

On e-Learning: The WebCT System in the Teaching of Entomology

Tadauchi, Osamu

Inoue, Hitoshi

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On e-Learning: The WebCT System in the Teaching of Entomology^{1), 2)}

Osamu TADAUCHI

Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, 812-8581 Japan

and

Hitoshi INOUE

Computing and Communications Center, Kyushu University, Fukuoka, 812-8581 Japan

Abstract. One of the e-Learning Systems, WebCT, was installed on a server at the Computing and Communications Center, Kyushu University in 2002. The system was utilized in the teaching of some subjects in the university and, in addition to conventional face-to-face teaching, lectures were given via the Internet. One of the initial subjects incorporated for use with the system was the Applied Entomology course of the Faculty of Agriculture. The WebCT courseware included information relating to syllabus, lecture schedules, course content, quizzes, reports, discussions, URL links related to applied entomology, a glossary, an image database and a questionnaire. Students could access the WebCT homepage of the subject they were enrolled in and to review their lessons and take examinations via the Internet. An outline of WebCT and its introduction to the teaching of applied entomology are presented and some noteworthy advantages of the system are discussed.

Key words: e-Learning, WebCT, entomology education, Internet, Kyushu University.

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Introduction

The Internet has had a great impact on the teaching and research of entomology. Internet tools help instructors and students to communicate and to easily find and access information (Zenger & Walker, 2002). Many universities have recently displayed their course descriptions and syllabi on their respective web sites. Many on-campus e-Learning systems such as BlackBoard, WebCT, CADDIE, IMS, JANZABAR and UnivASSIST, have already been developed and are currently available for use. One of these, WebCT, has many advantages and has predominantly been used in North America for higher education purposes (Saito *et. al.*, 2002). The Computing and Communications Center at Kyushu University, Japan acquired a license and installed WebCT on its server in 2002. One of the authors, Inoue, working as the main coordinator, began providing University-wide planning and support strategies for the use of WebCT as the official training course in our university. Another author, Tadauchi, responsible for the teaching of applied entomology, biological statistics, etc in the undergraduate course in the Faculty of Agriculture, made use of the WebCT system in the lecture program of the university from 2002. In the present report, an outline of the WebCT system and its introduction to the teaching of applied entomology at Kyushu University are presented.

On the WebCT system

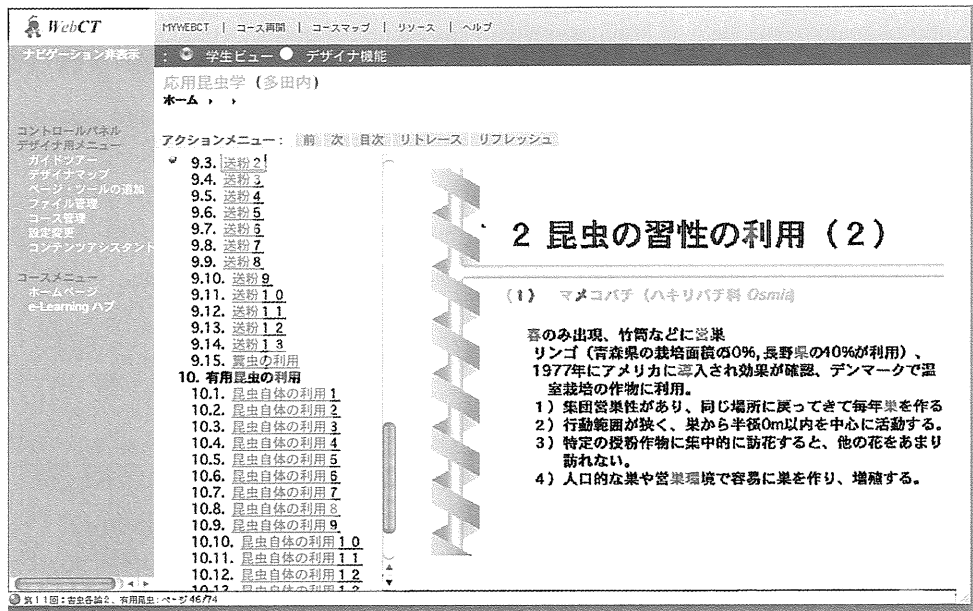
Murray Goldberg of the Computer Science Department at the University of British Columbia, Canada developed the original WebCT system in 1995. The system readily enables instructors to apply innovative technologies to facilitate course preparation and enrich student's learning experiences. In 1997, together with his teaching assistant, he formed a company WebCT Educational Technologies, to continue the development of the course management system software and support its users. Following this, WebCT, Inc. was founded and has since provided the leading e-Learning solutions system for higher education.

Through the use of browser software as Netscape Communicator or Internet Explorer, the WebCT system allows one to create and save many elements quickly and efficiently. A course designer or instructor can construct a homepage on any subject by using "WebCT Builder". After a syllabus, including course and instructor information, is created, tools such as a course calendar, etc can be added. Students wishing to attend a lecture course must first register and be issued with a user ID and password. If a course designer has content stored on a local computer and wants to incorporate that content online, an upload tool in the system can be used for that purpose. The WebCT system

Introduction of WebCT in the Teaching of Applied Entomology

[illegible]

Fig. 1. Home page of the Applied Entomology WebCT course in the Faculty of Agriculture, Kyushu University.



The screenshot displays the WebCT interface for the 'Applied Entomology (Mitsuda)' course. The left sidebar contains navigation links such as 'ナビゲーション', 'コントロールパネル', and 'デザインメニュー'. The main content area is titled '2 昆虫の習性の利用 (2)' (Use of insect habits (2)). Below the title, there is a section '(1) マメコバチ (ハキリバチ科 *Osmia*)' (Mamekobachi (Megachilidae *Osmia*)). The text describes the appearance and uses of these bees, noting their presence in Japan and their role in pollinating fruit trees like apples and pears. A list of four points follows, detailing their nesting habits and the importance of providing artificial nesting sites.

2 昆虫の習性の利用 (2)

(1) マメコバチ (ハキリバチ科 *Osmia*)

喜のみ出現、竹筒などに営巣
リンゴ (青森県の栽培面積の0%, 長野県の40%が利用)、
1977年にアメリカに導入され効果が確認、デンマークで温室栽培の作物に利用。

- 1) 集団営巣性があり、同じ場所に戻ってきて毎年巣を作る
- 2) 行動範囲が狭く、果から半径0m以内を中心活動する。
- 3) 特定の授粉作物に集中的に訪花すると、他の花をあまり訪れない。
- 4) 人口のな巣や営巣環境で容易に巣を作り、増殖する。

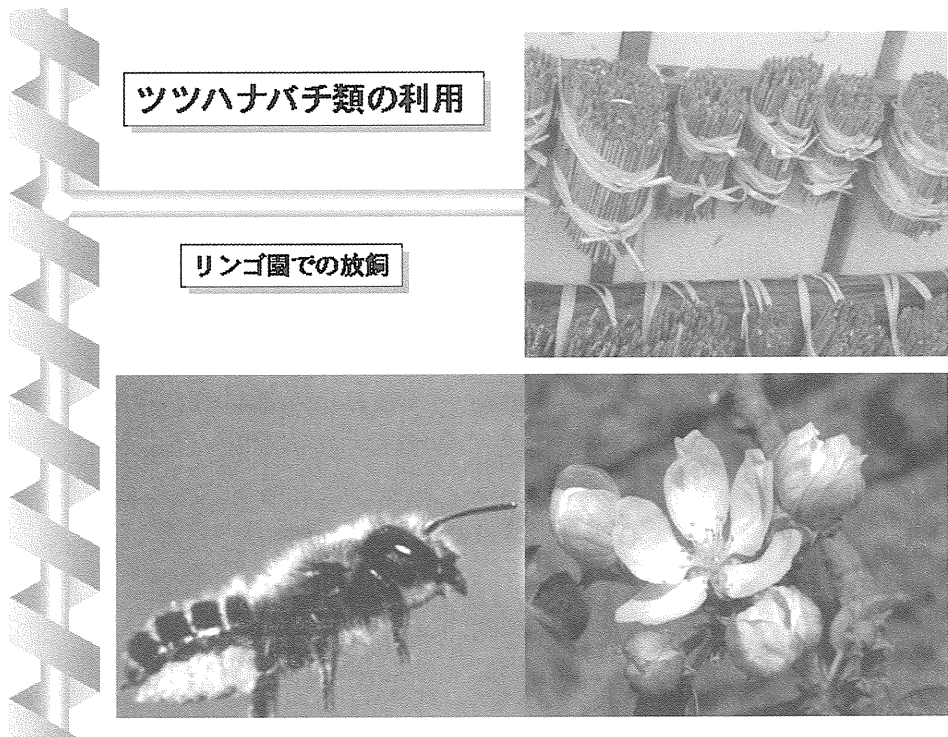


Fig. 2. An example of the lecture content, "Useful insects: use of pollinating insects, *Osmia*", in the Applied Entomology WebCT course.

WebCT
ナビゲーション機能表示

コンテンツの検索
ガイドライン
ナビゲーション
ページ・メニューの選択
ファイル管理
コース管理
最近更新
コンテンツアシスタント

ホーム
e-Learning ハブ

MYWEBCT | コース情報 | コミュニティ | オンライン | ヘルプ

? 辞書 | 学生メニュー | デザイン検索

応用昆虫学 (多田内)

ホムムム

すべて表示 | 辞書

A - B - C - D - E - F - G - H - I - J - K - L - M
N - O - P - Q - R - S - T - U - V - W - X - Y - Z

あ - い - う - え - お - か - け - こ - さ - し - す - せ - そ - た - ち - つ - て - と
な - に - ぬ - ね - の - は - ひ - ふ - へ - ほ - ま - め - も - や - ゆ - よ
ら - り - る - れ - ろ - わ - る - ゑ - が - ぎ - ぐ - げ - ぎ - ぐ - ぜ - ぞ
だ - ぢ - づ - ぜ - ぢ - づ - べ - べ - べ - べ - べ - べ - べ

その他

漢	英
機械的防除(きかいてきぎうじょう)	mechanical control 機械器具を用いて有害生物を防除すること
希釈剤(せしかざい)	diluent 農薬の散布を容易にするために増量、希釈を目的として加える不活性物質
寄主植物(きしゅしょくぶつ)	host plant 植物食の昆虫にとって食物となる植物
寄生(かせい)	parasitism, parasitization 他の生物(寄主)の体の内部または外部に付着または侵入し、その栄養を取って生活すること
寄生者(かせいしゃ)	parasite 他の生物(寄主)の体の内部または外部に付着または侵入し、その栄養を取って生活する生物
拮抗作用(ぎっこうさよう)	antagonism ある作用に2つの要因が同時に働くとき、一方の働きを他方が打ち消す現象
キネシス(きねしす)	kinesis 運動の方向が刺激源と直接関係をもたない場合をいう。無定向運動性
忌避剤(きびざい)	repellent 昆虫や有害動物がそのにおいや味などを嫌って、作物、人間などに近寄らないようにするために用いる薬剤
急性毒性(きゅうせいどくせい)	acute toxicity 薬剤の1回の投与、摂取または接触によって短時間のうちに生物の死亡、包摂などに障害をきたす性質
休息段階(きゅうしゅうかんかくせい)	break of dormancy, break of rest 休眠打破
拮抗作用(ぎっこうさよう)	antagonism 2種の薬剤が同時に働くとき、一方の働きを他方が打ち消す作用
許容限界(きようりょうげんかひ)	permissible level 食品中に残存することが許容される薬剤の最高濃度
緊急防除(きんきゅうてきぎうじょう)	emergency control 一般には病害虫の異常発生などの場合に臨むに行う防除
菌体外毒素(きんたいがいどくそ)	exotoxin 細胞などが細胞外に分泌する毒素。Bacillus thuringiensis では δ 毒素の3種類の毒素を産生する
菌体内毒素(きんたいないどくそ)	endotoxin 菌体内に産生される毒素で、Bacillus thuringiensis の糸状菌中には芽生え途中で結晶性毒素を産生するものがある

Fig. 3. An example of a glossary in the Applied Entomology course. Students in the class can confirm their knowledge through the use of several tools including lecture content, glossary, image database, and a quiz via the Internet.



Fig. 4. An example of an image database, "Gregarious phase of locust: Outbreak in Magejima Is., Kagoshima Pref., Japan" in the Applied Entomology course.

site was password protected to limit access to enrolled students. Members of the class could access the course site, reconfirm their knowledge and take quizzes (small examinations) via the Internet. The applied entomology course in 2002 prepared a syllabus, lecture schedule, lecture content with references and useful URLs, reports, discussions (bulletin board), URL links to hot news, a glossary of applied entomology, an image database related to applied entomology such as pests, natural enemies, etc and a questionnaire. The home page of the Applied Entomology WebCT course of Kyushu University is presented in Fig. 1. Examples of the lecture content, glossary and image database in the course are shown in Figs. 2-4. A lecture content for each lecture contained 60 to 70 slides or pages on the average. A total of 804 slides were prepared for the Applied Entomology course in 2002. The course provides students with greater access to content and information, in addition to acting as a gateway to access additional information and resources such as other web sites related to the lecture topics. An interactive quiz was posted after every lecture which students could use for review purposes. In 2002, instructor used the discussion tool as a bulletin board to communicate with the students.

Students require a modified set of skills that will allow them to extract knowledge from the information avalanche enveloping them and to communicate through electronic media. (Zenger & Walker, 2002). WebCT has many advantages for instructors and students. A questionnaire concerning the use of WebCT in the teaching of Applied Entomology at Kyushu University was carried out via the Internet at the end of the lecture series. Responses were divided into five grades, 1: strongly disagree, 2: relatively disagree, 3: neither agree/nor disagree, 4: relatively agree and, 5: strongly agree. Some of the results obtained from the questionnaire were as follows:

1. WebCT is easy to use.

Strongly agree: 21%, relatively agree: 50%, neither agree/nor disagree: 25%, relatively disagree: 4%.

2. Use of WebCT in the lecture course is acceptable.

Strongly agree: 42%, relatively agree: 58%.

3. The WebCT resource is helpful in understanding classroom lectures.

Strongly agree: 17%, relatively agree: 46%, neither agree/nor disagree: 33%.

4. WebCT resources reinforce your intellectual curiosity.

Strongly agree: 4%, relatively agree: 50%, neither agree/nor disagree: 46%

5. The WebCT resources are often used after each lecture.

Strongly agree: 21%, relatively agree: 54%, neither agree/nor disagree: 8%, relatively disagree: 17%.

6. The quiz (small examination) after every lecture is helpful for review purposes.

Strongly agree: 71%, relatively agree: 29%.

The initial preparation of WebCT resources took a great deal of time. However, all students accepted (strongly agree and relatively agree) the use of the system as a complement to the lecture course. They also acknowledged the value of the quizzes offered after every lecture for review. We estimated that the delivery of lectures complemented by the WebCT system resulted in overall student satisfaction.

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