A Preliminary Study on Detection System for Assessing Children and Foster Parents Suitability

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Abstract— **The adoption process is conducted in society aiming to give the right of foster children to get parents who can guarantee the welfare of children's life in the future. In Indonesia, the adoption process is regulated by law binding both from the side of foster parents and children. In fact, there are still some instances of adoption that are carried out outside of the provisions of the law and cause violations that harm foster children. Based on these problems, it is necessary to build a system that accommodates the needs both psychologically and materially from the side of children and parents. The existence of a detection system to assess the suitability between the two is to reduce the risk of violence in foster children. To build the system, it needs an algorithm capable of formulating several related factors. In this case, CARTs algorithm is an algorithm capable of predicting an optimal match that supports successful adoption of foster children.**

Keywords—adoption; foster parents; CARTs algorithms; detection system.

I. INTRODUCTION

The adoption process of foster children can be found in social life. In Indonesia, adoption can be made by prospective foster parents who meet certain requirements that have been determined by law. Laws governing the adoption of foster children are Law No. 23 of 2002, Goverment Regulations (PP) No. 54 of 2007, and Social Ministry of Social Affairs Regulations (Permensos) No 110 / HUK / 2009. The law stipulates several requirements for adoption of a child to be fulfilled by the prospective foster parent, including physical and spiritual health, age between 30-55 years old, having the same religion, being of good character, having been married for at least 5 years, not a homosexual, have not or have had one child, are economically and socially able, have the consent of the parent or guardian of foster children, etc. [1].

In adoption practice there may be obstacles faced by prospective foster parents and foster children. One of the obstacles that may be faced is the religious factor of prospective parents and foster children [2]. In Indonesia, religious conformity becomes very important because it has been regulated in law number 23 of 2002 on Child Protection article 3. In addition, according to Islamic teachings, adoption of foster children should not cut off nasabs with biological parents. In addition to religious matters, and some administrative issues, another obstacle is psychological level incompatibility. Psychological factors become an important consideration because both prospective foster parents and prospective foster children have a tendency certain traits that will affect the communication and interaction when it is adopted.

According to [3] there are several psychological factors considered in determining the compatibility between prospective foster parents and prospective foster children. The variables considered are children's openness to parents, children's perceptions of parent-child relationships, parents' perceptions of parent-child relationships, the level of stress experienced by children and the level of stress experienced by parents, and the perception of family style functionality.

Based on these factors, it will be used as variables and formulated using Classification and Regression Trees (CARTs) algorithm to obtain optimal results in determining psychological compatibility. The CARTs algorithm is one of the algorithms used in predicting the resulting model of a set of data. Classification is designed for the dependent variable that takes a limited number of unordered values, with prediction errors measured in terms of classification of costs. [4]. Regression tree is used to process dependent variable of discrete values sequentially and has error prediction by way of squaring training and testing value. In line with the CARTs Algorithm, there is another C4.5 algorithm that uses entropy in its impurity function, whereas CARTs use generalized binomial variants known as Gini Index [4].

The advantages of the CART algorithm for this psychological match detection system are because the CARTs algorithm has some corresponding characteristics. Characteristics of CARTs are best assessed in the data processing of the suitability of prospective foster parents and foster children due to several advantages. Among the advantages are Predictors of variables made not based on assumptions. CARTs can solve highly skewed or multi-modal numerical data problems, such as predictors

categorized by ordinal or non-ordinal structures. CARTs are able to look for possible variables as splitters, even from thousands of possible predictors. CARTs have sophisticated methods to resolve missing variables. CARTs are a relatively automated machine learning method. Finally, CARTs are a simple method for someone who is not a statistician in interpreting the results of data processing [5]. In addition, in its implementation, the CARTs algorithm has been used to solve various cases of data mining such as [6][7][8][9][10].

II. METHOD

A. Preparation

In determining the variables that match the psychological character (psychological variables) of both prospective foster parents and foster children, used the reference from previous studies [11]. Some psychological factors that are considered are communication openness, child perception of family relationship, child perceived stress, child perception of family function, parent perception of family relationship, parent perceived stress and parent perception of family function. Also considered are demographic variables, the legal basis prevailing in Indonesia and related theories. Based on Fig 1 found that there are four things that must be considered in the adoption of foster children. In this study, the four things can not be separated from each other in the process of determining the suitability of foster children with foster parents.
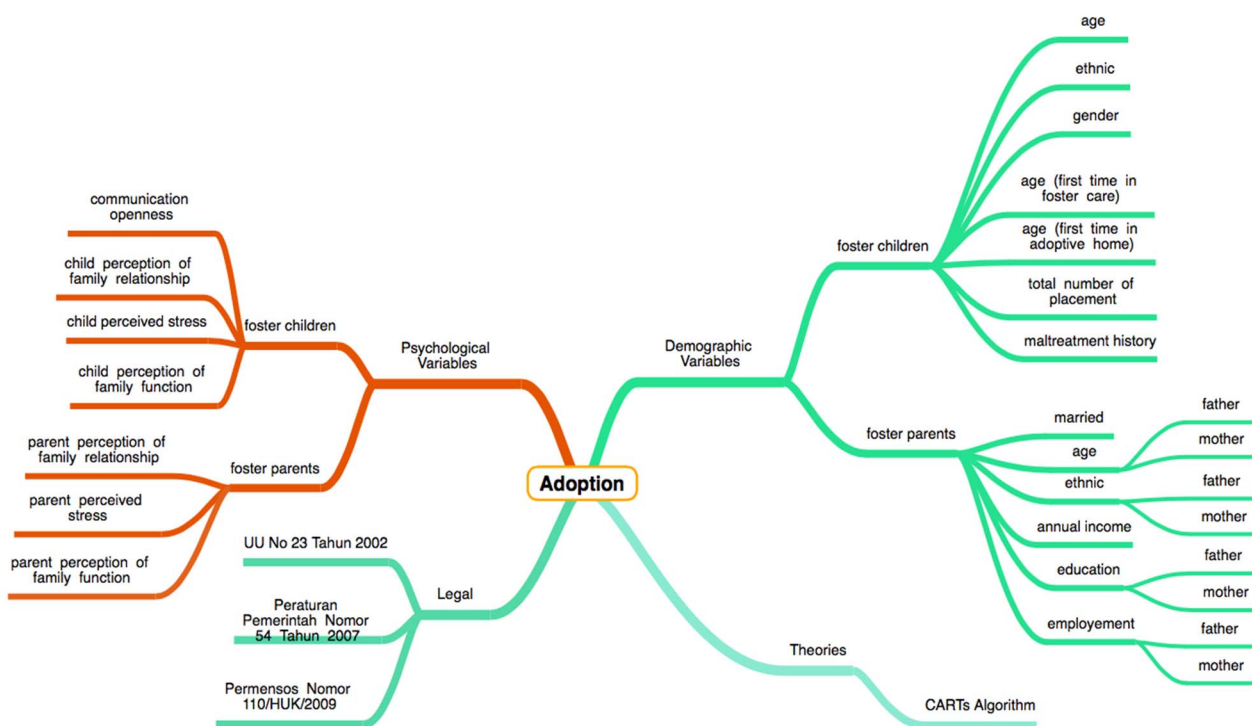

Fig 1. Adoption Variables

B. Processing

In the data processing to determine the suitability between foster children and foster parent candidates is divided into three main stages (Fig 2). First, for preparation it need knowledge of adoption issues, related laws and psychological theories on the suitability of children and parents are necessary. After that it is considered demographic and psychological variables to conduct a survey on the object of research. In the end, from this stage there will be data sets on various aspects that affect the adoption of children.

The second stage is data processing using CARTs algorithm. To perform processing using CARTs algorithm, first by creating a tree in the available data. Then the creation of a class to be a node that also looks for hidden variables. Tree creation can be stopped when it is sufficient. After that, pruning the tree according to the needs and selection of the most optimal tree. In the final stage cross validation of the data that has been processed into the tree.

The results of data modeling will be used as a reference for predicting the new data entered as a suitability test of the characteristics of children and prospective foster parents.
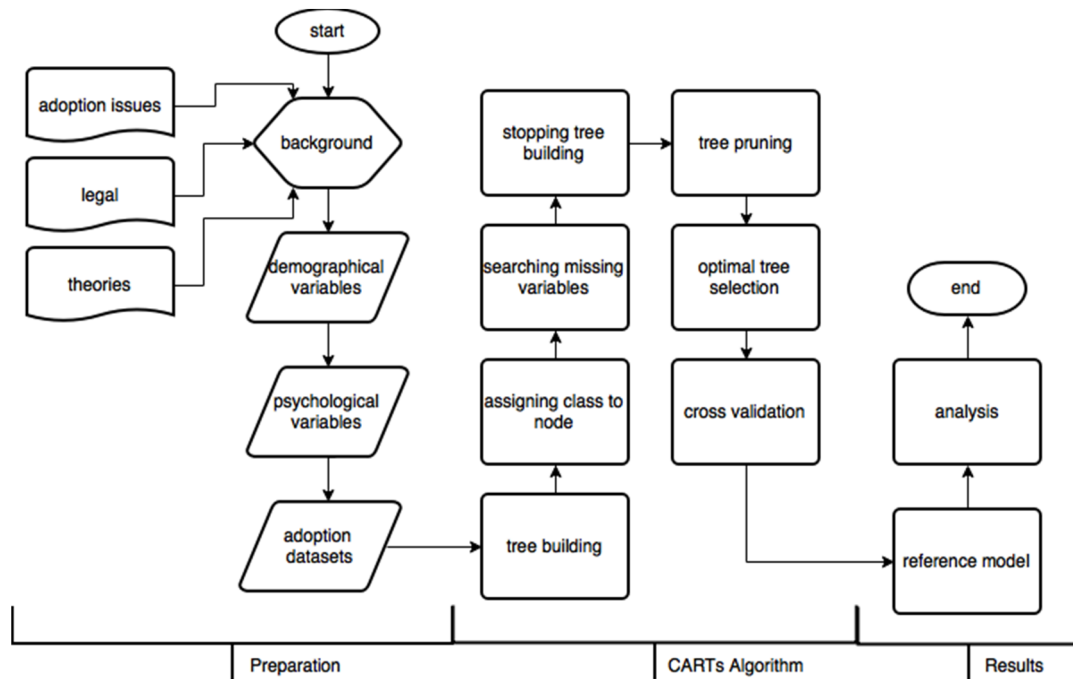
Fig 2. Research Method

III. RELATED WORKS

The adoption of foster children in Indonesia is regulated in Law (UU) No. 23 of 2002, Government Regulation (Peraturan Pemerintah) No. 54 of 2007, and Ministry of Social Affairs (Permensos)No. 110 / HUK / 2009. These laws and regulations are designed to ensure the welfare of foster children and ensure that children are cared for by appropriate foster parents. In fact, assessing prospective foster parents requires many sources of information [11].

In-depth background checks on prospective foster-care people become one of the keys to successful adoption of foster children. Background of age, education, occupation, religion, neighborhood, community culture, institutional support, number of children raised, marital status, and even race determine the success of a child adoption process [12]. Those who were younger, married, non-white, had a college degree or above, and had fostered fewer children were more likely to discontinue foster care-giving earlier compared to their counterparts [12]. These findings suggest that the demographic factors of age, marital status, race, education, and the number of foster children cared for had a greater impact on the decision to discontinue fostering than agency support. Agencies need to focus on areas related to recruitment, training and support of foster parents such as improving employment hiring and screening methods, improving and developing adoptive parenting training curricula, addressing specific issues of foster parents that impact retention of foster parents in caring so that child welfare is more assured [12].

The mentor program or parenting training is one of the programs that can have a positive impact on the quality of foster parents. Currently developing a foster parenting program is a complicated and difficult. Although there has been research to document related conceptual processes, there is still scarcity in the literature associated with this effort [13].

Involvement of foster parents in formulating a mentor program is needed to secure perceptions and mindset with mentors and related parties. The experiences of exciting foster parents also needed to accommodate and solve their problems. Previous research show that the experiences of foster parents are able to identify the complexity and difficulty of parenting programs. This experience concludes that foster parents desperately need the support of officers to provide information about childcare and the unique information of foster children can help parents deal with problems [14].

Previous studies have shown that a cultural orientation and socioeconomic facts influence the level of probability a child enters into a foster care [15]. While the rules on adoption of foster children determine the average length of stay in the foster care. Interventions conducted on the study showed who entered the foster care and how many children went to the foster care according to socio-economic culture and facts.

IV. CONCLUSION

Based on the explanation, this research can be used as one of the supporting decisions in determining the appropriateness of foster parents. The use of CARTs

algorithm is assessed as an algorithm capable of handling multiple criteria in psychological and demographic variables. Future works of this research will conduct a survey of real of real conditions of the adoption process in Indonesia. This survey requires support from related parties, especially foster care and social services in each city and province. The survey data will be processed using CARTs algorithm. The modeling results are used as reference model to determine the fit of foster children. The results of the research are expected to help the foster care in determining the fit of foster children and improve children welfare in the process of adoption.

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