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..... LEARNING STYLES

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**DESIGN AND EVALUATION OF THE BIO-WEBCLEN FOR
FORM FOUR STUDENTS OF DIFFERENT
LEARNING STYLES**

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ABSTRACT

The primary purpose of this study was to determine the effect of the Biology Web-based Constructivist Learning Environment (Bio-WebClen) on learning and content acquisition among Form Four learners of different learning styles, namely auditory, visual and tactile. The secondary purpose was to explore the nature of the learning process in terms of interaction and time on task and to investigate the perception of the learners towards the Bio-WebClen.

The effects of the Bio-WebClen on student learning were determined based on student responses in the learning environment while its effect on content acquisition was determined through pretest and posttest. During this period, data was also collected through online tasks, learners' documents and records, observations and questionnaires.

The findings showed that the Bio-WebClen had a positive impact on learners of different learning styles. Nonetheless, modifications on learning activities need to be carried out so as to accommodate the auditory and visual learners better. With regard to content acquisition, the nonparametric Wilcoxon signed-rank test indicated that the learners achieved significantly higher posttest scores than pretest scores.

The findings also indicated that the learners collaborated well through interactions with content materials, the teacher and their peers. They engaged well in learning task and held a positive perception towards learning in a web-based constructivist learning environment.

Overall, the findings imply that learning style diagnosis prior to designing a constructivist web-based learning environment is important as it ensures the creation of a

learning environment that will be sensitive to the needs of learners of different learning styles.

REKABENTUK DAN PENILAIAN *BIO-WEBCLEN* UNTUK PELAJAR TINGKATAN EMPAT YANG BERLAINAN STAIL PEMBELAJARAN

ABSTRAK

Tujuan utama kajian ini ialah untuk menentukan kesan persekitaran pembelajaran konstruktivis Biologi berasaskan Web (*Bio-WebClen*) terhadap pembelajaran dan pemerolehan ilmu di kalangan pelajar Tingkatan 4 yang mempunyai stail pembelajaran berbeza, yakni auditori, visual dan taktil. Tujuan kedua ialah mengenalpasti proses pembelajaran yang berlaku dari segi interaksi dan penglibatan pelajar. Seterusnya kajian ini mengkaji persepsi pelajar terhadap *Bio-WebClen*.

Kesan *Bio-WebClen* terhadap pembelajaran pelajar ditentukan berdasarkan respons pelajar terhadap beberapa aktiviti di dalam persekitaran pembelajaran, sementara kesannya terhadap pemerolehan ilmu ditentukan melalui ujian pra dan ujian pos. Dalam tempoh masa ini juga, data kualitatif dikumpul melalui hasil pelajar yang diterbitkan secara *online*, rekod dan dokumen pelajar, pemerhatian dan soal selidik.

Hasil kajian menunjukkan *Bio-WebClen* mendatangkan kesan positif terhadap pembelajaran di kalangan pelajar berlainan stail pembelajaran. Namun, pengubahsuaian aktiviti pembelajaran perlu dijalankan agar dapat lebih memenuhi keperluan pelajar auditori dan visual. Berhubungan dengan pemerolehan ilmu, ujian Wilcoxon menunjukkan pelajar telah mencapai peningkatan skor yang signifikan dalam ujian pos berbanding ujian pra.

Hasil kajian juga menunjukkan interaksi pelajar dengan bahan pembelajaran, guru dan rakan adalah memuaskan. Penglibatan mereka dalam pembelajaran juga

mengalakkan. Selain itu, mereka didapati mempunyai persepsi yang positif terhadap pembelajaran dalam persekitaran pembelajaran konstruktivis berasaskan Web.

Pada keseluruhannya, implikasi hasil kajian menunjukkan bahawa diagnosis stail pembelajaran sebelum merekabentuk persekitaran pembelajaran konstruktis berasaskan Web adalah penting bagi mewujudkan persekitaran pembelajaran yang peka terhadap keperluan pelajar yang mempunyai stail pembelajaran berbeza.

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