

**PENGEMBANGAN MEDIA PEMBELAJARAN  
KULTUR JARINGAN BERBASIS WEBSITE  
DI UNIVERSITAS NEGERI MEDAN**

**NANDA ESKA ANUGRAH NASUTION (8156174037)**

**ABSTRAK**

Tujuan penelitian ini ialah mengembangkan media pembelajaran kultur jaringan berbasis website dan mengetahui efektivitas media yang dikembangkan terhadap hasil belajar, keterampilan proses sains, dan kemampuan berpikir kritis mahasiswa pendidikan biologi Universitas Negeri Medan. Metode penelitian ini ialah penelitian dan pengembangan (*Research and Development*) yang menggunakan model Borg dan Gall (1989). Berdasarkan hasil validasi ahli materi, ahli bahasa, ahli desain media, ahli desain instruksional dan ahli website didapatkan presentasi nilai secara berturut-turut ialah 86% (sangat baik), 87% (sangat baik), 86% (sangat baik), 88% (sangat baik) dan 93% (sangat baik). Media pembelajaran kultur jaringan berbasis website berdasarkan hasil tanggapan oleh mahasiswa pada uji perorangan, uji kelompok kecil, dan uji lapangan terbatas dinilai sangat baik dengan rata-rata skor secara berturut-turut 87%, 85.85%, dan 83.14%. Dengan demikian, dapat disimpulkan bahwa media pembelajaran terkategori sangat baik dan layak digunakan sebagai media pembelajaran. Mengetahui efektivitas media pembelajaran, dilakukan penelitian eksperimen semu di Universitas Negeri Medan. Populasi yang digunakan ialah mahasiswa semester VIII pendidikan biologi dan Sampel terdiri atas dua kelas Dik A (kontrol) dan Dik C (eksperimen) yang diambil menggunakan teknik *cluster random sampling*. Dari hasil penelitian, didapatkan nilai pada hasil belajar kognitif, keterampilan proses sains, dan kemampuan berpikir kritis secara berturut-turut yaitu  $t_{hitung} = (3.769) > \text{dari } t_{tabel} (1.661)$ ,  $t_{hitung} = (5.435) > \text{dari } t_{tabel} (1.661)$ ,  $(2.15) > \text{dari } t_{tabel} (1.661)$  masing-masing pada level signifikansi 0.05. Kesimpulan yang didapat ialah  $H_{a1}$ ,  $H_{a2}$ , dan  $H_{a3}$  diterima dan  $H_{o1}$ ,  $H_{o2}$   $H_{o3}$  ditolak, maka hasil belajar kognitif mahasiswa, keterampilan proses sains dan kemampuan berpikir kritis pada kelas yang diajarkan menggunakan media pembelajaran kultur jaringan berbasis website lebih baik secara signifikan dari pada kelas yang diajarkan menggunakan media grafis.

**Kata kunci :** Media pembelajaran kultur jaringan berbasis website, Hasil belajar, Keterampilan proses sains, kemampuan berpikir kritis, kultur jaringan

**THE DEVELOPMENT OF WEBSITE-BASED LEARNING  
MEDIA IN PLANT TISSUE CULTURE COURSE  
IN STATE UNIVERSITY OF MEDAN  
NANDA ESKA ANUGRAH NASUTION (8156174037)**

**ABSTRACT**

The aim of this study was to develop the website-based learning media of plant tissue culture course and to know the effect of website-based Learning media on learning outcomes, science process skills and critical thinking ability of students of biology education in State University of Medan. The research method used in this study is Research and Development method (R&D) that followed Borg and Gall (1989) model. Based on validation result of material expert, language expert, media design expert, instructional media expert, and website expert showed percentage result respectively 86% (very good), 87% (very good), 86% (very good), 88% (very good) dan 93% (very good). Assessment result of individual testing, small group testing and operational field test showed result respectively 87% (very good), 85.85% (very good), and 83.14% (very good). Based on the result, the overall validation and testing of product belong to very good category and suitable to be used as learning media. In order to understand the effect of website-based Learning media on learning outcomes, science process skills and critical thinking ability of students of State University of Medan, the research method used in this study is quasy experiment. Population was all of semester VIII students of biology education program of State University of Medan. Sample was consist of two classes namely Dik A as control class and Dik C as experiment class, which taken with cluster random sampling technique. From result, it was obtained that  $t_{count} = 3.769 > t_{table} = 1.661$ ,  $t_{count} = 5.435 > t_{table} = 1.661$ ,  $t_{count} = 2.15 > t_{table} = 1.661$  all at the level significance of 0.05 respectively in learning outcomes score, sciences process skills score, and critical thinking ability score, so, it means that  $H_{a1}$ ,  $H_{a2}$ , dan  $H_{a3}$  is accepted and  $H_{o1}$ ,  $H_{o2}$   $H_{o3}$  is rejected, it can be concluded that the class taught by website based learning media has significantly better learning outcomes, sciences process skills, and critical thinking ability score than class taught by graphic media.

**Keywords:** Website-based learning media, Learning outcome, Science process skills, Critical thinking ability, Plant tissue culture.