Online Homework Using a Moodle Platform:

An Overview of Rationale and Design

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Abstract

Previous research has shown that while technology can and should facilitate language learning (Wilburg & Butler-Pascoe, 2002; CEO Forum on Education and Technology, 2001; Morgan, 2008), many language teachers are still in the dark about how computers can complement traditional teaching methods (Cuban, 2001; MacDonald, 2004; Velazquez-Torres, 2006). Researchers have also shown (Schrum, 2000) that there is a fear among some teachers that traditional face-to-face instruction is being replaced by technology to the detriment of pedagically-sound teaching practices. This paper details the development and implementation of an online homework component using the Moodle platform to supplement an English Oral Communication class at Sapporo University (SU). It will explore the rationale for online supplementation and provide insight into how technology augments, and not supplants, in-class instruction. Finally, the paper discusses the advantages and disadvantages of implementing an online homework component, both from the teacher's and student's perspective.

Introduction

Ever since computers began showing up in classrooms, educators and

researchers have been questioning the pedagogical benefits of integrating technology and teaching. This debate holds true today even though virtually every high school, college and university includes some form of computer-based instruction as part of its curriculum. The digital age has come full force but ironically, the increase in the number of computers has not translated into a Utopian view (Davis, 2006) of computer-enhanced language teaching. As Egbert and Jessup note "At the same time that the number of computers in educational institutions is increasing rapidly, changes in the purposes for which they are used and changes in the curriculum in general are barely noticeable" (1996, p. 1). Part of the problem lies in the fact that though possessing state-of-the-art computers and CALL labs, many teachers use the technology in "very antiquated" ways (Davis, 2006). A number of researchers argue that much of computer-assisted language teaching encompasses Internet searches and emailing (Cuban, 2001; MacDonald, 2004) while others have suggested teachers do not realize the potential of technology-based instruction (Velazquez-Torres, 2006). In this digital age, teachers need to familiarize themselves with other types of computer-supported activities that are available outside the realm of Internet surfing and emailing so that they can encourage language learning. As Morgan points out "students are empowered when teachers harness new technology in ways that promote language learning" (2008, p. 4). One such type of computer-assisted activity is an online homework or Interactive Homework (Maciaszczyk, 2008) site using a Moodle platform.

Moodle

Moodle is a free, open source course management system (CMS) and was designed to help educators create pedagically-sound online commu-

nities (see http://moodle.org for a detailed description). Moodle stands for "modular object-oriented dynamic learning environment" and "enables educators to manage all aspects of course content and delivery using one integrated system" (Brooks-Young, 2008). Teachers can download it easily to a single computer or it can be downloaded to a school server. One of the attractive elements of Moodle is the ease at which information can be organized by various formats (e.g. week/social/topic/SCORM/etc.). Furthermore, as an e-Learning platform Moodle is rich in features such as the ability to import audio and video files, chat, links to web sites and files. discussion forums, wikis, blogs, quizzes, and much more. Moodle is based on a modular construction1 and presents information in an easily accessible format that can be arranged by instructors to meet their specific needs. For the purpose of this paper, the author will focus on two particular modules in Moodle utilizing the Topic format: 1) the quiz module and 2) the journal writing module. Two other features within the Moodle platform, namely the automated grading system and student enrolment, will be briefly touched on as well.

Why Moodle?

Currently many course management systems are available for educational purposes [Blackboard, WebCT, eCollege, to name a few]. However, most of these are commercial packages requiring high licensing fees. Moodle, on the other hand, is free. In addition to its cost-effectiveness appeal, many educators are attracted to Moodle's simple implementation and flexible design which favors a multitude of teaching and learning styles (Brooks-Young, 2008; Rink and Yamauchi, 2008). Furthermore you do not need any Web design skills. When the author first decided to experiment

with Moodle it was downloaded and installed on a single computer in his office. Once installed the author was able to begin designing the layout and overall design of the site within a few hours.

Note: Since then the site has been moved to the university's server which can handle a much larger amount of traffic. This is important since we use a lot of audio and video in the course.

Overview of the Online Homework Site (TTM1 & TTM2)

Rationale for online homework supplementation [educational perspective]

There are many reasons a teacher may choose to supplement their language teaching with an online homework component.

- 1. It provides students with a wider range of English which is something most teachers would welcome, particularly at the college level in Japan. Most students studying English at Japanese universities receive approximately 22.5 hours of language instruction per semester, excluding any out-of-class homework assignments or project work, etc. This is far below what a language student needs to be successful with the language. Adding an online homework component increases the amount of contact hours the students have with English.
- 2. An online homework component reinforces classroom instruction. At SU the online homework component content reflects the content found in the classroom textbook, thus, students are not exposed to irrelevant topics or language. This is of particular importance because many of the negative views teachers have regarding online learning (the World Wide Web in particular), is that it is unmanageable. There is just too much accessible

information and students are just not equipped to wade through the "good" and the "bad" content. With an online site using the Moodle platform, all the content is funneled into one site. Students do not have to go anywhere else. Furthermore, as mentioned earlier, the content is derived from inclass content (i.e. the textbook). In other words, there is built-in quality control.

- 3. Moodle quizzes have built-in feedback mechanisms and students are able to see their results immediately after taking a quiz. Thus, they are able to monitor their progress easily.
- 4. It acts as an additional tool for assessment. At SU we also use the online homework site as a supplement to our oral interviews to help determine placement of students at the beginning of the year.
- 5. It encourages students to do homework on a regular basis due to imposed deadlines and its online nature. Students can't use the excuse that they were absent and didn't know about the homework assignment.
- 6. Students realize teachers are keeping track of their progress giving students a sense of commitment from teachers (i.e. teachers are concerned about my welfare).
- 7. Allows for flexibility. Homework deadlines can be easily changed. Since students learn at their own pace it's quite possible teachers may not be able to cover the required in-class material in the time initially allotted. Extending a due date online is as simple as clicking a button and typing in a new due date.
- 8. State-of-the-art program. The online homework site not only aids English learning but helps students hone their computer skills, important in this digital age. "21st century skills must include the technology and digital age literacy, inventive thinking, effective communication, and high productivity skills that will be essential for citizens in the rapidly changing digital

- age." (CEO Forum Policy Paper on Education & Technology, March, 2001) 9. Imparts a sense of professionalism to your program. We are in a digital age and as Hanson-Smith so aptly puts it "Technology-using teachers are leading the way in innovative teaching ideas, the exploration of culture and language, the inclusion of special needs learners, the promotion of student autonomy, and anywhere-anytime learning" (Hanson-Smith, 2003). Having an online homework site tells students and others we are dedicated to helping our students learn English.
- 10. Adds continuity to the program. When more than one teacher is teaching the same course, having an online homework component restricts teachers from "doing their own thing". In other words, it acts as a reminder to teachers of class goals and objectives. Naturally teachers are free to use different methods and approaches in the classroom but at the end of the day we want all our students covering the same content.
- 11. It allows teachers to see how students in other classes are doing. This may influence a teacher in terms of in-class adjustments with teaching methods, course content, etc. For example, a teacher may see that another teacher's students are getting higher scores in the writing section than his students or that another teacher's students are writing much more, etc. Furthermore, a teacher can see what kind of feedback other teachers are providing.
- 12. Course administrators can quickly see how students are doing without having to ask teachers directly for this information. The information can be used to make future changes to course goals and objectives. It can also be used to compare students at varying levels.

Rationale for online homework supplementation from the students' perspective

- 1. Quiz module provides immediate feedback.
- 2. The work can be done anywhere.
- 3. Can learn computer skills.
- 4. No paper necessary. Inexpensive—no workbook to buy.
- 5. Can help improve my English.
- 6. High tech-cool way to study English.

Hardware Issues

Teacher's computer:

- Good sound card for recording
- Two good microphones (needed when recording listening dialogues)
- Video camera if using video (+ appropriate cables to download video to the computer)
- Newer the better
- Headphones if possible

Student's computer:

- Newer the better
- Headphones if possible

Software Issues (Author's note: We employ PCs for the Moodle site at Sapporo University).

Teacher's (institution's) computer/server:

- Moodle (Open Source Course Management Software) (if Hosting)
- Audacity (Open source recording software)
- Video editing program if using video (Movie Maker for PC or iMovie for MAC)
- Media Player (Version 10 or newer if possible)
- An illustration program that can make Jpegs or Gif files (if you use illustrations in quizzes or for the writing module)
- Windows XP or Vista if possible

Student's computer:

- Windows XP or Vista if possible
- Media Player (Version 10 or newer if possible)

Design

- Note: The homework site is closed to the public (for security reasons).
- Note: Students are not allowed to self-enroll. Self-enrolment is a useful function in Moodle but we've chosen not to use it to ensure we have no problems with students enrolling themselves in the wrong classes. At the beginning of the year all students are enrolled into their classes by the site administrator.

- Note: There are currently seven teachers using the online homework site in the Oral Communication course. The original course has been replicated and each teacher has been assigned their own homework course (see Figure 1). Students can only access their teacher's homework course. This allows teachers to attend only to the students in their class (making monitoring of progress and grading very easy). Teachers are also able to provide feedback without fuss or mess.
- *Note:* All the material on the site is original. Thus, there are no copyright issues.

Overview

The Oral Communication courses for 1st and 2nd-year English majors are blended learning courses at Sapporo University. Students are required to complete 45 hours of in-class instruction (thirty 90-minute classes) and approximately 6 hours of "actual" online homework time per semester².

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alk To Me Book 2	This is the priore tarte for talk to me (Back 2)
Alan Bossaer Talk To Me Book †	Throns the artine part for Talk to the [deal t]
Andy Ryan Talk To Me Book 1	This is the police partifier Talk to man (Super I)
andy Ryan Talk To Me Book 2	This has been because for talk to me (seek.2)
Jon Cartwright Talk To He Book 2	These pre-prine part for talk to me (Seek 2)
Anti Marris Talk To Me Book 1	Tris to the source part for Talk to His (Social)
Matt Morris Talk To Me Book 2	THE IS THE BOOKS BATE TO TACK IN THE [SANK 2]
Nichael Mielke Talk To Me Book 1	This is the entire paint for Talk 10 me (Book 1)
Alchael Alielke Talk To Me Book 2	This is the gatine part for Yells to me (book 2)
lay Hopkins Talk To Me Book 1	That is the below part for talk to mb (food 1)
Ray Hopkins Talk To Me Book 2	This is the office part for Table to me (Sech.2)
icott Geshwa Yalk To Ma Book 1	Proces the process part for Talk to the [Book 1]

Figure 1. Screen Shot Showing Various Homework Course Instructors

This excludes any additional out-of-class work on projects and additional homework assignments, etc. This will change to approximately 18 hours next year³. The online homework component delivers content that expands material found in the in-class Oral Communication textbooks (Talk To Me Book 1 abbreviated as TTM1 and Talk To Me Book 2 abbreviated as TTM2). In other words, each unit in the textbook has its accompanying online homework unit. The breakdown of the online homework component for the 1st and 2nd-year textbooks is as follows (see Figure 2):

- a) 12 Units X 5 Activities (per Unit) = 60 Activities
- b) The 5 Activity types are: Listening; Reading; Pronunciation & Intonation; Vocabulary and Writing (more detailed description to follow)
- c) Each Activity is worth 10 points (50 Points per Unit)
- d) The online homework component is 20% of the final grade

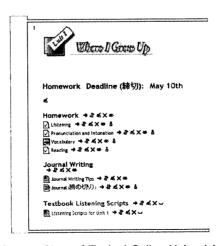


Figure 2. Screen Shot of Typical Online Unit with Activities

How the online homework site works:

• Students are told in the class when a homework assignment is due. Deadlines for homework are set universally on the site (i.e. same for all students in all the classes) but teachers can reset deadlines if need be. This is important because teachers cover coursebook material at different rates due to varying levels of students and because they may choose to supplement coursebook material with material of their own. This means a unit covered in four classes by Teacher A may be covered in six classes by Teacher B (see next point).

Note: Some teachers assign only certain components of a unit quiz on a particular day to encourage doing homework at more regular intervals (rather than once at the end of the unit).

- Teachers generally spend anywhere from three to six classes covering a unit in the textbook. Therefore students usually have that same amount of time to do the homework assignment. (i.e., if a Unit takes two weeks (four classes) of in-class instruction time the online homework unit for that quiz is open for that same two-week period).
- Teachers do not use classroom time to allow students to do their online homework assignments.
- Grades for the Listening, Pronunciation & Intonation, Vocabulary and Reading components are automatically graded by the Moodle program. Thus students are able to see results immediately. The written work in the writing section is corrected by teachers who provide a grade and feedback at a later date (See Figure 8). Teachers inform students in class or by email regarding when to check the grade and feedback for their writing assignments.
- Teachers use the automatic grading system to keep track of student performance, as well as for monitoring time students spend online.

They then use this information to counsel students either privately or during classroom time.⁴ Results can be seen easily in Moodle (See Figure 9) or can be exported to Excel (See Figure 10.)

- Students are told at the beginning of the term that quiz grades and writing assignments comprise 20 % of the final grade.
- Teachers generally get through 6 units per semester which means the students do 6 online homework assignments (units) per semester.

Detailed Structure of the Online Homework Course Activities

Note: All content is related to lesson themes or topics found in the coursebook. Coursebook material is not directly copied into Moodle.

- Listening Component (10-point quiz)—The listening component integrates an audio or video file with a written quiz. Students are able to play the audio or video files as many times as they like but are allowed only one chance to take the quiz. All audio and video content was created (written) in house by the author of this paper and voice actors were comprised of various foreign language teachers. (See Figure 3).
- Pronunciation and Intonation Component (10-point quiz) This component includes audio files. The focus is on discerning correct stress patterns, auditory discrimination of contrast pairs, and reduced forms. Students are able to play the audio or video files as many times as they like but are allowed only one chance to take the quiz. (See Figure 4).
- Vocabulary (10-point quiz)—The vocabulary component comprises a crossword puzzle created in Hot Potatoes and imported into Moodle. Students are able to do the crossword puzzle up to two times. (See Figure 5).

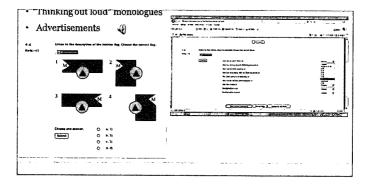


Figure 3. Screen Shot of One Type of Listening Quiz

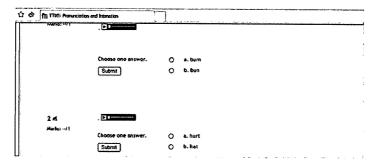


Figure 4. Screen Shot of One Type of Pronunciation Quiz

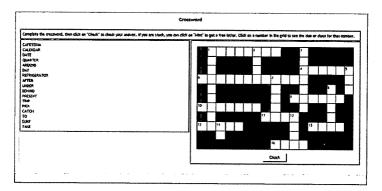


Figure 5. Screen Shot of a Vocabulary Quiz

- Reading Component (10-point quiz) The reading component comprises various types of reading materials (monologues, dialogs, diary entries, narratives, etc.). Students are allowed only one chance to take the quiz. (See Figure 6).
- Writing Component (10-point assignment)—students write a paragraph on a pre-determined topic. We want students to learn basic paragraph organizational skills as well as communicate information. Teachers provide scores and feedback (This is not done automatically in this component) online (See Figure 8). The feedback is important as "guidance and feedback from an educator is important when writing is used for learning" (Dougiamas, 1999). Students are able to edit their paragraphs as often as they like up until the deadline. (See Figure 7).

Advantages of an Online Homework Component using Moodle

- 1. It's relatively cheap.
- 2. It reinforces classroom instruction.
- 3. It's an easy way to monitor progress and attitude towards learning.

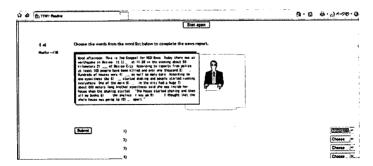


Figure 6. Screen Shot of one type of Reading Quiz



Figure 7. Screen Shot of a Writing Assignment

2) Coroful with your appliting: Use your dictionery if you	
are not sure.	
a) mather should be (?)	-
b) wwets should be(?)	
c) especialy should be (?)	1
3) The word "and" should go in the sentence below. Do you	ì,
know where to put it?	
- Mos has one older brother and two younger asoter they det	
olong wall .	

Figure 8. Screen Shot Sample of Writing Assignment Feedback

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_	3 ##### #####	21 April 2008, Q5:33 P/A	2 mins 50 secs	5
0	* ##### #####	30 April 2003, 11:09 AM	4 mins 26 secs	8
0	£ ##### #####	10 April 2003, 02:16 PM	2 mins 14 secs	,
0	* ##### #####	17 April 2003, 03:49 PM	7 mins 5 secs	10
3	£ ##### #####	1 May 2008, 11:01 PSA	4 mins 7 secs	
0	£ ##### #####	14 April 2008, 01:54 PM	4 mins 30 secs	10

Figure 9. Screen Shot of the Automated Grading System-Shows Times Taken to do Quizzes, Date Attempted and Grade (Quizzes only)

				Gradi			J
First norme	Surrama	Quiz: Unit 1 Listening Max; 10	Chitz: Unit 1 Pronunciation and Interaction Max: 10	Het Potatoes Quiz: Unit 1 Vocabulary Max 10	Quiz: Unit 1 Reading Me: 10	Journal: Unit 1 Journal: (\$30%): Max: 10	Unit 1 To 50 point
1424	200	- A	1	9.8	10	1	34.8
H44	-		,	9.7	10	5	39.7
1881	****	10	8	83			35.3
100	****	10	80		1	8	38.9
***	P\$11	8	-	9.2		5	37.2
PP	####	i i	····	7	10	7	34
HH2	PEPS		1 · · · •	10	10		40
TOTAL .	1771	7		10	7		41
1771		i .	1 .	9.8	10		41.4
****	- TYPE	10	1 1	10	2	10	35
MSI	1004	6	4	10	5	6	13
MO1	****	10	<u> </u>	P.0	10		48.0
7777	7272	9	10	10	7		44
P202	-	1 5	10	9.4	10	5	42.4
****	222	i a	8	6.5		4	34,5
1111	2020	1 5	2		2		7
****	2004	a	8	10	8		
1901	2000	19	9,7	10	2	6	84,7
2923	2224		8	10	2	7	23
FFFF	****			9,3	4	7	34,3

Figure 10. Screen Shot of the Automated Grading System—Excel File (Quizzes only)

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- 4. When more than one teacher is involved it allows for better continuity. Teachers aren't just doing their own thing.
- 5. Allows for expansion (inclusion) of reading and writing skills which are important elements for learning a language but usually given little attention in an oral class.
- 6. Allows control over content particularly important for the reading component. A disadvantage of strictly using the Internet for reading assignments is difficulty students have finding suitable material online. Another drawback is the matching of reading content with the students' level of English. Finding suitable and relevant reading material online and then providing a link for students to access is one solution, however, it is unlikely the material will be suitable for students of lower abilities. In the end it becomes an economical issue: How much time will it take to search the Internet for reading material that is relevant to the current classroom

material being taught and is on a level comparable to my students' comprehensive/linguistic abilities? The answer is, of course, unknown. The solution would seem to favor creating one's own material. It may prove to be somewhat time-consuming⁵ (especially initially) but the advantage is that the reading material is much more manageable in terms of understandability and relevance.

- 7. Rather than spend hours correcting homework assignments, teachers can use out-of-class time to focus on in-class activities. Homework assignments are graded automatically immediately after students complete a quiz online. As a result, students can monitor their own progress, which aids the learning process "····because technology can compile and report student performance immediately, assessment can become an integral part of the teaching and learning process" (CEO Report, p. 7).
- 8. Students learn basic computer skills like working with media files, typing, learning how to navigate a web site, etc.
- 9. Teachers do not have to deal with loads of paperwork (saves time and money).
- 10. Students can edit their writing assignments easily.

Disadvantages of an Online Homework Component using Moodle

- 1. Time consuming to develop (especially if done by one person).
- 2. Computer glitches may occur.
- 3. Some students do not enjoy using computers.
- 4. Older computer models can make access very slow (especially with audio and video files).
- 5. Students make many spelling (typing) errors.
- 6. Some students like to have hardcopies of homework assignments. It's

easier to have it with you then having to look for it online.

Discussion, Implications, and Further Research

At SU we have been using Moodle for the past three years as a supplement to the Oral Communication course. In that time the following has been learned:

- 1. Students are able to access the site easily.
- 2. Training in the use of the system can be effectively done in as little as 1 class (90 minutes).
- 3. Based on calculations showing student participation percentages (2007), 85% of first-year students and 90% of second-year students completed their online homework assignments.
- 4. Writing and designing the online course content is time-consuming initially but once in place little work is needed.
- 5. The amount of feedback provided by teachers in the Journal component varies greatly. Some teachers give detailed feedback outlining organization, grammar, and spelling errors while others opt for a more holistic (global) approach to error correction (i.e. comments were directed toward the students' ability to express ideas communicatively).
- 6. Increasing the amount of online homework material to an amount equal to classroom instruction time is one of the goals of our program. This means a lot of writing and design time. Though it was not part of this paper, a study into the effects (benefits) of extending the homework component is necessary. Furthermore, a study into the students' perceived effect of the online homework component is necessary.
- 7. Feedback from students into their feelings about the online homework 170

component would benefit the program. It's imperative that students convey their thoughts about how the course can be improved and how it can better serve their needs to help them achieve their goals.

- 8. A statistical analysis was performed comparing time spent doing quizzes and scores for all first and second-year students. The results of the statistical analysis show some students are not spending enough time online. An item analysis (measuring Facility Index; Standard Deviation; Discrimination Index and Discrimination Coefficient) was conducted to examine student responses to individual test items (questions) for all the quizzes in order to assess the quality of the items and the tests as a whole. The results concluded that the quality of the test items met "good" quality standards. Thus, the varying lengths of time taken to do quizzes was not due to poor quiz design. A more comprehensive statistical analysis of the amount of time students take doing the quizzes is warranted to further investigate the correlation between length of time invested doing a quiz and outcome (score). A qualitative study (questionnaire) may also provide answers into attitudes toward the online homework course. This feedback can provide useful information which can be then used to make changes to the homework course.
- 9. A collaborative effort to make quizzes would speed up the design process. It also allows for sharing of ideas and gives a feeling of collaborative teaching. Teachers also feel they are contributing to the course development. The online homework site cited in this paper was designed mainly by one developer. This may cause resentment among some teachers who feel the developer is imposing his will on them.
- 10. The inclusion of the writing component was felt to be very important as one of the underlying principles of the Oral Communication Course is to provide a four-skills approach. In a study by Robertson and Miller, and

detailed in LeGere (1991) it was found that students retained concepts better in classes that employed a writing component than those that did not. More research into the effects of the writing component on students' level of writing over the course of the semester and overall English speaking ability in the Oral Class is needed.

- 11. As mentioned earlier in the paper students are told at the beginning of the term that quiz grades and writing assignment comprise 20 % of the final grade. It's also important to tell students teachers can monitor the time it takes students to complete a quiz. This information can be used to remind students how important it is to spend "quality" time doing the quizzes. It is also a reflection of a student's attitude towards English, a factor that should have bearing on final grades. In other words, there should be a personal investment on the student's part to learn English. Zipping through a quiz in 1 minute does not reflect this.
- 12. Teacher feedback on the use of the online site has been positive. Teachers feel it allows quick and easy monitoring of homework compared to conventional methods (homework workbook) but also gives a good indication of the students' motivation levels.

Conclusion

Technology and traditional classroom language teaching can be blended to form a partnership of pedagogically-sound teaching and learning principles where language learning can thrive. It is paramount that teachers understand that technology can be used to facilitate and enhance language learning, and that it does not have to overtake or replace face-to-face interaction between teacher and pupil. Knowing how and when to complement traditional face-to-face teaching with technology is more

important than knowing a thousand ways to use a computer and teachers must understand that online supplementation is just that, a supplement to classroom instruction. Its sole purpose in the foreign language classroom is to advance classroom content and to help teachers and students reach their teaching and learning goals. It should not be a goal unto itself. The following quote from a policy paper on education and technology reminds us of this: "Education technology is not the solution in and of itself. But when integrated into the curriculum to achieve specific educational objectives, technology can produce dramatic results." (CEO Forum Policy Paper on Education & Technology, March, 2001).

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Endnotes

- 1 Moodle is based on a modular construct which means people using it can develop additional functionality.
- 2 Figures are based on a statistical analyses of actual time spent doing the online activities (April 2008 to July 2008) for 204 students. Times taken to access the site, check results, maneuver around the site and revisits (review periods) are not included.
- 3 In 2009 the amount of "actual" online homework time will increase to approximately 18 hours per semester. It was felt the students needed more content online to fully take advantage of this learning platform.
- 4 Some teachers choose to set aside one class to counsel students. During that time they discuss the online homework being done as well as other pertinent issues.
- 5 It takes anywhere from two to three hours to create a reading quiz online. This includes reading content and designing and typing quiz questions. It may take more time if graphics are used.