School Counseling Services Information System Optimization in Multi-Level School at Surabaya

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The success criteria of formal education of a student are not only determined by academic ability, but also by attitude, interest, and value that is possessed by the student. Therefore, the School Counseling Services (SCS) becomes more important part of the school, to help students to accept and understand themselves and their environments. The SCS can also drive the students to self-direct and self-adapt to the demands of their environments. By providing a good service, SCS can help students to study and reach better achievement in education, social, and their career related to their interest and their talent. The goal of this research is to develop a software to optimize process of SCS used in multi-level school at Surabaya. Software is developed based on analysis and grand design from previous research. Evaluation of Information System SCS conducted by distributing survey to all three types of users, which are: Classroom Teacher, Counseling Services Teacher, and parents. The evaluation results proves that at least 75% of users agreed that the SCS able to improve teacher performances, improve capability of collaboration, each user understand its each individual roles, and maintain communication between different users. Furthermore, SCS IS could be expanded for more better and optimum service solution. Notification and messaging system between student-parents-teacher could be added to improve integrity of system, and to minimize redundancy. Academic System and other system such as School Medical Facilities should be interconnected to improve better services. Deployment planned to be carried out by executing the old and new systems simultaneously during academic year 2015-2016 in the scope of Kindergarten, Grade 1 and 4 Elementary School. Evaluation will be conducted after one year for further development.

Keywords: School Information System, Counseling Services

1. INTRODUCTION

Children are the assets that essential for future generation of nation. In order to prepare future nation leader, children must be well educated. Education is important aspect that should be maintained and introduced since childhood. Children receive education through schools or families. The successfulness of education is not only determined by the ability to think, but also influenced by other factors, such as attitude and mental maturity. According to Bloom taxonomy indicated that the goals of education can be categorize into three domains: cognitive, affective and psychomotor[1]. Cognitive domain relates to the learner's knowledge and the development of intellectual abilities and skills[1]. The focus of the affective domain is on the learner's interest, attitudes, and values[1]. Psychomotor domain focuses on motor skills and is believed would not be useful[1].

Since the success of children development is not only determined by the cognitive abilities, but also the affective abilities, then the schools in Indonesia provide facilities that support children (student) education which is named: School Counseling Services (SCS). According to the Encyclopedia of Educational

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Psychology, school counseling is a comprehensive program that facilitates students' academic, career, and personal/ social development within the school setting[2, 3]. School counseling can help to advance and enrich the overall goal of education, to enable the individual to lead a balanced and successful life[4]. In Indonesia, the SCS is included in the educational unit level curriculum, as a part of "self development" curriculum[5].

The history of school guidance program started from the late of 1800s[6]. The role of the school counselors became more important as schools move forward into the twenty first century[7, 8]. A recent study states that the proper implementation of the guidance and counseling services in schools can only be effective, if all stakeholders can properly play their roles in the implementation process. A good collaboration and communication is needed[9]. Therefore, the school counselors should work together with students, parents, teachers, administrators, and other members of the community to build a supportive learning environment that nurtures the development of academic, career, and personal/social competence among students[10, 11, 12]. The SCS becomes more trusted by the parents, in a stronger and more respected acceptance of the contribution of the SCS to student's achievement and success in school[13]. For the children of 10-14 year ages, the role of the SCS is very important, because they experience more anxiety than their elementary or high school counterparts[14].

The school counselors together with the academic advisors should monitor the students' development progress. Counseling and problem solving mainly becomes the task of the academic advisors. If the academic advisors could not handle, the problem will be escalated to be solved by the school counselors. To recognize and understand more about the students' development progress, the teachers probably should act as the students' best friends. This closer relationship can help to improve the information depth and the openness of the students to the communication, therefore can help the SCS to detect any problems earlier and easier to solve.

Most of the students' time is at home, therefore any treatment or improvement designed by the SCS to a student won't yield maximum result without the participation of the parents[15]. The cooperation between parents and the SCS is very important to enhance the goal of creating a good environment for the students to reach their best achievements[16]. That cooperation needs good and active communication between two parties, especially to coordinate and unify the strategies of the treatment or improvement to the students.

The communication technologies nowadays including internet, enable people to get information from many resources easily, fast and cheap. The number of Internet users in Indonesia was 63 million in 2012, and will be

167 million in 2015, according to the Indonesia Internet Service Provider Association[17]. The high rate of the Internet technology penetration in Indonesia becomes an important factor to support coordination between counselor, teacher, and the parents to get better counseling services. The Internet technology combined by the development of smart phones / mobile devices may be utilized to establish a fast, easy and cheap communication channel between two parties. The key design challenge is how to make such devices usable and affordable to a heterogeneous set of users[18]. The related researches in this area are for example "Guidance and Counseling Application"[19] and "Guidance and Counseling Management Information System"[20].

2. METHODOLOGY

Research conducted is classified as applied research, for the reason that research offer practical solution in educational institutions[21]. As for methodology used to perform this study is software development life cycle. This method offers structured and formal steps[22]. However, in order to adjust to complex needs of information technology conditions level which required great flexibility and responsiveness then the software development life cycle will be combined with action research approach because researchers will collaborate with practitioners from the world of education, especially from the education institute for early childhood, basic and intermediate in order to produce a work that is beneficial[23, 24]. Collaboration with practitioners from the world-related education will greatly assist researchers in understanding the working practices in the field. The understanding of field work practices is very important to ensure the validity and completeness the needs of educational institutions which is the goal of this study.

Educational institutions that take part as the object of this research is a Al Azhar Kelapa Gading multi-level school, Surabaya. This school comprised of four levels: Azhar Park, kindergarten, elementary school and junior high school.

The research was initiated with the analysis and system design. This has been conducted on previous research and the results have been published. Results of the previous research used as reference for implementation. Implementation created in two versions: mobile and web version. The mobile version is intended for parents that accessible from anywhere, while the web version is more focused on school because it's related to administrative things. Implementation of data was made using MySQL version 5.5 and implementation of the program was conducted by using CodeIgniter PHP framework 2.0.

Once the implementation is completed, following

testing is conducted to ensure that the creating program meets user needs. There are three testing used: unit testing, integration testing, and User Acceptance Testing (UAT). Unit testing conducted individually for each facility (process) that is in each of the modules. Integration testing is done to ensure that process are correct and in accordance with the desired specifications. Unit testing and integration testing performed using black box testing, i.e. by providing input and seeing the output generated. The result of unit testing and integration testing produced some minor errors and corrected afterward to set foundation for UAT preparation. Before UAT is conducted, the school staff trained using SCS IS and parents are informed about this program feature and services. UAT conducted by distributing questionnaires. The questionnaire distributed to all School Guidance and Counseling teacher. Distribution method for parent questionnaire is using simple random sampling.

Once all testing is done, the last phase is deployment. Deployment is done by implement simultaneously both manual and using SCS IS during 1 year period in kindergarten and elementary class. After one year, system will be evaluated for future development.

3. EXPERIMENTAL RESULT

Preliminary Study has been done to analyze and design the SCS Information System. Two surveys were conducted in analyze step. The first survey was aimed to get the description of the current system, the problems that may occur during current system implementation and the expectation of improvement from the internal school institution[25]. The second survey was done by distributing questionnaires to the parents, in order to get the problems related to the SCS from the parents' view, the expectation of improvement and also the pattern of communication preferred by the parents to the SCS institution[25].

Subsequently, the current problem expected to be solved here have been narrowed down to the need of communication media tools. This particular media tools grant the stakeholders (teachers, parents, students, school counselors, administration, and school managements) to communicate, coordinate, collaborate, and synchronize about strategies and goals for treating student and building supportive learning environment that nurtures the development of academic, career, and personal/social competence among students. Furthermore media tools should be able to generate routine report which usually takes time to compose and created by manual approach[25].

After carefully analyze the information taken from two surveys, the improvement and optimization of the current SCS was designed. The design had been

validated to the SCS, teachers and school managements to make sure that the design meets the requirements both for operational and managerial purposes[26]. SCS information system program is made based on the design that has been validated and refined. The program is made in two versions: mobile version and the web version. The mobile version is intended for parents and students that accessible from anywhere, while the web version is more focused on school. Figure 1 shows an example of Student counseling history. Figure 2 shows an example of Daily Record Students' Case, and Figure 3 shows an example of home visit entry.
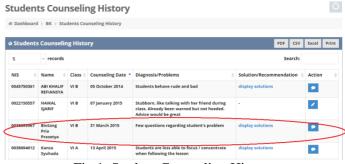

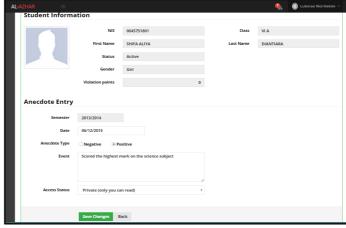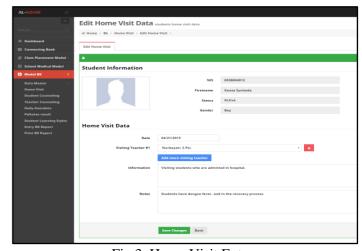Fig.1. Student Counseling History

Fig.2.Daily Student's Case

Fig.3. Home Visit Entry

SCS is planned to be implemented on multi-level school on Surabaya, Indonesia. There are three steps to do to make sure everything working well: testing, socialize, and training. Testing is used to obtain information of the users in terms of the learning gap that fulfill the requirement standard of this application. There are three testing used: unit testing, integration testing, and User Acceptance Testing (UAT).Unit testing conducted individually for each facility (process) that exist in each of the modules. Integration testing is done to ensure that process are correct and in accordance with the desired specifications. The result of unit testing and integration testing produced some minor errors and corrected afterward to set foundation for UAT preparation. Before UAT is conducted, the school staff trained using SCS IS and parents are informed about this program feature and services. UAT is collected by distributing questionnaires to users with distribution scheme as shown in table 1. The questionnaire distributed to all School Guidance and Counseling teacher. Distribution method for parent questionnaire is using simple random sampling.

Around 75% of parents stated that the SCS IS succeed to provide service in term of maintaining communication between School Guidance and Counseling teacher regarding their children social, intellectual, and emotional development. Several suggestions mention that software could be developed with 1) smart notification system to alert parents about important information from the school; 2) monitor their child's academic results; 3) and encourage teacher to be more actively respond the message sent by the parents.

Table.1. Respondents' Profile

TYPE OF RESPONDENT	NUMBER OF QUESTION-NAIRE DISTRIBUTED	NUMBER OF RETURNED QUESTION-NAIRE
Parent	20	4
Classroom Teacher	10	8
Guidance and Counseling Teacher	5	5
Total	**35**	**17**

About 86% teacher agree that SCS IS succeed to provide better services for stakeholder (parents) and help teacher examine student development more clearly and understandably. However several feedbacks received after respondent finished UAT periods. Classroom teachers feel the need for dissemination to parents so they understand the discussion topic and time constraint when using the application.

Eighty-five percent of School Guidance and Counselor teacher agree with the facilities provided by SCS IS, however they hopes that the application could be integrated with the academic system and School Medical Unit. Therefore the academic, physical and health development data is maintained within single integrated system. Additionally, there are some suggestions given by the user, which is for the application could be linked with the SMS gateway so that if new information will automatically provide notification to parents mobile phone.

Once all testing is done, the last phase is deployment. Deployment is done by implement simultaneously both manual and using SCS IS during 1 year period in kindergarten and elementary class. Because the testing phase is completed in the middle of the school year 2015-2016, the deployment will start beginning of the school year 2016-2017. After one year, system will be evaluated for future development.

5. CONCLUSIONS

A good SCS can contribute to the success of achieving educational goals, since the SCS nurtures the development of academic, career, and personal/social competence among students. Proper implementation of the guidance and counseling services in schools can only be effective, if all stakeholders can properly play their roles in the implementation process. A good collaboration and communication is needed among all parties involved. The improvement in this area is done by adopted the electronic communication based on the Internet technology and mobile devices programming. Another optimization applied to the system by utilizing relational database system to record all of the SCS activities and create auto-generated reports based on the database. In order to further optimize the usage of SCS should be added notification facility for parents. Notification facility should be integrated within school system including Academic and also School Medical Unit.

facilities that have been given.

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