Developing Application and Differentiated Learning Models with IDCP DIFUSION to Improve Students Creative and Critical Thinking Skills

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Abstract. Creative thinking is an abstract thinking process. Individuals who think creatively can be more organized in taking action because they have innovation in solving new problems and finding new systems. Apart from that, each individual also has a different mindset, but with critical thinking skills, when experiencing a problem it will be easier and easier to find a solution. So critical thinking is the ability to analyze based on facts, evidence that produces conclusions and ideas that can solve the problem of whether information can be trusted so that it can provide rational and correct conclusions. Present Differentiated Learning which is an adjustment to students' interests, learning preferences and readiness to achieve improved learning outcomes. The subjects of this research were students of the Guidance and Counseling study program who were determined using Random Sampling techniques and data processing using quantitative descriptive methods.

Keywords: Creative Thinking, Critical Thinking, IDCP, Differentiated Learning.

1. Introduction

The aim of national education as stated in Law Number 20 of 2003 and Law Number 12 of 2012 concerning Higher Education is to develop abilities and form a dignified national character and civilization in order to make the nation's life intelligent. These two national higher education foundations firmly want higher education to produce graduates who, apart from being competent in their fields, also have noble character based on noble life values and high spirituality.

However, much criticism has been leveled at the higher education system which has not been able to accommodate higher education goals which have not been achieved. Many college graduates are criticized for behaving and saying things that do not show good morals, do not have noble character, are intolerant and corrupt and cannot be relied on in carrying out their profession and service. Many parties complain about the lack of content and benefits in the learning process that can strengthen the positive character of Higher Education graduates. Learning in higher education is considered to only focus on the cognitive (and psychomotor) domain and does not devote enough attention and time to strengthening the affective domain. [1]

This crucial issue has become the attention of the Education Council - Higher Education Council as an integral part of the Ministry of Research, Technology and Higher Education (now the Directorate General of Higher Education, Ministry of Education and Culture) in the last three years. conducted discussions and reflections which then gave birth to the concept of

the Basic Core of Educational Achievement/IDCP which was outlined in two books, namely: (1) The Basic Core of Educational Achievement/IDCP 6 Knowledge Clusters and (2) Leadership Inspiration for the Industrial Era 5.0. In 2019, the discussion focused on the implementation domain, namely incorporating the IDCP concept into the learning process in higher education [2]. Thus, the formulation of the basic core concept of achieving higher education in Indonesia will include important competency elements, namely: knowledge, skills, attitudes, spirituality and life values. [3]

The last two character concepts, spirituality and life values, will characterize Indonesia's higher education achievements which are different compared to the higher education achievements of other countries. The infusion of IDCP in the learning process is also in line with the commitment of the Ministry of Education and Culture as stated in the Indonesian Minister of Education and Culture Regulation No. 22 of 2020 concerning the Strategic Plan of the Ministry of Education and Culture for 2020-2024. The Ministry of Education and Culture has established these superior human resources in the education development road map to create "Pancasila Students", namely Indonesian students as lifelong learners who have global competence and behave in accordance with Pancasila values, with six main characteristics: faith, devotion to God Almighty, and have noble character, independence, critical reasoning, creativity, mutual cooperation and global diversity. [5]

According to the global diversity element, it is also related to how the educational process can facilitate the various differences that exist in students or learning. You can see these differences from the ecological system of each individual (family background, culture, politics, economy, environment, etc.), multiple intelligences, zone of proximal development, learning modalities or what we know as learning styles, as well as many other differences [6]. Students who are accustomed to appreciating and adapting to the various differences that exist in the classroom will lead to students being able to appreciate differences in the social environment. This is also in accordance with the IDCP concept which emphasizes the development of Spirituality and Life Values which will be a distinguishing characteristic of the performance of Indonesian higher education graduates. [4]

In fact, every individual is different from one another. Likewise, every student in the class is definitely different from one another. There are so many student needs that must be met. Without realizing it, lecturers will face students with a wide variety of diversity every day. This is the background for lecturers being faced with various challenges in teaching which can accommodate various student differences through differentiated learning strategies. According to Tomlinson [10] Differentiated learning is an effort to adapt the learning process in the classroom to meet the learning needs of students as individuals. Or it could also be said that differentiated learning is learning that provides flexibility and is able to accommodate students' needs to increase their potential in accordance with students' different learning readiness, interests and learning profiles. [9]

Differentiated learning does not only focus on learning products (assignment results, exams, etc.), but also focuses on other aspects of differentiation, namely the process as well as content/material and learning environment. So that in the learning process all students' needs to develop creativity and critical thinking skills can be facilitated in the learning process. Critical and creative thinking is a manifestation of high-level thinking skills and is part of the life skills that future generations should have. Critical thinking requires individuals to analyze

and evaluate thoughts with a view to improving thinking based on a goal. Meanwhile, the ability to think creatively is an ability that causes an individual to be able to give birth to a new idea or creative idea about something [7] .

This research aims to design a learning model that incorporates basic core learning outcomes and differentiated learning to increase creativity and critical thinking skills in students. So this model will focus on educational attainment which is realized as having distinctive characteristics and colors, reflected not only in the form of consistent knowledge, skills and attitudes, but accompanied by spirituality and life values that are easily recognized (distinctive) and are also able to accommodate Various differences in needs and abilities possessed by students.

2. Research Method

This research is a Research and Development (R&D) study which aims to determine the development and feasibility of the Character Education Program using Web-based application media at Medan State University. The development of the Character Education Program model using Web-based application media which is used as a reference is the 4-D model [8]. There are four stages in the 4-D model:

a) Definition which includes front-end analysis, student analysis, tax analysis, concept analysis, and designing character education objectives (determining learning objectives).
b) Design which includes the stage of preparing benchmark reference tests (tests that refer to construct criteria), the media selection stage (media selection), format selection (format selection), and making an initial plan (initial design).
c) Developing which includes expert assessment and development testing stages
d) Disseminate is the stage of socializing the product. Socialization was carried out on a limited basis, namely by providing development results to students at the Faculty of Education, Universitas Negeri Medan.

3. Results and Discussion

A. Definition
a) Needs Analysis and Curriculum Implementation in the Guidance Counseling Department

This research began by conducting a needs analysis of curriculum implementation, so that it becomes the basis and reference for implementing lectures in the Counseling Guidance Study Program. Needs analysis is carried out as a strategy to see the extent of the urgency of a product being developed and which can later become a solution in implementing lectures. Based on the results of the analysis, it can be seen that the curriculum revitalization process in the Counseling Guidance Study Program is carried out periodically to maintain and produce graduate profiles that are in accordance with the study program's vision and mission. In accordance with Medan State University policy, the current lecture process is required to use the Outcome Based Education curriculum as a basis for implementing a concrete lecture system that is in accordance with field needs. Students are no longer required to be able to know all forms of available information, but are more focused on aspects of the needs of partners, stakeholders and also the industrial world as their future scope of work.

The next analysis was carried out by looking at the implementation of the lecture system in the Counseling Guidance Study Program. Based on the implementation of the learning process in several courses in the Counseling Guidance Study Program, each lecturer has implemented several learning models that are in accordance with the objectives of their respective lectures. The implementation of the learning model has also been followed by using several relevant media to strengthen students' understanding of the material being taught. In accordance with the profile of Counseling Guidance Study Program graduates, they produce graduates who are competitive, creative and have superior character. It is hoped that this will later become an indicator of the achievement of each course in the Counseling Guidance Study Program. In its application, it turns out that not all courses include graduate profile indicators as one of the course objectives. Therefore, of course there is a need for a general learning model reference that can facilitate aspects of student creativity and critical thinking so that it can be implemented in every relevant course. This learning model is expected to be able to unite various important elements in the learning process (aspects of knowledge, skills, attitudes which are strengthened by spiritual aspects and life values) so that creative individuals will be created who have the ability to think critically.

b) Analysis of Student Needs for the Learning Process
The next stage of analysis was carried out to see students' opinions regarding the implementation of the lecture process in the Counceling Guidance Study Program. At this stage the researcher provides a questionnaire containing aspects of lecture achievement and the effectiveness of implementing a learning model in its application to the lecture process. Questionnaire indicators refer to aspects of creative thinking which include fluency, flexibility, originality, elaboration, sensitivity. Furthermore, indicators are designed using critical thinking indicators including: (1) interpretation, analysis, evaluation, inference and explanation, self-regulation.

Referring to the research objective of developing differentiated learning modules, several forms of questions in the questionnaire were designed to see how lecturers respond to stimulating students' learning needs by providing responses that can expand, add, and adjust time so as to obtain maximum learning results. The questionnaire process was also collaborated with several questions to see whether the learning process at the Counceling Guidance Study Program had implemented attitudes, spirituality and life values.

c) IDCP Model Concept in Differentiated Learning
Based on the analysis of curriculum implementation and student character, the researcher designed the IDCP learning model concept which refers to competency indicators of knowledge, skills, attitudes, spirituality and life values. In future implementation, lecturers are required to consistently be able to apply the IDCP infusion in an integrated manner in the form of a complete unit (knowledge, skills, attitudes, spirituality and life values) so that later they can take a role in shaping the nation's character, especially the younger generation as potential future leaders. The explanation of each IDCP infusion indicator is as follows:

    a) Knowledge
       Includes intellectual aspects, the ability to describe and define an object as well as the ability to think and analyze
    b) Skills

Practical motor skills that support relevance to knowledge aspects.
c) Attitude
Aspects of feelings, emotions, interests, attitudes, appreciation and ways of adapting.
d) Spirituality
There are several aspects that include spirituality, namely: Belief in the existence of a power that regulates the universe and salvation, belief in divinity
e) Life Values
Instilling strong life values in a person to be able to overcome and refrain from matters of personal interest (self-interest) and egocentrism so as to avoid a life that is materialistic and hedonistic. This indicator is also important to improve students' character so that they avoid aspects of group fanaticism, primordialism and sactarianism.

Each of these infusion indicators will be integrated into the formation of student character which will later be called "Prosperous Spirit". This is of course the aim of IDCP income where later students will not only be given competency aspects but also the strengthening of educational character which can direct students to become figures who have a balance between hard skills and soft skills. The role of "Work Spirit" behavior can be seen as follows:

Table 1. 40 IDCP Indicators

|	40 IDCP Indicators		
1	Initiative	21	Active Tolerance
2	Independent	22	Ethical
3	Curiosity	23	Competitive
4	Mutual cooperation	24	Patriotism
5	discussion	25	Risk Taking
6	Value	26	Diligent/Persevere
7	Harmony	27	To be honest
8	Open minded	28	Fair
9	Spiritual	29	Humble
10	Dignity	30	Hard work
11	Honorable	31	Tough
12	Respect for Others	32	Ppassionate/loving
13	Abundance Mentality	33	Commitment
14	Scientific	34	Grateful
15	Trust and trustworthy	35	Fairness
16	Tender/Caring/Sharing	36	Assertiveness
17	Communicative	37	Trustworthy
18	Active-Creative	38	Resilince
19	Empathy/Sympathy	39	Endurance
20	Integrity	40	Persistence/Perseverance

The character education values formulated in the IDCP are grouped into five IDCP Main Parameter Categories which are interrelated and cannot be separated from one another, namely:

a) Humanity, humaneness
b) Contemplative, always reflecting everything on reality, norms, goals, goodness
c) Creative-Innovative, looking for breakthroughs for the benefit of himself and the people around him
d) Spirituality, awareness that each person is part of a larger system, cannot be separated, and has a mission in life
e) Scientific, always looking for things that are concrete and true

Furthermore, by referring to students' learning needs (which are adjusted to the study style and study program curriculum), learning motivation, potential, a concept of differentiated learning is developed which also refers to the achievement of the IDCP Main Parameter Category. Several forms of indicators of differentiated learning achievement also refer to the following aspects:
a) Students feel a comfortable environment when receiving learning
b) There is an increase in hard skills and soft skills
c) Achievement of learning objectives so that students are able to reflect themselves and their abilities optimally from the preparation, implementation and evaluation stages of learning.

The following is a conceptual plan for the IDCP infusion model in differentiated learning which will later be developed as a research product:
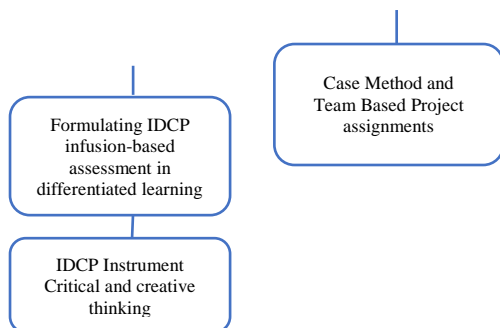
IDCP Infusion Model in Differentiated Learning
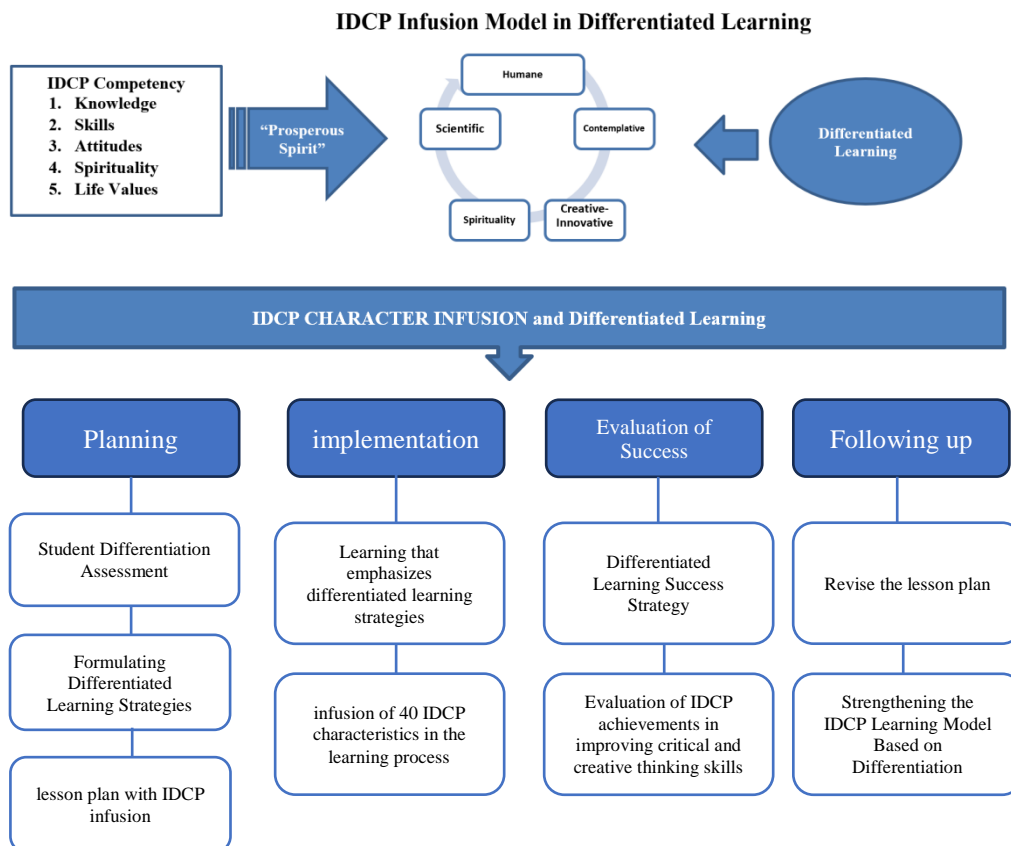
Fig. 1. IDCP Infusion Model Differentiated Learning

Furthermore, the IDCP infusion model in differentiated learning also refers to the main goal of developing superior human resources for Advanced Indonesia. The main objective is to refer to the Pancasila Student indicator, namely Indonesian students as lifelong learners who have global competence and behave in accordance with Pancasila values with six main characteristics: devotion to God Almighty, faith, good character, critical thinking, independence, creativity , cooperation and global diversity

d) Application Concept as a Learning Media in the IDCP Infusion Model in Differentiated Learning

To support the process of implementing the IDCP infusion model in differentiated learning, researchers designed an interactive application that functions as a medium which can later function to measure critical thinking power and verbal creativity as an initial analysis stage (Pre-Test). Furthermore, in the application feature, a Learning Style Test (Visual, Aural, Read, Kinesthetic/VARK) will be created so that later students can be directed to a form of assignment according to the results of their learning style evaluation. In accordance with the current academic year, the assignment form will be divided into odd semester groups, namely: semester 1, semester 3 and semester 5. In the application, students can independently choose semester options according to the academic year they are undertaking. Each assignment in each semester will be grouped based on VARK learning styles (Visual, Aural, Read and Kinesthetic). After students complete each assignment, the results will be used as material for the final evaluation (Post Test).
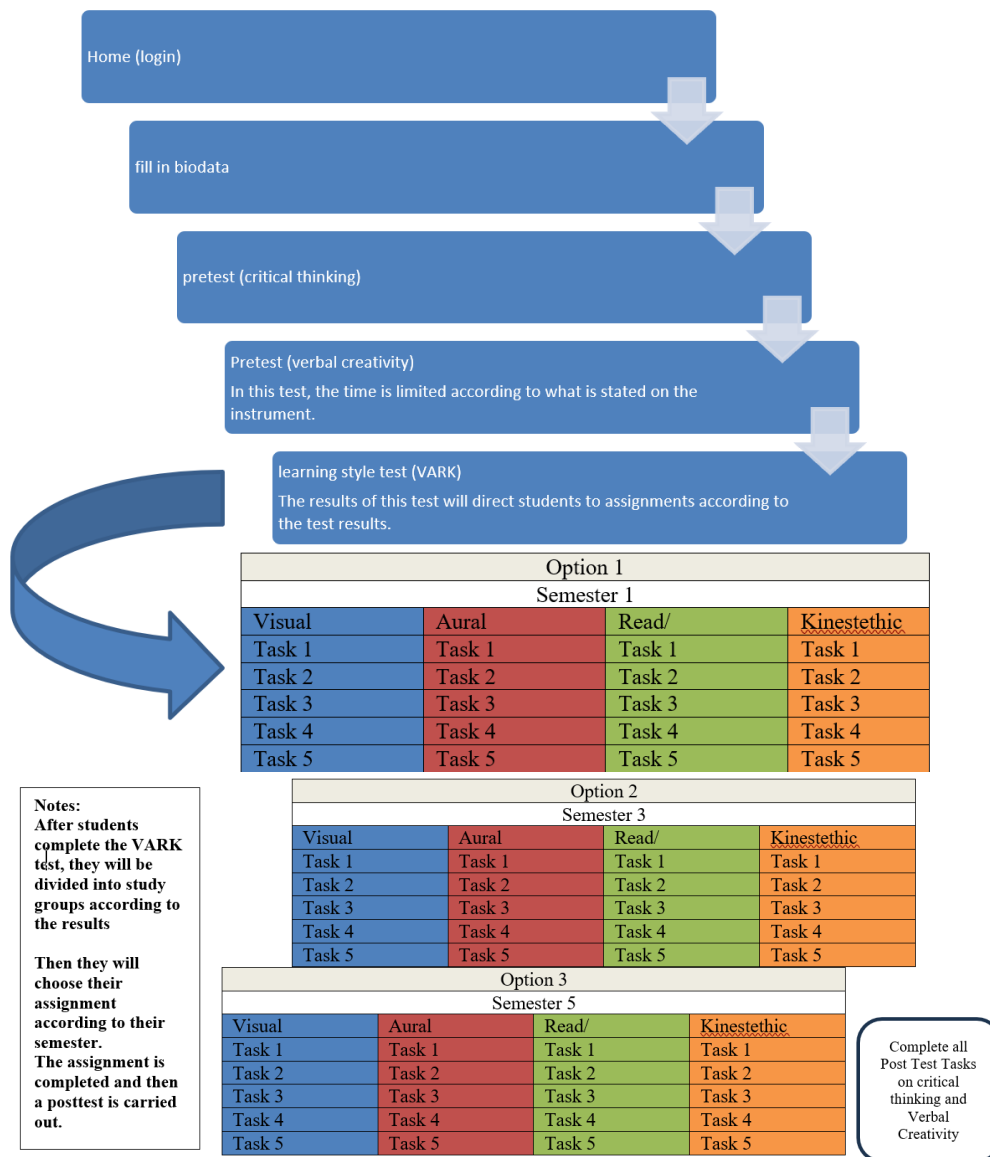
Home (login)

fill in biodata

pretest (critical thinking)

Pretest (verbal creativity)
In this test, the time is limited according to what is stated on the instrument.

learning style test (VARK)
The results of this test will direct students to assignments according to the test results.

Option 1			
Semester 1			
Visual	Aural	Read/	Kinestethic
Task 1	Task 1	Task 1	Task 1
Task 2	Task 2	Task 2	Task 2
Task 3	Task 3	Task 3	Task 3
Task 4	Task 4	Task 4	Task 4
Task 5	Task 5	Task 5	Task 5

Notes:
After students complete the VARK test, they will be divided into study groups according to the results

Then they will choose their assignment according to their semester.
The assignment is completed and then a posttest is carried out.

Option 2			
Semester 3			
Visual	Aural	Read/	Kinestethic
Task 1	Task 1	Task 1	Task 1
Task 2	Task 2	Task 2	Task 2
Task 3	Task 3	Task 3	Task 3
Task 4	Task 4	Task 4	Task 4
Task 5	Task 5	Task 5	Task 5

Option 3			
Semester 5			
Visual	Aural	Read/	Kinestethic
Task 1	Task 1	Task 1	Task 1
Task 2	Task 2	Task 2	Task 2
Task 3	Task 3	Task 3	Task 3
Task 4	Task 4	Task 4	Task 4
Task 5	Task 5	Task 5	Task 5

Complete all Post Test Tasks on critical thinking and Verbal Creativity

Fig. 2. IDCP Infusion Model Support Application Flow

The product creation stage continues with creating an application layout design as a prototype of the product being designed. The application is designed to support Android devices for smartphone viewing and PC/laptops for website viewing. The application display form on a smart phone device can be seen in the following image:
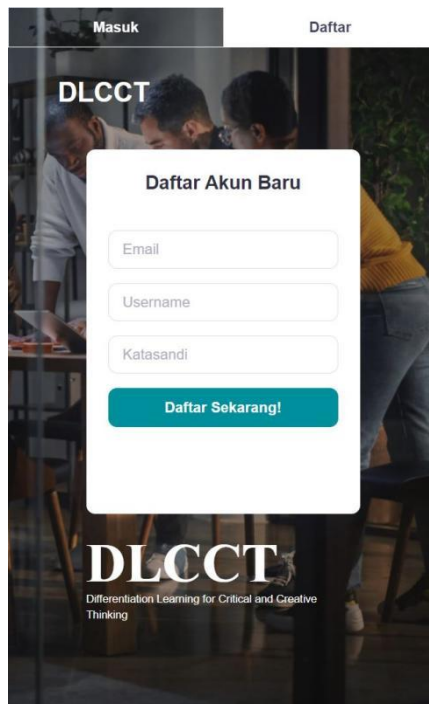
Fig. 3. Application Display on Smartphone

The appearance of the application in website form can be seen in the following image:
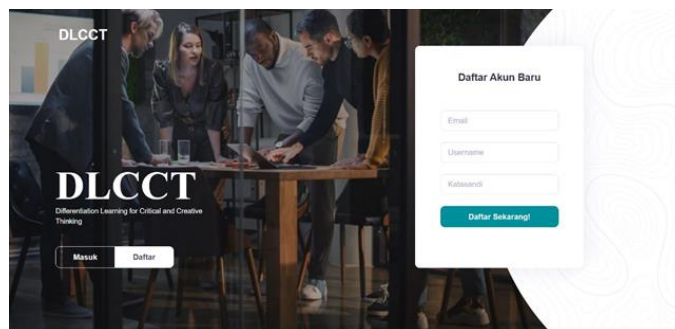

Fig. 4. Application Display on Website

Next, the researcher designed an application design containing pre-test questions, VARK tests and post-tests that would be completed by each student. Regarding the design of the pre-test questions, it can be seen as follows:
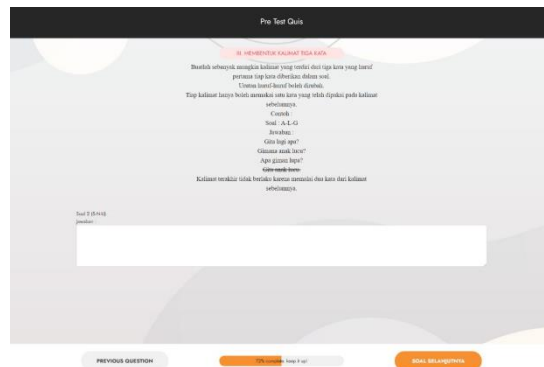
Fig. 5. Display of the Pre-Test Question Form in the Application

The display form of the VARK (Visual, Aural, Reading, Kinensthetic) test design can be seen in the following display:

Fig. 6. Display of VARK Test Question Form

Next, the post-test question design display can be seen in the following display:
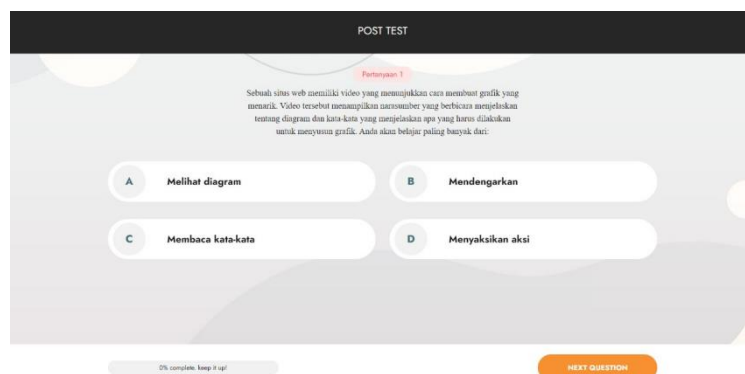

Fig. 7. Display of Post-Test Question Forms in the Application

The next research syntax will continue with the Design stage to design lecturer/counselor programs for courses in the Counceling Guidance Study Program. This will later be continued in the validation process which will be carried out with material experts and media experts.

4 Conclusion

At the definition stage, researchers have designed the concept of the IDCP model in differentiated learning by adopting several indicators including the IDCP infusion indicators: Knowledge, Skill, Attitude, Spirituality and Life Value). The concept of the IDCP infusion model also refers to the "Spirit of Prosperity" indicator which can later become a reference for strengthening character education. Furthermore, the values of character education are formulated in five Main Parameter Categories (KPU) which are interrelated, including Humanity, Contemplative, Creative-Innovative, Spirituality, and Scientific.
2. The definition stage continues with designing the DLCCT (Differentiation Learning for Critical and Creative Thinking) application as a form of supporting media for implementing the IDCP investment model in differentiated learning.

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