

DEVELOPMENT OF DIGITAL BIOLOGY TEACHING MATERIALS FOR THE POST-COVID-19 REVITALIZATION OF BIOLOGY LEARNING

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ABSTRACT

Abstract

The uncertainty of conditions during the COVID-19 pandemic after 2 years made the learning process enter the latest routine. This situation needs to be answered with a new strategy in the learning process. Electronic, technology, and digital-based learning are the main choices during a pandemic that does not allow face-to-face meetings. Along with the handling of covid and also in line with improving public health conditions, several educational institutions have begun to return the learning process to offline as it was in the pre-pandemic period. Even so, the implementation of offline learning is not carried out in full with all students. Some students are allowed to meet face-to-face, while others take online learning. This requires a new strategy in dealing with the learning process. Modifications to teaching materials absolutely need to be done to address new ways of learning.

Teaching materials that need to be developed are teaching materials that can be used individually or classically, in digital form to make it easier to share with all students, and can also contain all the concepts in the learning materials. One of the most likely to use is teaching materials in the form of videos. In biology learning, videos can be used to show students about biological phenomena that occur in nature and then the teacher can discuss them in the video.

The process of making teaching materials in the form of videos of course also follows the stages of developing teaching materials which require several clear and accountable research steps. In the methodology of research and development of teaching materials, there are several models that can be followed by steps. In this study, the development model referred to is Thiagarajan's 4D model. 4D refers to four stages separated from each other. The first stage is Define, the second stage is Design, the next stage is Develop and the last is Dissemination. From each of these steps, there are several steps that need to be done. In the Define step, there are 5 stages that need to be taken. 1) front-end analysis, 2) learner analysis, 3) task analysis, 4) concept analysis, and 5) specifying instructional objectives. The five steps aim to map the needs of students and also the needs of the learning process. The hope is that the product to be developed can truly answer the needs of learning and students appropriately.

The second stage is Design. There are 4 activities that need to be carried out during the Design phase, namely 1) constructing criterion-referenced test, 2) media selection, 3) format selection, and 4) initial design. This Design stage is the result of the embodiment of the analysis carried out at the Define stage. Of course, the hope at this design stage is that the product design produced is a product that is suitable and in accordance with the conditions of the perpetrators of the learning process, especially students as learners.

In the Develop stage, the initial product resulting from the Design stage is reviewed by experts and professionals, and tested on product users. Input from experts and professionals as well as input from product users, becomes a reference for consideration in revising the developed product. The goal is that users can really do learning according to their knowledge. If the product has passed the test at the develop stage and the revision has been carried out, then the next stage is the dissemination of the use of the resulting product. What really needs to be considered at this final stage is the choice of platform or container that will be used as a medium for disseminating the teaching materials that have been prepared.

Kata Kunci: Covid pandemic, Biology Learning, Digital Learning, Teaching materials, Learning strategies