Analysis of the Need for Information Systems for Early Childhood Education Services in Play Group during the Covid19 Pandemic

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ARTICLE INFO	ABSTRACT
	Early childhood education services in play groups during the COVID-19 pandemic have changed. This change includes various services such as administration, acceptance of new students to the face-to-face teaching and learning process and remote meetings. This is certainly not easy if the group knows how the need for an information system is. The need for this information system aims to provide convenience from various fields of education, especially early childhood education in play groups. In this study, we will discuss the analysis of information system requirements using the value chain analysis method. The analysis uses the value chain in five main activities and four supporting activities. These activities will discuss the needs of early childhood education information systems in play groups which consist of management and implementation of activities, financing, educators and education, blinding of information systems in particular, the use of technology to be used, and how the use of this information system will be used in understand the internal and external parties that will be related to the management of facilities and infrastructure. The results of this value chain analysis will be used as a guide in determining the information system needs by adjusting the early childhood education services in the play group by adjusting the level of management owned by each play group.

1. Introduction

During the COVID19 Pandemic (Corona Virus Disease 2019) where WHO (The World Health Organization) was declared a public health emergency and called COVID19 a Pandemic on March 11, 2020 [1]. The existence of a pandemic resulted in the education sector experiencing online learning methods and service of the education process. Every existing educational institution experience learning closures and all forms of face-to-face education implementation services switch to online learning and education implementation services. However, not all educational institutions easily turn away from face-to-face activities to online. Where readiness in terms of the need for the use of

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current information systems that can help in all parts of the world of education is not evenly distributed. The information system itself is a combination of information technology and the activities of people who use that technology to support operations and management [2]. In general, an information system is a collection of components that aim to collect, transform, and disseminate information in an organized manner. One part of education that is affected by this need is early childhood education. Where early childhood education has the aim of providing learning and coaching to early childhood children to help develop physical and spiritual growth. Early childhood development can be seen in terms of cognitive skills for thinking and reasoning. However, the need for this information system is not evenly distributed in every early childhood education service, one of which is in the play group. The implementation of educational services in play groups such as making new registrations in the new school year, the learning service process from learning planning that must adapt to the curriculum, and the learning evaluation process which contains an assessment of children's development. The whole process on average still does not use information systems in its operation and is mostly done using conventional methods. The use of this technology must of course be adjusted to the mastery of information technology by the teachers as the challenges on online learning during Covid19 pandemic [17,20-22].

According to Febrialismanto and Nur Hidayatun based on the results obtained from their research, it is revealed that teachers still do not use ICT (Information and Communication Technology) a lot for development and are still in the low category [3]. The use of ICT on teaching and learning for Technical and Vocational Education and Training (TVET) in question is making teaching materials, changing learning, storing learning materials and results, communicating learning materials and results, and disseminating information on learning materials and results [3,16]. According [4,18,19], the existence of teaching materials is very important to support the learning process where teaching materials must adapt to the learning outcomes to be achieved. The emergence of schools at early childhood requires good and appropriate management in accordance with the national standards for early childhood education regulated by the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 137 of 2014 [5,6]. Based on the results of research conducted by Liu, Toki and Pange ICT, has been utilized by kindergarten teachers in Greece which aims to prepare tools and teaching materials. In addition, based on the results of research conducted by Kara and Cagiltay, technology has been included in the kindergarten curriculum so that teachers can use ICT [7-9,23].

Therefore, by looking at the research problems that have been previously disclosed, the authors reveal that early childhood education services in the play group require a guideline to find out how the need for an information system to be used during the current pandemic or during the pandemic has ended due to the use of the system. This information will indeed help in every process of educational services that will be dynamic by using the internet. These guidelines can be a reference for teachers in particular, which will be used to develop early childhood education services in play groups. The purpose of this study is to provide guidelines for teachers in playgroups in managing information systems that help operational areas. The use of this research method qualitatively by using value chain analysis to find out the analysis of information system needs that are suitable for early childhood education in play groups during the pandemic or after the COVID19 pandemic ends.

2. Methodology

Qualitative research methods are used in this study. Qualitative research that is descriptive analytical is used to collect data taken from literature studies, relevant research, and conduct interviews with experts who understand the object of research. As for the technique in analysing to

obtain information system needs in early childhood education services in play groups during the COVID19 pandemic, the author uses the concept of Value Chain analysis. Value-chain analysis--which includes the whole cycle of the organization, production, and delivery of products from inception to use and recycling-- provides a tool for mapping these crucial domains of private and public policy. But, more than that, by focusing on the dynamic shifting of producer rents through the chain, on the processes whereby key actors provide governance to production that occurs on a global basis, value-chain analysis provides important insights into the policy challenges confronting both private and public actors [10]. The assessment of value chain offers a comprehensive and challenging approach to the organization focused on creating and maintaining the customers and therefore creates a real competitive advantage [11]. The following is Figure 1 which contains the five main activities and four supporting activities of the value chain analysis.
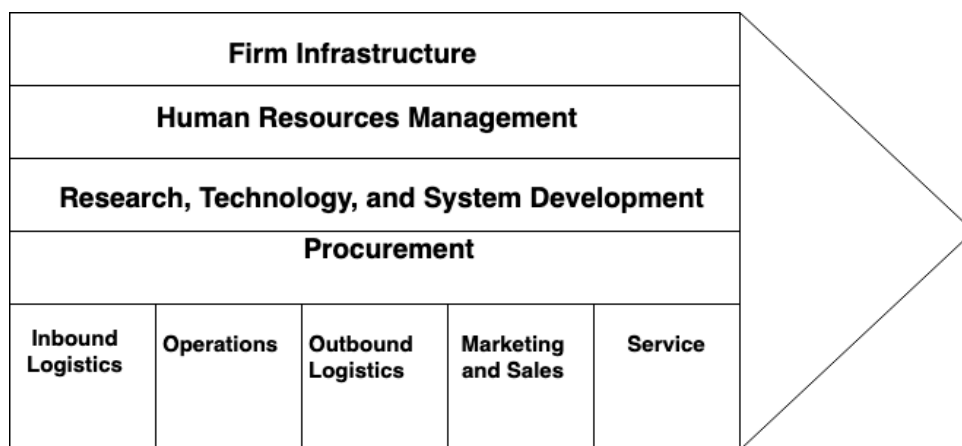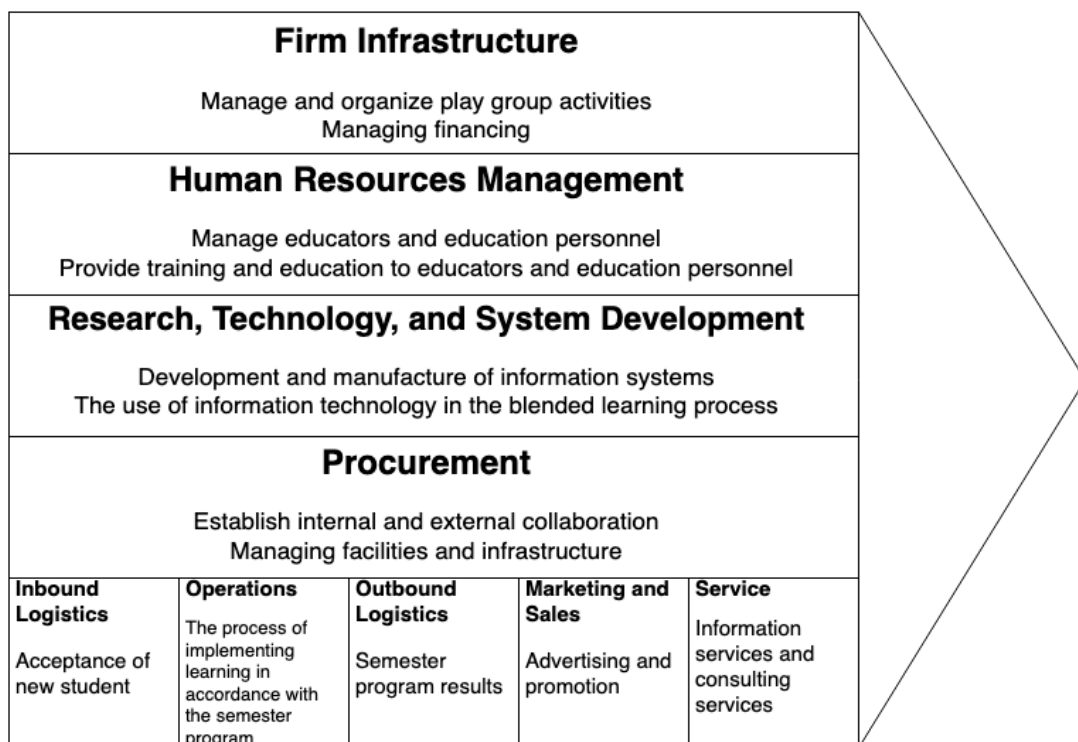

Fig. 1. Figure of Value Chain Analysis

Figure 1 is a depiction of the value chain concept, which is part of business management described and introduced by Michael Porter [12]. Porter emphasizes that this value chain has specific activities in business and where information systems enable it to have a strategic impact. The value chain also recognizes specific, critical points where it can determine the most effective use of Information Technology to improve competitive position. Value Chain Analysis consists of five main activities and four supporting activities. Both of these activities can be used to help generate information system requirements. The following is an explanation of the activity:

i.   Primary activities, these activities are related to production and distribution that provide value to customers. These main activities consist of inbound logistics, operations, outbound logistics, marketing and sales, and service.
ii. Support activities), containing activities that make delivery of the main activities possible, consisting of firm infrastructure, human resources management, research, technology, and system development, and procurement.

3. Results

Stages of analysis using the value chain to do business analysis first. Value chain analysis is used to map all business processes in the study group and divide it into two activities that have been discussed previously, namely main activities and support activities. The results of this analysis will be a reference as a consideration in making information system requirements that can be applied during

the COVID-19 pandemic. Value chain analysis (VCA) can expose strategic and operational misalignments within chains, and the consequential misallocation of resources, and hence opportunities for improvements which create value and economic sustainability [13]. Higher education institutions are seemingly under intense pressure to create value and focus their efforts and scarce funds on activities that drive up value for their respective customers and other stakeholders [14]. value chains do not simply exist, but are cultivated over time. In this case, the formation of a value chain becomes the actual goal of interventions, which will be possible only in certain market contexts [15]. Therefore, by looking at the previous references, it can be said that value chain analysis provides strategies and supports the improvement of services by educators and education personnel in study groups. The following is a description of the results of the analysis using value chain analysis depicted in Figure 2.

Fig. 2. Figure of Result of Value Chain Analysis of early childhood education services in playgroups

Based on the results of the previous value chain analysis in Figure 2, it will identify potential needs in terms of information systems needed by playing groups in the future to support the service process for playing groups during this pandemic. Solutions for the design, manufacture or use of information systems in the future, including websites devoted to play groups, online acceptance of new students, financial applications, inventory applications, academic information systems, E-learning, and E-Reports. Of course, the need for this information system is based on the existing business activities in the service of the playing group. The following is a more detailed description of the information system or application that will be implemented by:

i.   School Website
The school website is needed as a media for advertising promotions and information services regarding the activities that exist in the play group intended for the community, be it students, parents of students, prospective students and the general public.

ii.   Online New Student Admission
Online New Student Admission is used as a place for prospective students to take part in the online admissions process. Starting from implementation information, requirements, school promotions, registration of prospective students to the announcement of New Student Admission.

iii.   Finance App
This application is needed by the playgroup to manage finances, from grants, cash, expenses and all kinds of activities related to financial transactions.

iv.   Inventory App
This application is used as data management for all facilities, infrastructure and goods that are within the playing group environment as well as assets that are outside the facilities owned.

v.   E-Learning
Schools need E-Learning as a facility to make it easier for admins, teachers and students to support online teaching and learning activities. Teachers can provide learning materials in the form of documents, pages or videos and can be accessed by parents of students who first have an account, so that students are able to study under the guidance of parents to understand the subject matter.

vi.   E-Report
This E-Report application is needed to provide an assessment process for the results of student learning for one semester. The results of the assessment are given directly by the teacher who teaches.

vii.   Academic Information System
A system that manages information and academic data in a website-based school, which can then be a reference for play group management in managing the learning implementation process and making decisions in providing early childhood education services in play groups.

4. Conclusions

From the results of the research that has been discussed previously by using value chain analysis that produces information system requirements, it is expected to produce information system requirements, which amount to seven information systems. Where the seven systems can be used as a benchmark for early childhood education services in play groups. The seven systems would be better made or created by integrating each other into a management information system in the future. Therefore, it is necessary to make a priority scale and application implementation roadmap. For further research, it is expected to provide further analysis in the form of information technology analysis.

Acknowledgement

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