Social Network Services for Families Having Children with Learning Disabilities

M.Synthiya[1]T.Niranjani[2]

[1] PG Student (CSE), Aarupadai Veedu Institute of Technology
[2]Assistant Professor (CSE), Aarupadai Veedu Institute of Technology

Abstract:
As Internet technologies evolve, their applications have changed various aspects of human life. Here, we attempt to examine their potential impact on services for families with developmentally delayed children. Our research is thus designed to utilize wireless mobile communication technologies, location services, and search technology in an effort to match families of specific needs with potential care providers. Based on the investigation conducted by our counsellors, this paper describes a platform for smooth communication between professional communities and families with children with learning disabilities (CLD). This research also looks into the impact of management of mobile social network services and training on the operation of these services. Interaction opportunities, care, and support to families with CLD are introduced.

Keywords —CLD (Child with Learning Disability), AHFSWF (Angel Heart Family Social Welfare Foundation), SNSM (Social Network Service Management), HTTP (Hypertext Transfer Protocol), AAA (Authentication, Authorization, And Accounting)

Introduction

The Internet is a bridge for people around the world to connect and gain access to huge informational resources and services. Until now, the rapid development of the Internet has influenced cultural continuity and social evolution, which is rooted partly in lifestyle changes. Website design has shifted from static Web pages, which always comprise the same information, irrespective of users, to dynamic Web pages Digital Object Identifier 10.1109/TITB.2011.2155663 emphasize interaction, sharing, and participation of all users, the characteristics of so-called Web 2.0 [1]. People provide each other with advice, collaboratively filter interesting information, and create virtual society over the Internet; this society is grouped by socially constructed relationships [2]. In this research, a foundation, university, hospital, and families with children with learning disabilities (CLD) created an online social network to share important information about services such as childcare. Moreover, applications of various network services are developed, thanks to universal internet access, mass production of devices supported 3G, wireless networks [3], or future WiMAX [4]. With the help of the proposed social network service platform, parents with CLD can match up with appropriate volunteers, volunteers can better understand the profiles of different CLD, and all users can exchange information. With our administrator management platform, an administrator is able to manage and authorize users of different groups. This paper establishes a system of supportive social networks. Based on many years of experience, volunteers have realized that "children have hope for their future only if their parents speak out first!" and Matson recommended that parents be involved in treatment implementation [5]. Hence, to focus on the parents of CLD while educating parents on how to operate this system, this system includes two major services. First, it provides requested services according to a location-based service module and a matching module. Second, all social network groups are able to use this system to increase communication and interaction with each other for the purpose of facilitating social support. The system was also built for access and control directly on system devices by conforming to the characteristics of Web 2.0. Moreover, we evaluated the using the services. In 2007 and at the beginning of 2009, we conducted surveys during routine lectures given by the Angel Heart Family Social Welfare Foundation (AHFSWF). The surveys focused on the overall satisfaction of the proposed system, and in the second survey, the effects of training were also taken into account. Comparison of the results revealed that the overall satisfaction rose 19.18% from 3.58 to 4.26 on a scale of 1 to 5. This is largely due to the fact that the parents and volunteers graded their "overall satisfaction with the training" with a high score
of 4.32 out of 5.0.

I.   Background
A. Service Needs of Families with CLD
The Ministry of Education in Taiwan similarly defined CLD as "a child under the age of six and suffering from indeterminable developmental disabilities in perception, recognition, action, language, communication, social emotion, mentality, or independence due to physical, psychological, or social environmental reasons." In Taiwan, the number of CLD increased from 13 231 to 14 250 from 2003 to 2007 [6]. The proposed system was designed for families with CLD; therefore, we started by trying to understand their needs. The needs of the families with CLD can be divided into five classes [7].

1) *Information***:** Including the skills of education and information for future arrangements.

2) *Professional help***:** Bringing in experts to teach parents how to solve their problems.

3) *Services***:** Helping parents take a break from their children with the help of social services including daycare services, childcare, and medical services. Previous research has shown that parents with children with disabilities more actively employ coping strategies than parents of children without disabilities [8].

4) *Economics***:** Including resources that provide life-long subsidies for medical treatment, transportation, and child-care expenses. However, the welfare budget per person may grow or fluctuate due to factors such as polices, politics, and priorities [9].

5) *Moral support***:** Needing support and understanding from relatives and friends, as well as social acceptance and unbiased viewpoints toward their children.

B. Web Services

Zhdanova grouped people's behavior when entering the Web into three-man levels and six ontology types [10]. The three levels are the user level, community level, and portal level, while the six ontology types are referred to as the user profile, user personalization, community profile, community personalization, portal profile, and portal personalization. Additionally, Peter [11] and Gloor and Zhao [12] proposed that social network analysis in the Semantic Web, which is a Web-based technique, contains three aspects: first, the relationship between community network and its ontology's; second, the application of techniques of traditional Web and mining in semantic collection; and third, an emphasis on possible cases gathered by the techniques of community network and sociology.

In the future, mobile devices may support 3G, wireless networking, and WiMAX simultaneously. The multicast-based multihoming architecture is proposed and implemented to provide seamless streaming media services in the heterogeneous network environment [13]. However, users will not always be in an urban area with well-connected resources. Massey *et al.* adopted network analysis techniques to model complex social healthcare networks and to efficiently enable continuous data collection on lightweight embedded systems [14]. Some wireless personal digital assistant (PDA)-based healthcare management frameworks, such as chronic care and childcare, were proposed [15], [16]. Berners-Lee thought that sharing/uploading and browsing/ downloading is equally important [17]. This behavior could be seen as being produced from people's interaction and cohesion, which also shapes the network applications service of Web 2.0 as follows.

1) *AJAX:* The function of Asynchronous JavaScript and

Extensible Markup Language (XML) (AJAX) is to connect clients and servers, and to obtain new information without refreshing the whole page.

2) *RSS/Atom***:** RSS/Atom is a pattern used in sharing news on the Internet. It conveniently allows data to be presented independently instead of being attached to Web pages.

3) *XAMPP:* LAMP refers to assorted material

environments of common websites, e.g. A means

Apache means MySQL, and P means PHP language.

4) *CSS:* CSS files can define the color, font, and text. The CSS separates the structure and the content of a homepage.

5) *XML:* XML enables designers to define their own tags apart from the original HTML tags, and design their data construction.

C. Architecture of the System and Network

Since this system guarantees the security of location information and it also verifies user credentials, mobile users can ubiquitously access SNSM system through Transmission Control Protocol/Internet Protocol and Hypertext Transfer Protocol (HTTP). The system incorporates the three servers as follows.

1) *Authentication, authorization, and accounting Server:* For the system's security, this platform uses an authentication, authorization, and accounting (AAA) protocol. The AAA protocol functions mainly in response to remote authentication dial-in user service.

2) *Location Server:* The server maintains all user location information and clusters them according to a user's location. When parents need emergency service or timely help, the location server can find the closest volunteer.

3) *Log Server:* All logs should include information on the system, network throughput, and system conditions for network management. The system administrator can check the entire system on this server.

D. System Functions

The front- and backend of the MSNSM system were planned and built according to the system requirements summarized from the interview results. All modules of the MSNSM system are elaborated in the following and shown in Fig. 1.

1) *User login module:* Users must register for the system and are classified as volunteers, CLD, or parents with CLD, according to each user's profile. The user is appropriately assigned to specific groups. User profiles are saved in the database for the convenience of system administrators. For example, when the administrator sends a message to a specific group, he only multicasts the message based on the information saved in the database.

2) *Matching module:* This module is designed to match up volunteers and parents with CLD. Those volunteers are certified by the AHFSWF, who offers qualification checking and training services. Both parents with CLD and volunteers are able to fill out their schedules and choose an ideal match for their circumstances. The administrator can manage the matching and user profiles in this module. Fig. 1 describes the execution of each step of the matching module, including user login, checking of a user's authority, admittance of the social network groups, scheduling, pair matching, and finishing.

3) *Private habit record module:* Volunteers, who assist CLD are able to record any habitual behavior a child demonstrates. When other volunteers are prepared to provide service for the same child, they can understand the habits of this child beforehand from this module. Therefore, volunteers are able to easily care for CLD and attend to their special needs.

4) *Discussion platform:* This platform is displayed in the form of discussion board, which can only be accessed under authorization. This arrangement ensures that a subject of discussion is only raised after the consent of all users authorized by the administrator.

Fig. 1. Matching module.

6) *Account and authority module:* This module allows the administrator to check the authority of users, and to maintain and manage user accounts and groups.

E. Implementation of System Functions

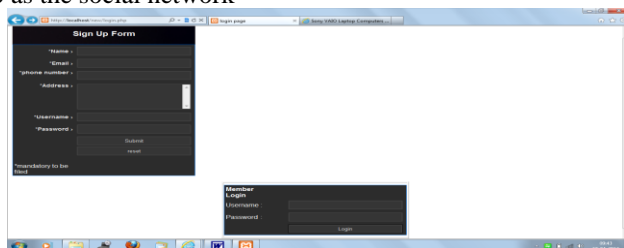The SNSM system was divided into the front- and the Backend. The front end, referred to as the social network

Fig.2. Signup Form.

Service platform, includes user login, matching, private habit record, discussion platform, and location-based service modules. If a family wants to join this activity, they can register right, the user interface for a help request; parents can limit the service time, service place, and qualification of the volunteer. Parents can even request a particular volunteer to supply the service if they know the volunteer's name. Parents can fill in the service satisfaction survey and give feedback about other services through voice recording, The voice recording is a very convenient way for parents, who are not familiar with typewriting, to leave their feedback messages, and these messages are managed by the system operator as references to further improve the treatment skill and attitude of our social services. The administrator can look up the location of all users and check if a volunteer is close to where services are needed. It is important to note that only the administrator has the authority to retrieve users' location information, as we value the privacy and data confidentiality of our users highly. The administrator management platform, i.e., the backend of the system, includes the account and authority module, user interface management module, report module, and logs analysis module. The administrator can look over user authorization and manage accounts using the account and authority module.

F. Conclusion

In this paper, we started building a supportive social network technology such as databases, search technologies, and telecommunication technologies. This research steadily progressed from deep interviews and focus group interviews to requirements interviews and analysis to a system framework and functional design for families with CLD. Based on this research; we implemented a service management system for the social network. The system provided a practical management model to meet the needs of parents with CLD with the timely assistance of volunteers and at the same time was a discussion platform for information exchange among all social network groups. By our careful translation of real-life social issues into the technical organization of virtual communities, we demonstrated that computational technologies have value in every life of families with CLD. We believe that our paper is a precursor to providing mobile social services for disadvantaged minorities around the world, especially for the families with CLD. Further development and improvement on this system would make significant contributions to social work and would benefit the disadvantaged minorities.

References

[1] S.Murugesan, "UnderstandingWeb 2.0," *IT Professional J.*, vol. 9, no. 4, pp. 34–41, 2007.

[2] A. C. Weaver and B. B. Morrison, "Social Networking," *Computer J.*, vol. 41, no. 2, pp. 97–100, 2008.

[3] L.-D. Chou, W. -C. Lai, C. -H. Lin, Y. -C. Lin, and C. -M. Huang, "Seamless handover in WLAN and cellular networks through intelligent agents," *Inf. Sci. Eng. J.*, vol. 23, no. 4, pp. 1087–1101, Jul. 2007.

[4] L.-D. Chou, S. -Y. Cheng, C. -Y. Li, and S. -K. Chen, "Wireless network management system for WiMAX/Wi-Fi mesh networks," *Lecture Notes Comput. Sci.*, vol. 4809, pp. 215–225, Dec. 2007.

[5] J. L. Matson, S. Mahan, and S. V. LoVullo, "Parent training: A review of methods for children with developmental disabilities," *Res. Dev. Disabilities J.*, vol. 30, no. 5, pp. 961–968, Sep./Oct. 2009.

[6] J. -D. Lin, C. -F. Yen, J. -L. Wu, and S. -W. Kang, "The administrative population report on children with developmental delays in Taiwan, 2003 through 2007," *Res. Dev. Disabilities J.*, vol. 30, no. 3, pp. 353–358, Mar./Apr. 2009.

[7] C. Leung, J. Lau, G. Chan, B. Lau, and M. Chui, "Development and validation of a questionnaire to measure the service needs of families with children with developmental disabilities,," *Res. Dev. Disabilities J.*, vol. 31, no. 3, pp. 664–671, May/Jun. 2010.

[8] A. Paster, D. Brandwein, and J.Walsh, "A comparison of coping strategies used by parents of children with disabilities and parents of children without disabilities," *Res. Dev. Disabilities J.*, vol. 30, no. 6, pp. 1337–1342, Nov./Dec. 2009.

[9] J. -D. Lin and L.-P. Lin, "Governmental disability welfare expenditure and national economic growth from 1991 to 2006 in Taiwan,," *Res. Dev. Disabilities J.*, vol. 30, no. 3, pp. 481–485, May/Jun. 2009.

[10] A. V. Zhdanova. (2004, Sep.). The People Portal: Ontology Management on Community Portals. [Online]. Available: http://www.deri.org/

[11] M. Peter, "Social networks and the semantic Web," in *Proc. IEEE/WIC/ACM Int. Conf. Web Intel.*, Sep. 2004, pp. 20–24.

[12] A. P. Gloor and Y. Zhao, "Analyzing actors and their discussion topics by semantic social network analysis," in *Proc. IEEE/WIC/ACM Int. Conf. Inf. Vis.*, Jul. 2006, pp. 130–135.

[13] L.-D. Chou, J. -M. Chen, H. -S. Kao, S. -F. Wu, and W. Lai, "Seamless streaming media for heterogeneous mobile networks," *Mobile Networks Appl.*, vol. 11, no. 6, pp. 873–887, Dec. 2006.

[14] T. Massey, G. Marfia, A. Stoelting, R. Tomasi, M. Spirito, M. Sarrafzadeh, and G. Pau, "Leveraging social system networks in ubiquitous high data rate health systems," *IEEE Trans. J. Inf. Technol. Biomed.*, vol. 15, no. 3, pp. 491–498, 2011.

[15] V. G.Koutkias, I. Chouvarda, A. Triantafyllidis, A. Malousi, G. D. Giaglis, and N. Maglaveras, "A personalized framework for medication treatment management in chronic care," *IEEE Trans. J. Inf. Technol. Biomed,* vol. 14, no. 2, pp. 464–472, Mar. 2010.

[16] Y. -H. Lin, I.-C. Jan, P. C. -I. Ko, Y.-Y. Chen, J.-M.Wong, and G.-J. Jan, "A wireless PDA-based physiological monitoring system for patient transport," *IEEE Trans. J. Inf. Technol. Biomed.*, vol. 8, no. 4, pp. 439–447, Dec. 2004.

[17] TimBerners-Lee. (2010). [Online]. Available: http://www.w3.org/People/ Berners-Lee/