited provision of Internet access was an inadequate budgetary allocation for a largescale ICT systems adoption and distribution. The

Outpatient Directorate head explained that, the hospital could have bought bigger broadband servers to improve the Internet access speed but that would be very expensive. This might be the case when the Screening & Diagnostic head claimed that the central government had cut back the hospital's budget allocations due to the economic hardship at the time. The Outpatient head elaborated further that, for every unit of money spent on ICT systems a certain threshold of usefulness needed to be achieved. This managerialist position on cost minimisation, achieving more with few inputs, was sharply contrasted with emergent knowledge of other clinicians. One specialist physician contested that getting the ICT right was not necessarily about funding but employing expert knowledge for health information systems. His frustration is observed in the following quote:

“It is about getting the right people with the right know how, and those with vision, but not just a vision of ICT but also a vision of ICT to advance medicine. Somebody can have all the knowhow of ICT but if the person doesn't know how the ICT is applied to advance medicine, you will be sitting there and having all sort of things discussed which at the end of the day will not benefit the healthcare providers”.

The critical interpretation of the specialist physician's contribution gives that the benefits of ICT for healthcare interactions would be realised if the design requirements addressed the changing medical practices. It also explains that non-authoritarian actors can use their expertise to question the existing political ideology about technology adoption and argue for fairness in adopting and distributing technology purposefully for transformation (see McKenna, 2004; Alvarez, 2008). It emerged through informal discussions that different Internet Service Provider (ISP) models had sprung up across the directorates, mainly acquired on private basis, or/and with the support of the School of Medical Sciences attached to the hospital. These models were common amongst the resident clinicians who used their own Internet services which were accessible in the residence rooms. Some departments such as Compliance, for example, adopted Zain Internet model, and other privately subscribed ISPs to support their e-mail and Internet usage in the hospital.

Whether it was a reason of costs or lack of ICT vision, Garden City Teaching Hospital's corporate e-mail and Internet adoption was very patchy. Planning failed to account for an Internet service fragmentation, obtained separately from different ISPs, which could have been

coherently merged into an efficient single provider. A critical appraisal of the e-mail and Internet adoption, with adequate consideration of clinicians' input, might have been far more useful for the hospital's Internet financing. Clinicians' criticisms of the hospital's Internet adoption were extended to the limited connection points which had seemingly subverted their privileges to access Internet and collaborate effectively through ICT, as shared by the microbiologist, one lead clinician and a senior specialist physician.

#### ***4.4 Denial and Frustration of Internet and E-mail Usage***

Plans for deploying an effective intranet system were also criticised for taking between 4 and 5 years with no concrete intranet deliverables to support clinical collaboration and knowledge sharing between the healthcare practitioners. This, together with poor communication, led the obstetrics lead clinician to reveal that many clinicians were not even aware of the existence of the hospital's e-mail system let alone using it. Presenting his disaffection for why e-mail was not being used as a corporate communication system, the Screening & Diagnostic head said:

“The email could only work whereby we have the system, where everybody is e-mailed. You know when you go to hospitals, you have various directorates [with] everybody's name and e-mail address, so that if you've not even met the person before you can still communicate through e-mail to that individual, which I don't think we really have in this hospital. Even, if I want to send an e-mail, what e-mail address?”

The e-mail system was ineffective and the 'Internet access frustration' was an irritating feeling towards the hospital's technology strategy for supporting operational activities, research and positive patient outcomes. Losing tempers and getting 'headaches' were not uncommon experience with e-mail usage and Internet access as expressed by one dermatologist. Some complained about sitting by their computers for two hours without being able to send information via e-mail because of the slow Internet connection and eventually giving up the use of e-mail system.

The slow Internet frustration led to some clinicians relying on the hospital's corporate e-mail system shifting their electronic communication preference to private e-mail systems, such as Yahoo and Hotmail, as an alternative way to liberate themselves from the entrapped technocratic hegemony (see McKenna, 2004; Wodak & Meyer, 2009). Their frustrations at

using sluggish Internet was exacerbated by the limited time needed to see many cases. One specialist physician reported a caseload of 20-30 patients per day plus research. Indeed, in one of the research observations conducted to check the speed of Internet service, the first author witnessed that the specialist physician struggled desperately over 15-minutes to send an attachment e-mail but to no avail. When the issue was later picked up in the one-to-one interview, this is what he felt:

“Yes, it’s so frustrating. Even, yesterday I had wanted to check my e-mails because I wanted to send an abstract urgently for a conference and the Internet was down, so I did not know what to do. So, if you want to check your e-mails quickly and go to see your patients, it wastes time. So, you eventually have to stop whatever you want to do on the net and go back to your patients” (Specialist physician).

Clinicians’ efforts to download recent medical articles and read new research publications online at work were reportedly denied and these discredited the hospital’s ICT vision to support research. According to one dermatologist, the Internet access frustrations had ultimately discouraged many clinicians from engaging in online clinical collaboration at work. These criticisms were laid on the hospital’s management disinterest in promoting Internet for clinical practices.

“I am [a member] of the hospital's Internet committee ... but the hospital doesn't really see the Internet as something that should be viable. Even though, the CEO will tell you that, oh the hospital’s website is my heart desire, but you don't see it in practical terms or on the ground that sort of feeling, so you set a committee and get people to do work and they easily are frustrated” (Specialist physician).

In addition to the observable poor Internet service and the shared sense of frustration experienced by the clinicians, the hospital’s lack of interest in the staff’s Internet access is a critical research issue that relates to practitioners’ deprivation of technology usage. Some clinicians indicated that aside from the slowness of the e-mail system, it lacked capability to accommodate voluminous documents, zipped files or attachments and was inaccessible from outside the hospital. In some cases, sent e-mails were reported to have been rejected. The objective of the hospital e-mail system, as a method of communication, was therefore unattainable and clinicians felt that their ICT usage privileges had been denied.

#### **4.5 Critical Research Acceptance in Practice**

However, through deeper discussions and critical revelations of the clinicians' e-mail and Internet frustrations, the potential benefits were acknowledged by the participants and the ITech Unit. For instance, a critical discourse with the Blood Transfusion head revealed that access to ITech services was not readily available, arguing that the technicians were either too few for the service demand or inefficient. She suggested a hotline solution service to address the immediate ICT related problems. When the issue was raised with the Inventory Supply head, he recommended one ITech person to be assigned to each department to address the technical ICT problems. Before completing the field work, these issues were discussed with the assistant ITech manager and the job roles for ITech support officers were re-assigned to address the specific needs of the departments. Critical engagement of both clinicians and managers introduced these new insights into the hospital's IT planning, implementation and management processes where top-down powers acknowledged participation as an essential critical research element that could bring organisational problems to bear and solve them collaboratively, with active involvement of critical researchers.

The following quotes from the concluding sessions of two interviews also demonstrate how the participants showed their acceptance of this critical study and the centrality of the issue of power:

“What I will say is if you finish with your work give us a copy of the report to inform, not only the [ITech] Unit, but personally I will pick a few programmes of work from your report, [and] for the management so that they can also incorporate some in their strategic plans for subsequent years to come” (ITech Unit head).

“I think with what you are doing, if ICT is up and keeping, I think it would be of help to us as individuals and as a whole. It will go a long way to help reduce turn-around times and patients' time they spend in the hospital” (Screening & Diagnostic head).

The critical interpretation of the data indicated that, in addition to the participants expressing confidence in the study, they welcomed its potential benefits to support effective ICT adoption and management decisions and change power-imbued ICT deployment practices that alienate

clinicians' technology needs. The Head of the ITech Unit requested the end of project report and promised to make use of the findings, for instance, acknowledging a commitment to share power in healthcare IT systems adoption and implementation. The managers therefore recognised the essence of shifting managerial power in IT adoption decisions towards clinicians' views and actions that were necessary to bring change to Garden City Teaching Hospital's IT systems and make their e-mail usable.

Through open and critical discussions, it followed that the clinicians recommended a review of the hospital's Internet server and Internet-based systems procurement in order to address the narrow bandwidth, slow Internet connection and design mismatch issues that had endangered their IT access rights for clinical practices (see McKenna, 2004; Kvasny & Keil, 2006). There was also a call for co-involving managers and clinicians in the hospital's ICT systems design and empowering clinicians to make technology adoption choices that could add value to the existing normative decisions of the managers. Upholding the transformative intent of the critical research endeavours (Adler *et al.*, 2007; Myers & Klein, 2011), the discourse of participants' suggestions and the summary findings of the study were reported back to the hospital to allow them to improve their corporate e-mail and Internet systems adoption, implementation and distribution processes. This was communicated to the regulatory research ethics committee and the hospital's Research Unit on 31 December 2013 via email, after a rigorous review of the project by academic researchers. Participants, including the ITech Unit, were copied in, and sign-posted to the relevant sections of the report. The clinicians' recommendations for practice were made explicit. The Chairman of the hospital's regulatory ethics committee acknowledged the report from the first author as: "Dear Dr. <anonymised>, Thank you for your report. Many happy returns".

## **5 Discussions**

This study applies multiple perspectives of critical research to discuss power implications and clinicians' frustrations of Internet and e-mail resource distribution in a Ghanaian teaching hospital in a way to address clinicians' concerns. It corroborates existing IS critical studies of power relations in the distribution of technology for social and organisational consumption (Doolin, 2004; Avgerou & McGrath, 2007; Adler *et al.*, 2007; Cecez-Kecmanovic et al, 2008; Myers & Klein, 2011). The evidence from this case suggests that clinicians were denied fully effective Internet and e-mail services for clinical practices. The clinicians experienced



frustration when they attempted to use e-mail and Internet for clinical collaboration, communication and general practice (Bukachi & Pakenham-Walsh, 2007).

Underneath the clinicians' frustration was the power of managers to allocate Internet facilities selectively on the contestable explanation that clinicians might misuse the Internet if they were given access. It was also contestable that the hospital could not have proficient bandwidth and service reliability; perhaps managers had an interest in the perception that technological problems could not be solved.

When scarce resource allocations are unduly influenced by power, then system users become underprivileged and their rights subdued (Berman & Tettey, 2001; Asante & Zwi, 2009; Shirazi, 2013). In sub-Saharan Africa, such as the context of this case, clinicians' requests for technology were twisted and colonised by power management to mirror the traditional rigid structures of African autocratic society (*see* Peterson, 1998; Berman & Tettey, 2001). In this case, a specialist physician invokes a 'lack of vision' among managers and technologists as the reason for the frustration of e-mail access. Yet, taking these comments further with critical analysis of the reasons for the behaviour of these managers, it was felt that their roles retained importance if e-mail was difficult to supply, and subject to their judgment, rather than if it was easy. For equitable distribution of technology, critical IS researchers would generally expect the adoption and allocation of the hospital's Internet and e-mail systems to be democratised with clearer and more transparent explanations of how and why the technology was distributed to the beneficiaries (*see* Doolin, 2004; Stahl & Brooke, 2008).

The issue of inadequate funding is often given as an explanation of the inequitable distribution of technological resources in sub-Saharan Africa. This explanation has remained debatable among IS researchers. While some cite limited funding as a prime cause of deprived ICT access in developing countries (Lucas, 2008; Qureshi, 2016) others have generally drawn on evidence of direct foreign investments in the poorest countries to support the claim that funding is no longer an important issue for deploying effective ICT systems in developing countries (Avgerou, 2008). Evidence from this study suggests that the managers' plea of insufficient funds was rejected by the clinicians who criticised the decision-making powers for neglecting their (clinicians') ICT needs for advanced medical practices. Instead, a microbiologist noted

that e-mail and Internet was available in offices (i.e. of managers) more readily than it was available in wards.

Sympathising with those whose ICT access is inhibited, and engaging in ICT discourse that seeks to promote effective healthcare technology implementation systems, critical research might be drawn to analyse policy measures that constrain budget allocations for expansive ICT deployment (*see* Thompson, 2004). Still more markedly, such studies critique power structures that fail to prioritise effective healthcare ICT systems for clinicians' usage (Doolin, 2004). In this study, an Outpatient manager stated the apparently rational need to obtain more value out of the provision of e-mail than its cost. To a physician, this rational argument was inadequate and could never be achieved without connecting the ICT to medical users and then allowing them to extemporise and find its value. The systems had to be in the control of "the right people with the right know how, and those with vision, but not just a vision of ICT but also a vision of ICT to advance medicine."

Of course, critiquing alone is not sufficient in IS research undertakings that aim to make practical contribution, but rather it is important to explore the alternative ways of engaging with those who make implementation decisions as well as empowering those who routinely use ICT systems to be involved in systems planning and decision-making (Myers & Klein, 2011). In this regard, as power was acknowledged as a central topic of IS inquiry, clinicians themselves recommended a review of the hospital's Internet server and Internet-based systems procurement in order to address issues of narrow bandwidth and associated issues. Democratically, they called for the co-involvement of managers and clinicians in the design of the hospital's ICT systems as they sought to empower themselves to make technology choices that could add new value to the existing normative decisions of the managers.

Allowing many and conflicting critical perspectives into the complexity of health sector IS implementation processes in Africa would certainly bring transparency, more confidence and more open value principles to complex health sector IS implementation processes and then potentially lessen the power of the dominant frames of IS innovation (Bernardi, Constantinides & Nandhakumar, 2017). Extending such multiple and critical approaches to innovating IS would have enabled Garden City Teaching Hospital to consider, for example, a cost sharing model for consolidating the numerous private Internet providing services into one whole

package for the entire hospital. This could have made the technology economically affordable for users (Palvia & Pancaro, 2010; Choy & Schlagwein, 2016).

We noted from this study that, through multiple perspectives and discourse analysis, critical researchers can directly relate to decision-making powers and can emancipate people whose ICT needs are restricted. This emancipation takes the form of an exposure to the power structures that surround them, a recognition that power informs decisions, and a consequent ability to recognise different interests. By engaging with and reporting findings back to research participants and their organisations, critical researchers can directly contribute to IS adoption, implementation and distribution processes and thus redress the power influences in technology management practices (Doolin, 2004; Lamb & Sawyer, 2005; Avgerou & McGrath, 2007; Stahl & Brooke, 2008). In this, research can respond to the call of Harris (2016) to make ICT research findings accessible to users and to wider audiences for consumption. An approach to participatory critical research therefore remains of promise in IS potentially unlocking each IS project as a power dialogue and even as a power transformation (Cecez-Kecmanovic, 2011a).

## **6 Conclusion and implications**

### **6.1 Contribution**

We have applied critical research perspectives to discuss the power implications of Internet and e-mail resource distribution in a Ghanaian teaching hospital in an attempt to address clinicians' concerns of using Internet services for healthcare practices. Our study confirms that the insights from the combined critical discourse analysis and multiple critical theory perspectives can provide new ways of understanding power implications of technology adoption, distribution and usage in developing countries (Kanungo, 2004). This has advanced IS researchers' proposals for those working in the field of ICT for international development to make their critical research activities more practical (Harris, 2016; Stahl, 2008; Thompson & Walsham, 2010). While clinicians' frustrations about Internet and e-mails usage have dominated this story from the Garden City Hospital, the significance of the study lies in the fact that critical IS researchers do not only provide critiques about users' disenfranchisement but can also engage in useful discussions with them, with the potential to bring improved ICT adoption, distribution and usage for organisational benefits in the African setting. By this, we provide empirical perspectives on Myers and Klein's (2011) theoretical suggestions for IS

researchers to apply the critiquing, emancipation and transformation aspects of critical research in practice.

The study has, therefore, shed more light on critical research application to ICT for development literature by demonstrating that postmodern critics can enter into deeper conversations with organisational actors, revealing their technology usage predicaments and relating back findings to their organisations to allow better ICT adoption and usage in practice. Confirmation of this contribution is evidenced through the managers' acceptance of this critical perspective on healthcare Internet and e-mail adoption, with the following agreement of managers to act upon and share in the suggestions of clinicians as they sought a way to eradicate Internet and e-mail usage frustrations. The managers' commitment to implement the outcomes of the study signals the restoration of power and resistance in IS implementation and distribution in healthcare context (Doolin, 2004; Stahl & Brooke, 2008).

## **6.2 Limitations and Future Research**

While a single case qualitative study is generalised (Lee & Baskerville, 2003) and historical data is utilised (Myers & Klein, 2011) with caution, the nuances of this study are still relevant for contemporary understanding of Internet resource distribution in Africa where current research continues to identify Internet adoption, access and use as a problem (see Kayisire & Wei, 2016). Borena and Negash's (2016, p. 265) affirmation that: "limited Internet access in low-income countries ... hinder the success of information systems" is a recent case that further confirms the contemporary implications of our historically-underpinned data for developing countries. It substantiates the proposition that critical IS research findings have historical significance to create opportunity for improving IT access for less privileged groups in the social setting (Kvasny & Keil, 2006). To paraphrase this from Myers and Klein (2011), using the past critical IS research outcomes to promote access to IT for historically deprived groups represents an unrealised opportunity for improving our contemporary understanding of distributed IT services. In this case, the outcomes are useful for healthcare practitioners who work at hospitals that exhibit features of the Garden City Hospital in developing countries and to whose access to the Internet and email resources are denied.

As reflexive critical researchers, we would be naive to claim that empowering clinicians to transform information and technology management systems would ever be simple, and the

context of this study and its focus on a technology as fundamental as e-mail is important. It is acknowledged that there are tensions in management practices that might have not been exposed in this study, but we agree with the assurance from King and Learmonth (2015) that change will not be impossible if we continue to engage in discourses that challenge the power of managerialist thought in practice in the long run. Power should not be allowed to hide behind 'rational' decisions or technological 'limits.' With that said, and following the postmodern critical perspective in particular (Adler *et al.*, 2007), and other established critical research perspectives more generally, the merits of this study should encourage future researchers to approach developing countries' IS studies with confidence and reflexivity as the contexts would allow. Our combined critical discourse analysis and multiple critical theory perspectives may provide this assurance.

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## **Appendix 1 - Interview and Focus Group Protocols**

### **(A) Semi-structured questions for the clinicians**

1. Of what importance are the features of the internet-based learning technology such as emails, e-portfolios and e-discussion boards to the clinician and manager teams' collaboration? Please explain with specific examples
2. How user-friendly are the hospital's learning technology for extracting and sharing staff knowledge? Could you give specific examples for the tools, please?
3. Comparing different ICT systems, which of the hospital's learning tools do you consider most effective for supporting communication between clinicians and managers? Please explain why you think so
4. In what ways is staff learning important for quality care delivery? Which learning processes would consider most important here
5. What are your motivations for taking CPD courses or job-related training? Anything else
6. With reference to specific examples, how effective do you find the ways CPD/training programmes are delivered?
7. What specific training courses does the hospital provide for the clinicians? What are the objectives of these courses?
8. What specific roles do clinicians play in setting the hospital's ICT-supported learning goals?
9. How might the clinical professionals' role in ICT planning differ from the managers' decisions on technology uptake for the hospital?
10. What specific technology or ICT packages have the hospital deployed to support clinical learning processes? What factors were considered for their implementation?
11. What important factors were not foreseen or overlooked when planning for the hospital's ICT-supported learning? Please explain the impact these have had on effective learning
12. What have been the main staff issues with technology adoption for learning in the hospital? How could these have been resolved?
13. How sustainable are the hospital's ICT-supported learning processes? How do they support varied healthcare needs?
14. What are the key criteria for measuring the quality of learning processes of the hospital? How open are these?
15. What are the main issues with the application of professional self-regulation standards for evaluating the Ghana Health Services staff learning? How could these be issues?

**(B) Semi-structured questions for the healthcare managers**

1. Of what importance are the features of the internet-based learning technology such as e-mails, e-portfolios and e-discussion boards to the clinician and manager teams' collaboration? Please explain with specific examples
2. How user-friendly are the hospital's learning technology for extracting and sharing staff knowledge? Could you give specific examples for the tools, please?
3. Comparing different ICT systems, which of the hospital's learning tools do you consider most effective for supporting communication between clinicians and managers? Please explain why you think so.
4. What are the current healthcare quality plans of the hospital?
5. In what ways is staff learning important for quality care delivery? Which learning processes would consider most important here
6. What specific learning tools do managers use to manage the Ghana Health Services learning for National Standards? How are these designed?
7. What specific training courses does the hospital provide for the clinicians? What are the objectives of these?
8. What specific roles do clinicians play in setting the hospital's ICT-supported learning goals?
9. How might the clinical professionals' role in ICT planning differ from the managers' decisions on technology uptake for the hospital?
10. How important is planning for ICT-supported learning to the hospital's aim of achieving improved healthcare provision?
11. What have been the main staff issues with technology adoption for learning in the hospital? How could these have been resolved?
12. What potential confidentiality issues are associated with the hospital's learning technologies? How are these been tackled?
13. What specific benefits, in your opinion, has the ICT-supported learning brought to the hospital? How important are these for quality healthcare provision? How do you know this?
14. How sustainable are the hospital's ICT-supported learning processes? How do they support varied healthcare needs?

15. How beneficial could widening participation (including clinicians) in planning and evaluation of the hospital's ICT learning systems be for effective learning? Why do you think so?

**(C) Semi-structured questions for the focus group discussions**

1. Which learning tools including ICT systems are more suitable for capturing and sharing tacit knowledge in hospital?
2. Of what importance are these tools to collaborative learning between managers and clinician staff including decision making?
3. In what specific ways could the hospital clinicians and managers' team collaboration impact on patient care?
4. What specific factors are necessary for consideration when planning learning systems for quality healthcare in the hospital?
5. What specific issues may change these factors in the course of planning and implementation?
6. How realistically can the hospital account for these issues when the learning systems are being implemented?
7. How do the hospital design and implement learning programmes capable to address patient care issues?
8. Which group of people are involved and what specific roles do they play from planning stages to implementation and evaluation stages?
9. To what extent can the clinicians be involved in planning and evaluating ICT-supported learning systems in the hospital?
10. How could the clinician involvement improve continuous staff learning processes and the quality of patient care?
11. How could the hospital empower clinicians to be more involved in ICT deployment decisions and deploy tailorable technology for improved learning processes?