ICT (Information and Communications Technology) - based on social and emotional competence assessment

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Abstract. The aim of this research is to develop an ICT-based on social and emotional competencies assessment that is practical and effective. The on line assessment application model that is developed in this study is an online assessment that utilizes information and communication technology with social-emotional assessment applications (Si Emo®). ICT-based assessment is an online assessment application based on information and communication technology. The online assessment development process includes the preparation of social-emotional assessments offline, then includes assessments to the server to be used online. The availability of supporting technology (both hardware and software) and readiness of human resources (HR) are needed for the development of this assessment. This study is a type of R & D (Research and Development) approach with a guideline development model. This research was conducted in PAUD institutions which involved early childhood educators in Jakarta. Data collection techniques were conducted through observation, interviews, and questionnaires. Data analysis techniques were carried out with descriptive analysis. The product feasibility testing stage was validated by experts, whereas alpha and beta tests was conducted by early childhood educators. The results obtained from this study are a set of social and emotional assessments application (Si Emo). The results showed that Si Emo application is valid, reliable and useful to assess children’s social and emotional competency. The implication of this research can be used as one of solutions for early childhood educators in assessing social-emotional aspects of children’s development.

1. Introduction
The social emotional aspects are essential in the development of children in which children need this competence to interact with peers and their environment. The social emotional development of each child is varied depending on the stimulation provided by the environment, including the stimulation of the teachers. The teachers play an essential role in giving examples and adapted children to reach an optimal development and provide an appropriate stimulation to minimize children’s problems.

Social and emotional competence that will either positive influence on the attitudes and behavior of children. Students who demonstrate strong social and emotional skills also tend to exhibit • Greater academic motivation • More positive attitudes toward school • Fewer absences • More classroom participation • Higher math achievement • Higher language arts achievement • Higher social studies achievement • Higher grades • Fewer suspensions • Less tendency to drop out in high school [1].

Emotion management, self-awareness, social awareness and other concepts that predict or reflect prosocial behavior. There seems no doubt from the evidence that children who are “well-behaved”
toward others do better in school [2]. Social emotional competency impacts young people’s academic achievement. Young people who fail to achieve adequate social emotional competence have a higher probability of experiencing a lack of academic success, and of being at-risk throughout adolescence and adulthood [3]. Childhood and adolescence offer the widest window of opportunity to teach social and emotional competence. Brains are built over time, starting in the earliest years of life. Simple skills come first; more complex skills build on top of them. Brain architecture establishes either a sturdy or a fragile foundation for all of the learning, health and behavior that follow. Because children spend a significant portion of their time in school during sensitive periods of brain development, it is vital that teachers help develop students’ social competence and emotional well-being as well as their academic skills [4].

Some of the opinions above show how important children's asocial competence. Social emotional competence not only affects the skills of children interacting socially but also on children's academic achievements. Early childhood who fail to achieve adequate social emotional competence are more likely to experience a lack of academic success, and are at risk throughout adolescence and adulthood.

One of the challenges to developing the social-emotional aspects of children is the limited knowledge of educators (parents and teachers) in understanding and guiding the development of children's social-emotional aspects. The research results that the authors did in 2014 and 2015 shows the lack of knowledge of parents and educators in providing appropriate stimulation, conducting assessments and providing treatment to improve children's social and emotional competencies. Furthermore, educators also still have obstacles in making progress reports especially in describing competencies, social-emotional children.

Assessment is an important point in early childhood education because assessment is a process of obtaining information about students, planning of teaching and programs, and policies used to make decisions. They must rely on practices that are expected to be of learning skills and behavior, and then change as appropriate to support children as they grow and develop. However, academic qualifications and training in the field of learning assessment did not help improve the understanding of PAUD educators about how assessment techniques are practiced every day in the learning process. There are still many PAUD educators who think that assessment is only done when filling out semester report cards [5].

Based on the observations of the authors in several PAUD institutions since 2015 until now many parents and educators use gadgets and are automatically active on various existing social media. So that assessments are easily accessible to educators, one of which is online assessment. Through online assessment parents can find out the child's social emotional development without having to wait for the school assessment results at the end of the semester. Through online assessment educators can provide prompt and appropriate treatments to children if there are problems with social emotional competencies so that they do not cause problems later on. Online-based assessments if they are readily accessible to educators by reducing paper usage costs because they are available online. So that it will greatly help PAUD educators.

Based on the facts mentioned above, the researcher reviews and develops an online assessment by utilizing the internet that is easily accessible by educators through their gadgets so that it can be used as an assessment tool for policy makers in the implementation of early childhood learning programs in DKI Jakarta.

2. Method
This study is a type of R & D (Research and Development) approach with a guideline development model. Educational research and development (R & D) is a process to develop and validate educational products in the form of learning goals, methods, curriculum, evaluation, both hardware, software and methods. The ultimate goal of R & Education is the birth of new products to improve the work performance of education and learning. Thus the learning process becomes more effective and more efficient, and by the demands of needs.
Table 1. The stages and steps of the research.

| Stages                              | Step | Activities of conducted                                                                 |
|-------------------------------------|------|-----------------------------------------------------------------------------------------|
| Pre-stage of development            | 1    | ✓ model Perform initial data collection                                                  |
|                                     |      | ✓ Preliminary research                                                                  |
|                                     |      | ✓ Preparation of research results Introduction                                            |
| Development of Emotional             | 2    | Making ICT-based social, emotional assessments (online assessments with utilizing android) |
| Social Assessment Model             |      | ✓ Compile instruments for online social, emotional assessments                          |
|                                     |      | ✓ Creating a Navigation Structure and designing pages                                    |
|                                     |      | ✓ Create a script (frame) of social, emotional assessment programs and materials for children aged 5-6 years |
|                                     |      | ✓ Make assessment instructions and edit them                                             |
|                                     |      | ✓ Create an online assessment application based on previously created page designs       |
|                                     |      | ✓ Publish social, emotional assessments on the siemo                                     |
|                                     |      | ✓ application Submission of IPR                                                           |
| Model Evaluation                    | 3    | ✓ Evaluate applications with material experts, media                                     |
|                                     |      | ✓ Repair the application                                                                 |
|                                     |      | ✓ Field Trial (Model implementation)                                                     |
|                                     |      | ✓ Study of material and media                                                           |
|                                     |      | ✓ Trial on some respondents of PAUD educators                                             |
|                                     |      | ✓ Model Revision                                                                         |
|                                     |      | ✓ Operational Improvement and continuous improvement of Si Emo® applications              |
| Field Trial                         | 4    | Model application                                                                        |
|                                     |      | Study with material and media                                                           |
|                                     |      | Trials on several user respondents (early childhood educators)                           |
|                                     |      | Model Revision                                                                          |

3. Result and discussion

3.1. Pre-model development

Based on initial identification and interviews, it was found that PAUD educators teach to provide students with skills to learn and practice how to apply their knowledge and skills to real and clear goals. However, to conduct social assessment, emotions are still difficult, especially to develop the necessary social emotional instruments. To optimize children's development educators at an early age should properly assess social emotions. However, in reality this has not been done by all educators, there are some who have done it but they do not comply with the existing rules. From the results of interviews that have been conducted obtained data that almost 90% of these educators have not been able to properly assess social emotions. Even to develop the instrument is still not yet.

The results of the preliminary study show that PAUD educators desperately need a social assessment of emotions that can help them in assessing children. From the results of interviews with several social assessment PAUD educators, the emotions they did were not as they should be. They conduct assessments only for the purpose of filling in a child's learning outcome report for one semester and have not been adjusted to the child's needs. Thus the existence of ICT-based social emotional assessment is needed to help overcome the difficulties of educators in conducting child assessments. Based on observations in the field, most PAUD educators in Jakarta on average already have cellphones and most of them already use smartphones. The online assessment by utilizing communication and information technology will provide solutions to problems faced by educators and facilitate their use.
3.2. Development of the emotion social assessment model

Social emotional assessment is made according to the social and emotional development characteristics of children aged 4-6 years. ICT-based emotional social assessment uses an online system. This system requires internet network infrastructure facilities equipped with Web servers. This application network can be accessed through internet-connected computers and smartphones. The development of a system for online assessment requires network infrastructure facilities that are equipped with the Web as portals. During the development of this online assessment researchers used the siemo.net web as their portal.

The online assessment application model developed this time is an online assessment using information technology. Users who will use online assessments utilize the social emotion assessment application (SIEMO) to access it. To be able to access, users must log in and register first. Then after being registered, you can interact and conduct an assessment using the application.

The results obtained from this study are a set of social emotional assessments that can be used by educators and parents of children aged 4-6 years. This assessment is designed as a tool to help educators and parents in assessing social and emotional skills. It is hoped that through this social emotional assessment, skills can be a good alternative as a solution to the difficulties experienced by educators or parents in assessing social emotional skills. With the existence of social emotional skills assessment that has been well structured, it is expected that educators and parents can properly assess the child. Appropriate emotional social assessment will help educators in developing learning programs according to children's needs and also help parents have the convenience of deciding on education and education strategies that are appropriate for their needs.

3.3. Model evaluation

Based on the results of the trial use of the application by educators, it can be concluded that all educators can use the social emotion assessment application for children. Educators do not face difficulties. This is evident from the results of the overall calculation of the assessment of the quality of the application of the 4-6 year children's social emotional instruments of 84.17%.

4. Discussion of research

Development Social-emotional assessments made according to the characteristics of the social and emotional development of children aged 4-6 years. The ICT-based social, emotional assessment uses an online system. This system requires an internet network infrastructure equipped with a Web server. This application network can access via internet connected computers and smartphone. System development for online assessments requires network infrastructure facilities that equipped with the Web as its portal. In the development of this online assessment, researchers used the www.siemo.net web as their portal. Its function is from the www.siemo.net web as a Course Management System or Learning Management System (LMS).

The application model the online assessment developed at this time is an online assessment using information technology. Users who will use online assessments utilize social-emotional assessment application package (Si Emo®) to access it. To be able to access, users must log in and register first. Then after registering then can interact and conduct assessments by utilizing the application.

The results obtained from this study are a set of social, emotional assessments that can be used by educators and parents of children aged 4-6 years. This assessment designed as a tool to help educators and parents in conducting social and emotional skills assessments. It expected that through social, emotional assessment this skill can be a good alternative as a solution to the difficulties experienced by educators or parents in conducting social, emotional assessment skills. With the social, emotional skills assessment that has been well structured, it expected that educators and parents can adequately assess the child. The right social, emotional assessment will help educators in developing learning programs according to the needs of the child and also help parents have the ease in deciding on the right education and education strategies according to children's needs.
Based on the figure above, it can be seen that the percentage level of achievement of the usability aspect is 83.2%, the navigation system aspect is 86%, the graphic design aspect is 82.25%, the content aspect is 76.75%, the aspect of access capability is 94%, the aspect of access speed is 82%, and the function aspect is 85%. Based on the results of testing the use of the application by educators, it can be concluded that all educators could use children’s social-emotional assessment applications. Educators do not face difficulties. This is evident from the results of the overall calculation of assessment of the quality of the application of 4-6 years old children’s social-emotional instruments by 84.17%.

Social, emotional assessment developed online based on the use of communication and information technology. Barrington can be defined as follows: Online assessment is a method of using the Internet to deliver, analyze, and report exam content and, when appropriately used, it can significantly enhance the efficacy of online learning [6]. Can be interpreted that online Assessment is an assessment method that uses the Internet to assess, analyze, and report results that are very appropriate to be used to improve the effectiveness of online learning.

Buzzetto define online assessment as follows: e-assessment as the use of electronic technologies to drive student learning assessment [7]. It can interpret that online assessments use electronic technology to carry out student learning assessments. In early childhood education, assessment is carried out on child development.

Application Model the online assessment developed at this time is an online assessment using information technology. Users who will use online assessments utilize the asesmen.hikmahku.net application to access it. To be able to access, users must log in and register first. Then after registering then can interact and conduct assessments by utilizing a social-emotional assessment application (Si Emo®).

5. Conclusion

The ability to carry out social assessment of emotions is very important, especially for educators. Because the assessment results will determine the learning activities program that will be developed according to the needs of early childhood. Appropriate assessment will be a determinant of the strategy for developing social emotions that are also appropriate in the social process of emotional learning. Educators who are in charge of managing learning in the classroom should have the ability to conduct assessments, especially social emotional assessments. The ability to conduct emotional social assessment has not been understood by all PAUD educators. On this basis, the researcher developed an application that facilitates educators in conducting social emotional assessments. The social emotion assessment application (Si Emo®) has been created and developed by researchers since 2017 expert
trials have been carried out whose results are worthy of use. Then in 2018 the researcher conducted a trial by applying to educators in DKI Jakarta. As long as researchers go to the field to apply to the use of welcome applications from educators very well and are considered very helpful for them in carrying out child assessments.

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