

## DIGITAL TRANSFORMATION IN THE COURSE FOR DEVELOPMENT OF CHILDREN WITH SPECIAL NEEDS

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### Abstract

This study aims to digitize learning tools for the Guidance of Children with Special Needs courses in the Guidance and Counseling study program, digitize the lecture process for the Guidance of Children with Special Needs courses at the Guidance and Counseling study program, transform the courses for the Development of Children with Special Needs digitally in the Guidance and Counseling study program and test the effectiveness of digital transformation of the Guidance for Children with Special Needs courses. The digital transformation is carried out using the R&D method. The development model used in this study is a 3D model: the definition stage (Define), the design stage (Design), the development stage (Develop) which is carried out in the Guidance and Counseling study program. In realizing the digital transformation of the Fostering Children with Special Needs course, several experts are involved, including learning design experts, IT experts and material experts. The results of this study are expected to be the beginning of positive developments for the use of IT in learning. This research is also expected to be input for lecturers who want to transform their lectures digitally so that digital transformation will appear in other courses at Medan State University..

**Keywords:** *Digitization; Digitization; Digital Transformation; Children With Special Needs*

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### 1. INTRODUCTION

Disruption that takes place very quickly in all aspects of life including education makes all human beings must adapt to existing technological trends. This reality affects the world of education including the Counseling Study Program at the State University of Medan are under pressure to cope with some of the changing forces in the world education market. More than that, formal education institutions must face the emergence of new digital education companies such as Ruang Guru, Zenius Education, Hactiv8 and others called Educational Technology. Digital transformation which is a consequence of the era of disruption (Industry 4.0) can be interpreted as a process of changing the use of conventional technology to digital which changes the educational model, as well as overhauling the existing education ecosystem into a new ecosystem that is more innovative, complex and dynamic [Winasis and Riyanto, 2020 ] Thus making organizational work processes more effective and efficient. The stages of this transformation include 1) digitation , namely converting something that is non-digital into digital, for example: scanning documents, recording data on paper, switching to using Excel , 2) digitalitation , namely creating or improving business processes using technology and digital data, such as: using Google Drive/Google Docs , uploading data or information to the cloud to be accessed and studied together in order to make a decision, 3) digital transformation, namely the process of transforming activities, processes, and learning models as a whole by utilizing technological developments such as: using processed data for needs deeper analysis (Artificial Intelligence, Machine Learning and so on).

Disruption in all courses is inevitable. Disruption makes everyone have to adapt to existing technological trends . As a result, in the course for Development of Children with Special Needs, digital transformation cannot be separated or separated. Disruption in the course on Development of Children with Special Needs makes educators required to master computerization that keeps up with the times in the industrial era 4.0 . In the other hand Students also have to keep up with modern times. Disruption in this course requires the components of the course to keep up with the times. ( Veronica Kusdiartini, 2017). There are four main reasons why digital transformation is in

the course of fostering children with special needs. The first is because this course has for years run a conventional system that relies on the lecture method. The second is because shift in the demographics of Indonesia's population which is currently dominated by the millennial and gen-X generations who prefer the convenience of transacting via gadgets in their hands. Currently, the number of internet users in Indonesia has reached 54.68% of the total population. This data illustrates a promising potential for the world of education to change current learning strategies. Third, because digital technology has the potential and ability to transform HR as we know it today to become more efficient. Fourth, because the urgency of transforming digital education is also driven by the emergence of many new competitors such as edutech where the edutech business actually provides convenience and comfort without complicated bureaucracy.

The digital transformation process provides an opportunity to make a total internal overhaul, such as the learning process and lecture system that has been running so far. In addition, students also benefit from learning experiences new ways during the transformation process. So far only printed teaching materials are available, the Google Form application for attendance, audio-visual learning media, online exams using Google Form, assignment collection and assessment using Google Classroom, sharing learning materials using Whats App, online discussions using Whats App, becoming an application. artificial intelligence called super apps. With these super apps, the conventional learning system will decrease in the future, because all students in their lectures will be served in one container called those super apps. The features provided are not just digital teaching materials, videos from YouTube, but artificial intelligence in the form of chatbots and social media applications which are increasingly being used. The strong impact on the digital transformation of the course for fostering children with special needs will be felt from changes in student behavior in learning.

## **2. IMPLEMENTATION METHOD**

This type of research is development research, that is, research used to produce certain products and test the effectiveness of these products (Sugiyono, 2012: 407). The development model used in this study is the 3D model which is a modification of the 4D model from Thiagarajan (1974: 5), namely: the definition stage, the design stage, and development stage. This research was conducted at the Guidance and Counseling Department, Faculty of Education, Medan State University, which began with initial data collection related to learning tools in the course on fostering children with special needs. The research subjects were digital transformation courses for children with special needs, while the test subjects in this research and development were 30 students, with the consideration that the class had never used teaching materials based on e-learning and media website for all courses. There is also product validation by two learning design experts, two experts IT, two material experts. In addition, field trials were carried out to see the effectiveness of digital transformation courses for children with special needs for students.

The research design was carried out through the following stages: a) defining stage. This stage aims to determine and define the requirements needed in the digital transformation course for fostering children with special needs b) the design stage. The purpose of this stage is to prepare a prototype digital transformation course on fostering children with special needs. Existing and pre-developed device formats. c) development stage. The development stage is the stage for producing development products which is carried out through two steps, namely: (1) expert assessment followed by revision, (2) development trials. The data collection instrument used in this development research is in the form of an assessment instrument for the product being developed. The instruments used to collect data are: (1) questionnaire sheets for material experts (2) questionnaire sheets for learning design experts (3) questionnaire sheets for IT experts (4) questionnaire sheets for students and lecturers.

### 3. RESULTS AND DISCUSSION

#### Definition Stage

- A. Analysis Front-end (front-end analysis)
- Students have difficulty finding reading material as much 61.1% .
  - Students are interested if the material for children with special needs is presented in a form digitally through the website as much as 83.3%
  - Student \_ need ingredient or materials regarding children with special needs through the internet as much as 91.7% .
  - Students agree to develop lecture -based materials Internet for make it easy understand about number of children with special needs 94.4%.
- B. Analysis Participant educate
- Student have interest career which diverse in the field of children with special needs
  - Student have unsatisfactory learning outcomes
- C. Analysis Task (Task analysis)
- This research is focused on the development of guidance materials internet-based which can provide convenience for students in access lecture materials anywhere and anytime. In addition, digital transformation courses can provide opportunities students to know and understand children with special needs
- D. Analysis Destination Learning
- Destination learning specifically on coaching lectures for children with special needs namely as following: s student capable know variety of children with special needs, students capable classify the variety of children with special needs, students able provide services for children with special needs.

#### Design Stage

- A. Constructing criterion-referenced test
- This study uses a questionnaire to obtain initial data from the developed website. There are two types of questionnaires used, namely: a website evaluation questionnaire consisting of a material expert evaluation questionnaire and expert media , user questionnaire , media selection .
- B. Stage digital transformation in the course of fostering children with special needs
- Digitization includes collection software, source Theory, picture, videos, simulation which needed in making website.
  - Digitization includes : manufacture server local , local server creation is done with the help of software XAMPP. XAMPP will enable Apache and MySQL databases on desktop so that looked like have servers.
    - Install WordPress
 

WordPress which used is wordpress version 4.7.1. Wordpress files can be downloaded through the official site at wordpress.org for free with format rar. Step WordPress installation is done by extracting the files wordpress in the htdocs folder in the XAMPP folder that has been installed. After that open wordpress via google chrome and fill in the database name, user name, and password after it installs. WordPress itself is a CMS so that it has the function to manage the website online easy.
    - Installation theme on website
 

The website theme is selected based on needs, namely: have compatibility with plugins BuddyPress, WP- ProQuiz, metaslider, page builder, is also a theme which responsive to size screen which used to access the website. In addition, the selected theme as well must have layouts which interesting and could in custom
    - Install plugins

Theme which chosen sometimes not yet have feature which wanted so that need plug-ins for complete it

4) Regulate appearance website

Set the appearance of the website related to the layout bring theme. Website appearance settings can be done through dashboard provided by wordpress. Display settings This is in the form of creation and placement of pages, posts , navigation and coloring. The following describes the display setting process website:

a. Page

Page is a page that is static. Making the page itself can be done via the wordpress dashboard on page menu. After entering the menu page the user just needs to fill in name pages , make content page with facility which there is and plugins that have been installed, for example page builder. After filling page users just have to choose publish so that the page can appear. Pages example is page Home or often called Home. The homepage itself is the first page of a website . Menu home to return to the homepage, news, tutoring materials, survey, practice question, and contact.

b. Page Theory Ingredient Guidance

c. Page Theory. Theory made with method which same with page Home. Through dashboards wordpress menu page . On the material page there is a link linked to the post material is knowing types special needs children, influencing factors, characteristics, and handling. When link the opened so will serve description Theory and videos which has provided.

d. Page Exercise Question

Page practice question made with menu page in wordpress . For make content in page practice question needed page builders and widgets visual editor for put background and link practice question from Cash.

e. Page survey

The survey page is created using the page menu in WordPress . For make content on page survey needed account google form for make box question for user website.

f. Page contact

g. Contact page is created with menu page in wordpress . The content on the contact page contains the identity of the admin and page e-mail admin.

5) Uploading databases website in servers local to servers Internet.

Database server is a database server which is owned by Idhostinger.com. The selection is based on facility which given that is spaces and bandwidth which adequate. The upload process is done with the FileZilla software is software which recommended by Idhostinger. FileZilla also function as files manager in Idhostinger. However, to upload, you must first create account Idhostinger.com which also for get servers.

After the account is created, then place an order for the domain on website Idhostinger.com with fill in name domain and available subdomains. The domain and subdomian used there is research this is <http://rangkulabk.com>

After getting the next server and domain is uploading the website database on the local server to the Idhostinger server with software FileZilla . Uploads conducted with connect the Idhostinger and FileZilla server databases. After the upload process is complete, the website is ready to use, accessible through address <http://rangkulabk.com>

**Development Stage**

**Table 1. Expert Validation Results**

No	Aspect	Expert Theory		IT Expert	Participant Educate	Average	Category
		I	II				
1	Material Design Guidance Career	3.89	3.67		3.35	3.63	Very Well
2	Language	3.67	3.67	3,33		3.55	Very Well
3	Manipulation Device Soft			3.71	3,32	3.51	Very Well
4	Communication Visual				3,28	3,28	Well
Average						3.49	Very Well

**Stage Spread**

Stage disseminate is Step publication website lecture material with media Internet. Publication conducted with register a website on a search engine that popularly used. How to register is to register the server website on machine seeker Google through webmasters machine seeker, then To do verification registration on account e-mail website . Munandir (2006:249) say program which good is program which contrary to student needs. There are two basic meanings underlies the preparation of lecture programs for children with special needs , which first which program contrary to the needs and the program is a tool to achieve goals which has set previously. In this regard, Sukardi (2002:52) explains that school counselors are the main executors who coordinate all activities related to implementation of guidance and counseling this needs to be overcome without reducing it field service Guidance and counseling which other. In line with Thing Hines as quoted by Nurhuda (2005) said that There are several competencies that must be possessed by school counselors related to Information, Computer, and Technologies (ICT), one of them is able to develop plans for the use of technology for services to children with special needs.

Study and development education for children with special needs based Internet with the media website aims to digitally transform lectures to guidance and counseling students. Digital transformation courses for children with special needs in the guidance and counseling study program consist of three Step that is defined , design , develop . Stage define is needs analysis stage. The define stage consists of five stages namely; fonts analysis, learner analysis, task analysis, concept analysis, and specification instructional object . On Step define conducted with interview with students and lecturers, by the way share instruments. From the results Interview It is known that there is no digital transformation in the course for fostering children with special needs in the Counseling Guidance Study Program. In addition, from the interviews it was also found that there were still many students students who do not have reading material for children with special needs , many students have difficulty finding reading material , students are interested if lecture material is presented in the form digital through website and student agree for developed ingredient guidance career based Internet.

From results distribution instrument characteristics to student is known that in a manner to all student already have Smartphones are used as learning media, universities also have them free wifi facility that can be accessed to support the process learner. Stage which second is step design which is Step initial design in digital transformation of lectures for children with special needs. The design stage consists of constructing criterion-referenced tests, media selection, format selection, and initial design. Preliminary design results development is prototyping website <http://rangkulabk.com> .

After the website prototype has been completed, then it enters the stage three that is develop. On Step this prototype website assessed by experts Theory, expert media. Evaluation expert Theory covers two aspects that is aspect design learning and aspect language. The media expert's assessment includes aspects of device engineering soft and communication visual. After conducted evaluation by expert Theory and media, next field trials were carried out. Field trials were conducted on students as website users. Develop stage is carried out, it can be continued at the next stage disseminate. The disseminate stage or the dissemination stage is the stage publication digitalization of courses for children with special needs through machine seeker. Spread conducted with register servers website on webmasters machine seeker. After register the next step is to verify registration via the website. Machine seeker which used is machine seeker which popular used that is Google.

#### 1. Transformation feasibility digital courses on student

Website feasibility is known through stages analysis of judgments by experts. The assessment is carried out by experts materials, media experts and students as website users. Aspect appropriateness Assessed website includes aspects of the guidance material design career, language, manipulation device soft, and communication visual.

##### a. Expert Theory

Material expert assessment aims to determine the feasibility of capital market website material created. There are two aspects assessed namely aspect design learning and aspect language.

##### i. Aspect Design

There are nine statements in the assessment of design aspects learning. From nine statement the obtained the average score is 3.78 which is in the conversion table entered into the very good category.

##### ii. Aspect language

The feasibility of the linguistic aspect is assessed from 3 statements. Average score which obtained aspect language as big 3, 67 which in table conversion enter into the category very good.

From the results of the analysis of material experts obtained the average score of material experts I of 3.78 and the average score of material experts II is 3.67. Based on the table score conversion is included in the very good category. Therefore material in the website learning media developed worthy used.

##### b. Expert Media

Assessment by media experts aims to determine feasibility appearance and performance website which developed. There is two aspect evaluation that is aspect manipulation software and visual communication aspects. Here's a discussion from results study which has conducted:

##### i. Manipulation Software

There are seven point statements in the engineering aspect of the device soft. The highest item is obtained by a reliable item (website not easy hangs), maintainable (ease in care website), usability (the website is simple and easy to operate), Compatibility (website could accessed from various softwares and device) and grain website can accessed without install device special with score 4. Whereas 2 grain other get score 3. So that obtained average score as big 3, 71 which enter in category very good. So that could said the appearance and performance of the website developed worthy.

##### ii. Communication Visual

Aspect communication visual get average – score average as big 3.33 which in the conversion table is in the very good category. So that it can be said the aspect of visaul communication on the website could said worthy.

In these two aspects, an average aspect of 3.52 is obtained in the conversion table is included in the very good category. so view and the performance of the developed website can be said worthy.

## 2. Student response to digital transformation courses for children with special needs.

Assessment by students for the feasibility test of website users aim for see response to website developed. Assessment of student responses to test appropriateness user website conducted with test try to 32 student person. There are three aspects of internal assessment, namely the engineering aspect of the device soft, design website and communication visual. Following explanation from results analysis test try website on group.

### a. Manipulation Software

The results showing average score on aspect manipulation device soft as big 3, 23. On table conversion that value enter in category good. Thing the showing aspect manipulation software already worthy.

### b. Design

Aspect design obtain average score of 3.25. In the conversion table these values are entered in good category. This shows the engineering aspect of the device soft already worthy.

### c. Communication Visual

Visual communication aspects get an average score of 3 .08 which in table conversion enter in category good. So that could concluded if aspect communication visual from the website is worth it. The results of the user feasibility trial assessment on students that is equal to 3 ,18 . Based on the conversion table, this value is in the good category. So that it can be concluded that digital transformation is a course for children with special needs which developed worthy for in Use.

Study and development which conducted aim for digital transformation which worthy for used. Follow this is content which has developed:

- a. The material presented on the website is lecture material for children with special needs which could accessed through address <http://rangkulabk.com> .
- b. On every theory which served will there is description theory, photo, videos
- c. The facilities on the website include; berbanda, vision and mission, history, about us and join us.

Digital transformation courses for children with special needs which developed still have some weaknesses such as the website can only be accessed if there is an internet connection, the successful use of the website depends on motivation and independence student . Whereas The advantage of the website is that it provides features which could accessed through various device good mobile or desktop, give motivation student for by independent look for ingredient lectures, and provide access for anyone to seek information about children with special needs.

## 4. CONCLUSION

Based on results has conducted could obtained conclusion as following:

1. Digital transformation in courses for children with special needs has been successfully developed. Website consist of home page, vision mission, history, about us, join us.
2. In study and development this also conducted evaluation eligibility by material experts, media experts, and students as website users. Aspects assessed include aspects of design, language, manipulation device soft, visual communication.
3. Results evaluation appropriateness expert Theory, expert media and students obtained an overall average of 3 .49 which fall into the very good category. So that the digital transformation of courses for children with special needs is feasible used.
4. Results based on effectiveness recapitulation of data from student practice questions shows the very category either with a classical graduation presentation of 93.33 % . Student capable follow and understand the content and answer exercises question with good. By

because that Digital transformation courses for children with special needs are feasible to use.

Several suggestions ways to improve and develop research results suggestion which could conducted as following: For Custom study programs provide facilities and infrastructure that can support services guidance counseling based technology information (IT). Students are expected could increase interest in studying children with special needs. School counselors are expected to provide the best service for students with special needs. For study next expected could carry out digital transformation in other subjects. For study next expected too for developing offline applications in the context of digital transformation of courses for children with special needs.

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