Are Concerns and Needs of Parents Addressed? An Analysis of Cerebral Palsy Agencies Websites in Australia

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Abstract

Quality and reliability of online health related information are some of the challenges faced by online health information seekers. This study proposes the consideration of criteria in meeting clients' needs when evaluating health websites. An investigation of website content of cerebral palsy agencies in Australia was conducted to determine whether the content presented meets the needs of parents' concerns identified in the cerebral palsy literature. The results show that these websites do provide sufficient quality information to help parents of children with cerebral palsy. Outcome of this research informs website designers on the importance of deploying information that aids information seekers to gain knowledge and help in decision making. This paper highlights the importance of health websites functioning as knowledge brokers and success of the website is therefore contextually dependent on meeting users’ needs. It is proposed to include the role of a content analyst in the content management team to act as a key partner liaising with a content expert and the content management team to ensure effective content deployment.

1. Introduction

Much research has been conducted in evaluating quality of health websites [1-14]. Various evaluation tools, criteria and guidelines have been developed to assist users in determining the website quality [1-2, 4-5, 12, 15-16]. Users are also becoming aware of the importance of ensuring information obtained from health websites is accurate, unbiased and reliable. Koo et al. [17] have shown that to attract users to the websites, it is important to design websites that promote knowledge confirmation, that is a knowledge outcome gained by users after assessing the information [17]. This is consistent with views presented by Anderson et al. [12] that the quality of website must be assessed in the context of a relationship between website content and its usefulness for the intended audience. The 5Cs (credibility, currency, content, construction and clarity) evaluation framework proposed by Roberts [5] is representative of diverse evaluation criteria reported in the literature. The aim of this paper is to propose the inclusion of an additional C (clients’ needs) to the 5Cs framework and to evaluate the proposed 6Cs framework by conducting an analysis of websites on cerebral palsy (CP) agency in Australia in relation to its intended users, i.e. parents and carers of children with CP. The Australian Bureau of Statistics defined a carer is "a person of any age who provides any informal assistance, in terms of help or supervision, to persons with disability or long-term conditions" [18]. In this paper, carers will refer to people who provide assistance to children with CP [18-19].

CP can be broadly defined as a neuro-developmental condition that occurs in early childhood. It is a non-progressive condition characterized by impairment of movement and posture caused by damage to the brain in a baby. Caring for children with CP affects all facets of parents’ lives. Responsibilities and challenges for care of a child with CP vary as a child grows [20-21]. For example the impact on issues affecting parents may be more pronounced soon after diagnosis and transition periods such as the beginning of primary and high schools [20]. In addition, lack of information when the child is diagnosed with CP, fragmentation of services and limited choices are also identified as problems faced by parents and carers [22]. In recent years, web-based information sources have become the new medium for information and knowledge dissemination in the CP sector [23].

The rest of the paper is organized as follows. Section 2 presents literature on assessing quality issues of health websites. Section 3 discusses what CP is. The needs of parents and carers of children with CP will also be presented. Section 4 explains the need of this study and section 5 presents research design. Section 6 presents analysis and findings and section 7 analyses findings from this research. Section 8 discusses implications of this research and
limitations of the study. The conclusion is presented in section 9.

2. Quality of health website

Ubiquitous access to the Internet has changed the way health information is being delivered. Web search has become the starting point when medical and health information is sought by patients and consumers [24-26]. Online health information has the benefits of widespread access, interactivity, tailoring of information, facilitating interpersonal interaction, social support, anonymity and a wide range of information sources [26-27]. In a recent survey conducted by the Health on the Net Foundation (HON), it was found that in 79% of the cases a web search was used to clarify medical information such as searching for disease description [28]. The same survey results also show general search engine use for health topics has increased from 86% in 2005 to 94% in 2010. Results from surveys conducted by the Pew Internet also show similar trends [24]. In addition to information seeking, there is an increasing use of social media to share experiences about health and medical issues [24-26]. Examples of social networking sites that connect patients, families and carers include My Child Without Limits [29], Ask UCP [30], PatientsLikeMe [31] and Livewire [32]. My Child Without Limits and Ask UCP connect families, friends and carers of people with CP [29-30]. PatientsLikeMe is an online community space to enable patients to share their personal health experience with other patients with similar conditions to gain social support and for patients to share and learn more about outcome-based health research [31] and Livewire is an Australian-based online community that enable young patients with serious illness, chronic condition or disability and their families to connect and share experiences and to support each other [32].

The quality and reliability of online health-related information are some of the challenges faced by online health information seekers. Government sponsored health websites such as MedlinePlus [33] and HealthInsite [16] provide guidelines to help users to determine quality of information presented. For example the Australian HealthInsite website recommends users to ask questions such as why was the website created; who is responsible for the information; is the subject coverage complete and in-depth; is the information up-to-date and how easy is the site to use? Much research has been conducted to evaluate quality of health information in different health disciplines [1-14]. Health websites evaluation tools such as HONCode [15] and the LIDA instrument [34] have been developed to evaluate the quality of health websites. Literature on formalizing website evaluation criteria has also been reported [2-5, 35].

Generally quality of health websites can be evaluated based on the criteria of accuracy, completeness, currency, credibility, ease of use and accessibility. The 5Cs (credibility, currency, content, construction and clarity) evaluation framework proposed by Roberts [5] is representative of the diverse evaluation criteria reported in the literature. According to Roberts [5] the notion of credibility aims to identify credential and authorship of information presented to determine its reliability; the concept of currency aims to ensure information on the website is up to date; the sense of content examines the websites for completeness and accuracy; the term construction refers to the way a website is built to enable users to take in information such as layout and ease of navigation; the aspect of clarity aims to evaluate whether levels of writing, languages and format used are appropriate to the target group.

In addition to ensuring information presented at the websites is accurate, reliable, current and complete, it is also important to consider whether details presented meets the needs of information seekers for decision making purposes. This includes understanding what types of information users are searching [13]. For example information that patients sought may be different from information researched by carers. Meeting the needs of users and ensuring the website provides quality and relevant information are important criteria that should be included when evaluating health websites.

From the data quality perspective, the extent to which data are applicable to the task has been viewed as an important quality dimension [36]. In the case of health information seeking, information retrieved must be relevant. The goal is to add value to information seekers in a process described by Koo et al. [17] as knowledge confirmation, that is a knowledge outcome gained by users after assessing the information. Koo et al. [17] also show that to attract users to the websites, it is important to design websites that promote knowledge confirmation. This view is consistent with that presented by Anderson et al. [12] that quality of website must be assessed in the context of the relationship between website content and its usefulness to the intended audience.

Very often the criterion of meeting the needs of users is not a separate factor to be evaluated. On the other hand it is often being referenced as part of other commonly used criteria. For example Kim et al. [3] use the criteria intended audience and Tao et al. [4] use relevancy of information to determine if the information meets the needs of users. In determining website success Schaupp et al. [37] conclude that the website must provide not only information that is useful; the website also needs to provide sufficient information to accomplish the
task. Thus this research proposes to include an additional C (clients’ needs) to the 5Cs evaluation framework developed by Roberts [5]. By examining contextual aspects of the websites the aim is to examine whether information presented in the websites meets the needs of information seekers.

3. Cerebral palsy

CP is a clinical syndrome characterized by movement disorders. It is a permanent physical disability caused by damage to the brain in a baby or infant. It is the most common childhood disability with prevalence of 2.0 to 2.5 incidence per 1,000 live births [38-39]. The aetiology of CP is not well understood; the causes can be pre-term birth with low birth weight, pre-conception or early-pregnancy factors, deprivation of oxygen during labour and delivery, or post-natal acquired brain injury. In most cases, the cause is unknown and there is no known cure. The most common type of CP is spastic CP, affecting 70–80% of people with CP [38]. Other types of CP include dyskinetic CP, affecting 10–20% of people with CP and it is characterized by uncontrolled muscle movement, whereas ataxic CP is characterized by shaky movement. The severity of this disability associated with CP is highly variable, depending on which limbs are affected and the type of impairment. Abnormal muscle control or spasticity (increased muscle tone) is the most common impairment. Spasticity can affect one side of the body, the lower limbs only or all four limbs. Areas of the body affected by spasticity manifest in increased deep tendon reflexes, tremors, weakness and a characteristic gait with toe walking [40-41]. Often there are other impairments associated with CP such as epilepsy, speech, visual, hearing and intellectual disabilities. The needs and demands for people with CP are complex and multi-dimensional with needs for services and assistance, experienced and expressed differently, by individuals with CP [19].

The number of people with CP is projected to increase as the population grows. The United Cerebral Palsy Foundation estimates that there are 764,000 people in the United States living with CP [42] and about 8,000 to 16,000 new cases each year [43]. Incidences of CP has been increasing over the last two decades due to increased survival of low-birth-weight infants and increased longevity of adults with CP [43]. In Australia the number of people with CP is estimated to grow to around 47,601 by 2050 from 33,789 in 2007 [38]. According to the projection by Access Economics, the economic cost of CP in Australia was estimated to be $1.47 billion [38]. Internationally, it has been shown that economic implications are higher for young children with CP, as the largest component was social care costs during childhood [44-47]. Therefore, the demand for adequate health service delivery to people with CP, in particular for children with CP, is expected to increase. Functional abilities of individual children with CP vary from person to person; the more severe the condition, the more severe are active limitations and participation restrictions such as education and social relations.

Caring for a child with CP affects all facets of parents’ lives. These include physical, social and family well-beings, freedom, independence, and financial stability. King et al. [48] describe the importance of recognizing family in the child’s therapy with family-centered services being planned to improve better parental well-being. Families can be supported by providing practical assistance for information and networking opportunities. Services designed to meet the needs of parents of newly diagnosed children with CP and at key transition periods can reduce long-term impacts on parental quality of life.

Responsibilities and challenges for the care of a child with CP vary as a child grows and the needs of parents will also change [20-21]. Parents’ concerns are more pronounced soon after diagnosis and transition periods such as beginning of primary and secondary schools and supporting the child to adulthood for independent living. Piggot et al. [49] identified two distinctive time-based phases known as coming to grips and striving to maximize to describe parents’ journey of adjustment and their experience. Coming to grips is the initial phase of parents facing the facts that their child is diagnosed with CP. They are overwhelmed with the situation of unreadiness, unpreparedness, coping with severity of the impairment and facing the unpredictability of their child’s prognosis. Finding out the diagnosis rarely gives parents a clear indication of what their needs would be and not knowing what they were dealing with makes it more difficult to come to terms with the diagnosis [49]. The striving to maximize phase begins when parents are motivated in believing that their child is making progress. They are happy and satisfied with what they are doing is making a difference to their child’s development. During this phase parents are also developing an increased level of understanding of their child’s diagnosis and are becoming more involved in the therapy context [49].

Lack of information when the child is diagnosed with CP, fragmentation of services and limited choices have been identified as problems faced by parents [22]. Parents want improved access to funding, support and services [50]. Results from [19] show that things that parents view as important include money and funding (to purchase equipment, for transport-related costs, home modifications), freedom of choice (to decide for discretionary spending for personal care, respite and medical expenses), therapy and other services (to enable improvements in consistency of therapy and to access high quality, high frequency therapy sessions), supply and repair of equipment (to have
access to coordinated, timely and effective physical equipment) and physical environment. Research has shown that there are communication concerns experienced by parents and medical professionals such as issues of early follow up and sharing of information between family doctor, rehabilitation specialist and allied health professionals (such as physiotherapists and occupational therapists) [51–52]. Dagenais et al. [53] suggest development of a portal to improve information delivery to assist parents and carers. Their study has shown that parents want more information when their child is diagnosed with CP and when the diagnosis is conveyed by the health professionals to the parents. Efforts should be made to provide information and referral to parent support groups to ensure parents are not alone and this will enable a better familial adaptation to the child diagnosis [53]. In a study to investigate stress experienced by parents of children with CP, it is found that parents’ well being can be affected by behavioral aspects of the child [54]. Thus it is important to provide support to the family as a whole and to manage physical and psychological functions of both parent and child [54-55]. Family adaptation of the child with CP can be improved by providing various coping resources [56]. A need to develop easily accessible, clear and authoritative resource for parents is important to help parents for informed decision making [57].

4. Need for the study

Health-related websites have become the starting point when health information is sought. It is therefore not surprising for parents of children with CP to use online websites to seek information and answers to their child’s diagnosis. Undoubtedly quality is an important criterion when searching online health information on the Web. However it is also important that information presented on the websites supports the needs of parents and carers. It is vital that information presented enables and helps parents and carers to achieve the tasks of caring for their child to aid in decision making and to gain knowledge.

The purpose of this research is to analyze the website content of CP agency services in Australia. The CP agencies are State and Territory non-profit associations which represent the interests of people with CP and their families. They receive some, but not all, funding from government to provide a range of services such as accommodation, respite, day options, school support, community development, employment support, aids and equipment, outreach, therapy and other ancillary services including referrals, health care, information, research training and transport [19]. The aim of this paper is to conduct an analysis of website content to investigate whether the content presented meets the needs of parents’ concern identified in the literature. The object is to inform website designers on the importance of meeting the needs of the clients; in this case the needs of parents and carers of children with CP.

5. Research design

This study analyses the content of the websites of five CP agencies in Australia. Only agencies that specifically stated that their mission is based on supporting children and adults with CP are included in the study. Other agencies which provide supports for patients with CP as well as other disabilities such as autism are excluded. There are six agencies which meet the above criteria, however the website of one of the agencies was not accessible during the period of investigation and was not included in the analysis. Appendix 1 shows websites of five CP agencies included in this study.

6. Analysis and findings

Characteristics examined were based on the 6Cs framework (credibility, currency, content, construction, clarity and clients’ needs) proposed in Section 2. The analysis was conducted during the period 7th to 11th May 2012. All sites were examined during this period. The content of the website was evaluated by the author by directly researching, viewing and collecting lists of content presented on home pages including link names, textual content and content depicted in graphic images.

The credibility criterion aims to identify credential and authorship of information presented to determine its reliability. Questions asked include who has created the websites and whether they have the knowledge and expertise in the domain. This criterion is evaluated by examining the About Us feature of the websites. Information examined includes governance structure, legal status, history, mission and vision, strategic plan, annual reports and contact information (email, physical address and telephone number). All five CP agencies in this study included the above information either in the home page or the About Us page indicating their legal status as non-profit CP agencies that provide support and services to people with CP.

The currency criterion aims to ensure information on the website is up to date. This is evaluated by examining the content of the websites to determine if it contains latest news on CP such as recent research and news updates. In May 2012, the Australian government has committed to support the first stage of National Disability Insurance Scheme (NDIS) which aimed at providing services for people with permanent disability [58]. Of the five websites in the study, only three websites have information on NDIS or provide links to NDIS. However all websites have
links to latest news such as upcoming events and newsletters. All websites have a copyright date. However the date of updates of websites cannot be identified.

The content criterion examines the websites for completeness and accuracy. The CP agencies are non-profit organizations that focus on promoting and supporting the rights, interests, welfare and social inclusion for people with CP [59]. Thus the content is examined by identifying information on services provided to people with CP. All websites have information on what CP is such as causes, types and characteristics. The range of services identified from the websites is consistent across the five agencies. Four websites provide links to research and scientific publications and three websites provide funding information on Better Start program, which is the Australian Government’s initiative for children under the age of six to have access to early intervention funding of up to $12,000. All websites provide information on equipment and allied health services available for people with CP which include physiotherapy, occupational therapy, psychology, speech pathology and other related health services. Four websites provide resources to support parents and siblings and one website has a page dedicated for fathers and another has a page dedicated to teenagers. Three websites provide school information and transition to primary and high school information packages. Two websites provide specific information relevant to adults and children with CP. Information for adults with CP includes respite accommodation, community services and employment services. All websites provide social media links such as Facebook, Twitter, LinkedIn and YouTube. All websites have links on the home page for donations and three websites have links to stories on people with CP. Table 1 shows a summary of content available for each website.

### Table 1. Summary of content

<table>
<thead>
<tr>
<th>Agency</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td>X</td>
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<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<td>3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>4</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td>X</td>
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<tr>
<td>5</td>
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<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Legend**
- A: About CP
- B: Research publications/link to scientific publications
- C: Funding information
- D: Allied health services and equipment
- E: Resources to support family( parents and siblings)
- F: Specific information for school/transition to school
- G: Specific information for children and adult
- H: Social media

The construction criterion refers to the way a website is built to enable users to take in information such as layout and ease of navigation. The following three questions were asked: (i) Is the website design clear? (ii) Is the website design consistent? (iii) Is the website easy to navigate? In addition, the LIDA instrument [34] was used to assess the accessibility criteria and the result is shown in Table 2. Of the five websites, three websites were identified to be developed by external content management companies. The interface across different pages in individual website was consistent and found to be easy to navigate. All websites have a search engine tool.

### Table 2. The LIDA accessibility score

<table>
<thead>
<tr>
<th>Agency</th>
<th>The LIDA accessibility score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>83%</td>
</tr>
<tr>
<td>2</td>
<td>91%</td>
</tr>
<tr>
<td>3</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>61%</td>
</tr>
<tr>
<td>5</td>
<td>89%</td>
</tr>
</tbody>
</table>

The clarity criterion aims to evaluate whether levels of writing, languages and format used are appropriate to the target group. In this study, clarity is measured by readability score measured using Flesch-Kincaid reading ease and Flesh-Kincaid grade level methods [60-61]. The Flesch-Kincaid reading ease method measures the number of syllables per word and the average word length of sentences; the Flesh-Kincaid grade level score reflects the U.S. grade level. An online tool [62] has been used to compute the readability score of the web page that provides information on what is CP. The web page on CP information (such as What is CP, About CP) is used to measure the readability score. Table 3 shows the scores. Only one website provides a glossary of terms explaining related CP terminologies used by medical professionals.

### Table 3. Summary of Flesch-Kincaid Reading Ease and Flesh-Kincaid Grade Level

<table>
<thead>
<tr>
<th>Agency</th>
<th>Flesch-Kincaid Reading Ease</th>
<th>Flesch-Kincaid Grade Level</th>
<th>Reading Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45</td>
<td>11</td>
<td>Difficult to read</td>
</tr>
<tr>
<td>2</td>
<td>45</td>
<td>9</td>
<td>Difficult to read</td>
</tr>
<tr>
<td>3</td>
<td>55</td>
<td>10</td>
<td>Difficult to read</td>
</tr>
<tr>
<td>4</td>
<td>46</td>
<td>14</td>
<td>Difficult to read</td>
</tr>
<tr>
<td>5</td>
<td>45</td>
<td>11</td>
<td>Difficult to read</td>
</tr>
</tbody>
</table>

The last criterion, clients’ needs, is evaluated by examining the content provided in the websites with parents’ needs identified in the literature: funding information, parental support (such as networking and respite services), therapy services, technology...
and equipment and transition information. Analysis on the website content shows that all websites present information related to services provided to people with CP. Information on services includes accessing allied health therapy services provided by the agencies as well as support provided to families and schools such as transport services. All websites also provide information on standard of care, code of conduct, code of ethics and privacy issues for users. Two websites provide links to stories, blogs and videos on real-life stories of CP patients on their home page. In addition, three websites provide link to The CP Helpline which is a community service to provide confidential information and support service for anyone who has questions or concerns about CP [63]. This evaluation is conducted by one researcher only. On this basis inter-rater reliability is not computed for this study.

7. Discussions

In a report that investigates therapy and equipment needs of people with CP in Australia, it is shown that the majority of CP agency services users are young users under the age of 20 [19]. Physical disability was identified as the most commonly recorded primary disability and they required help in self-care, mobility and communication. In the same report the top three aspects identified by parents that would most change their lives include (i) money and funding, (ii) choice, (iii) therapy and equipment. Parents want money to buy equipment, for home modifications and access specialist therapists and to have greater independence and choice. Parents also want options to decide the most suitable equipment to use and autonomy to decide what is needed rather than being prescribed. Parents want consistency of therapy, integrated services and service closer to home. In terms of equipment, parents want the timely provision of equipment and the capacity to get equipment that can help in everyday life. Analysis conducted in this study has shown that the CP agency services do provide information for parents on a range of services provided by the agencies and how to gain access to these services including contact details.

The information provided at the CP agencies websites can be useful when parents are facing the coming to grips phase [49]. All CP agency websites investigated in this study provide basic facts and information on what CP is and the majority of the agencies provide separate information related to children patients and support resources for families. All agencies use social media tools to connect families and patients with CP. Blogs, stories and videos are available on the agencies websites to feature real-life people with CP from diverse background to talk about issues affecting them and to share their stories that give hope to family and people with CP.

Cummins [23] explains that the World Wide Web can connect families of children with CP to reduce isolation and to act as a knowledge broker for families and patients with CP. The role of CP agencies as knowledge brokers recognizes the importance of family-centered care frameworks that aim to ensure parents have the ultimate control over decision making and providing parents with needed information [48]. Analysis conducted in this study does show that the CP agencies in Australia do provide sufficient information to help parents in obtaining information relating to therapy options, equipment-related services, supports and network opportunities. However not all CP agencies websites provide information on money and funding which is the main concern raised by parents as reported in the literature [50].

The availability of links to research publications responds to the importance for parents to keep up to date with latest research development in the area of CP. In a study conducted by McIntyre et al. [64], patients and carers of CP view prevention and cure as their highest priority for CP research. They also identify quality of life and community participation, as well as service provision and intervention as significant. Parents want to be educated to understand effectiveness of individual interventions, including alternative therapies and physiotherapy. It can be conjectured that by having links to research publications, the CP agencies provide the function of knowledge brokerage to assist parents in learning recent development in CP research and to enable parents to gain insight into evidence-based practice in the treatment of CP.

The Flesh-Kincaid reading score reported in the analysis indicates a difficult to read level in the section related to facts about CP. Information and facts about CP contain medical terminology such as spasticity, ataxia, diplegia, dyskinesia. Thus, it is not surprising that results show Flesh-Kincaid reading score that ranges from 45 to 46 and Flesh-Kincaid grade levels between 9 and 14. However to help parents that are experiencing the coming to grips phase and searching for information in the early stage when their child is diagnosed with CP, it is desirable to improve the presentation of information about CP to make it more accessible, readable and understandable. Parents want direct and clear information in a manner that is delivered honestly, with warmth and sympathy [65]. Therefore, if information can be provided at a more appropriate level ensuring greater comprehension by parents when they are at the initial phase of coming to grips, it will help to reduce parents’ anxiety and stress levels.

8. Implications and limitation
Health website development has evolved over the past decades, from early emphasis on quality of health information to a more recent emphasis of knowledge brokerage function [17, 23]. This research proposes a contextual dimension of meeting clients’ needs when evaluating health websites. Success of website is context dependent. Quality of information provided on the website is essential to users for accomplishing their tasks. Individual users who seek online information have different needs. The needs of patients who seek information for themselves will be different from users who seek information for their families or friends. They may be seeking treatment information for decision making or searching for someone else’s experience about a particular health condition for support and reassurance. Thus effectiveness and success of a website involves meeting the objective of users’ needs and allows them to leave the website with a sense and feeling of accomplishment and satisfaction [37].

Meeting user requirements is an important criterion in information system development. It is not surprising that meeting clients’ needs should also be an important consideration in website development. The role of web-based information should not be constrained as information dissemination platforms only. Web-based portal, acting as a knowledge broker to enable knowledge transfer [23, 66], is achievable provided that the web content satisfies the needs of the intended users. This consideration should be included when designing health websites. Due to diverse needs of users and to ensure credibility, accuracy and timely content, information presented on website should be evidence-based [67].

Among the three phases of Tucker’s web content management life cycle [68], the content creation and acquisition phase determines quality of content and it is recommended that the content should come from subject matter experts. It is also important that the context of listed content be presented to meet the needs of intended users. Thus it is a challenge for health website designers not only to ensure the content is of high quality but is also able to provide information that meets the needs of diverse visitors to the websites. This research proposes the inclusion of a content analyst in the content management team to ensure effective content deployment and presentation.

This research has its limitations as only a specific health domain (CP that meets the needs of parents and carers) has been investigated based on websites with a regional focus; that is Australian. Further research should be conducted to validate the importance of contextual dimension that meets clients’ needs by analyzing a more diverse health website.

9. Conclusions

This paper proposes a 6Cs evaluation framework to evaluate health websites. The framework is an extension of Roberts’ 5Cs evaluation framework [45] with an additional factor which evaluates the content in terms of contextual dimension to ensure meeting the needs of intended users or clients of the websites. Website content of five CP agency services in Australia has been investigated to determine if the content presented meets the needs of parents’ concerns identified in the CP literature. Findings of investigation show that the websites of CP agencies in Australia do provide sufficient information to help parents in obtaining information relating to therapy and equipment options.

Results from this study can be used to inform website designers on the importance of meeting the needs of the clients, to ensure users and information seekers of websites gain knowledge to aid in decision making. This paper highlights the importance of health websites functioning as knowledge brokers and the success of the contextually website is therefore dependent by meeting the needs of users. This research proposes the inclusion of a content analyst in the content management team to act as a key partner, liaising with a content expert and the content management team to ensure effective content deployment.

10. References


[28] N. Pletneva, S. Cruchet, and M.-A. Simonet, Results of the 10th HON Survey on Health and Medical Internet Use (July - August 2010), 2011.


Appendix 1

<table>
<thead>
<tr>
<th>Agency</th>
<th>CP agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cerebral Palsy Australia [<a href="http://www.cpaustralia.com.au/">http://www.cpaustralia.com.au/</a>]</td>
</tr>
<tr>
<td>2</td>
<td>Cerebral Palsy League of Queensland [<a href="http://www.cplqld.org.au/">http://www.cplqld.org.au/</a>]</td>
</tr>
<tr>
<td>3</td>
<td>Cerebral Palsy Tasmania [<a href="http://www.cptas.org.au/">http://www.cptas.org.au/</a>]</td>
</tr>
<tr>
<td>4</td>
<td>The Centre For Cerebral Palsy [<a href="http://www.tccp.com.au/">http://www.tccp.com.au/</a>]</td>
</tr>
<tr>
<td>5</td>
<td>Cerebral Palsy Alliance [<a href="http://www.cerebralpalsy.org.au/">http://www.cerebralpalsy.org.au/</a>]</td>
</tr>
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</table>