Online Exam Security

The purpose of this working document is to design online exams that inhibit cheating and unauthorized distribution of exams/questions by best practices in the following areas:

1. Question Properties
2. Exam Properties
3. Design Logistics
4. Security Measures

Question Properties

- **Randomize multiple choice quiz or exam answers for each student.**
  D2L allows you to randomize the answer order for multiple choice questions. This feature makes it more difficult for students to share answers if they are presented with the same question. Combining question sets and randomization of answers is a very effective technique.

- **Use "arithmetic questions" when applicable.**
  Arithmetic questions are designed using variables. Random values, based on a user specified range, are automatically generated for each variable in the question.

- **Increase the number of "Long Answer" or essay-style exam questions.**
  Long answer questions generally require students to have a greater understanding of the material and make cheating more difficult.

- **Increase the frequency of short notice (pop) quizzes.**
  By providing short notice (pop) quizzes during the semester, students have less time to coordinate the sharing of answers during the quiz.

Exam Properties

- **Use question pools to randomly generate quizzes or exams for each student.**
  Using questions pools to randomize quizzes and exams has several advantages. Each student is presented with a unique set of questions which makes it very difficult to collaborate with other students during the exam. It also deters students from copying their question set and passing it along to their peers who may not have started the exam yet.

- **Limit the duration, number of attempts, and how the questions are delivered.**

When you limit the duration of a quiz, it diminishes the time that a student can spend looking up answers. Delivering one question at a time can prevent copying or printing of the exam. Limiting the number of attempts can help prevent collaboration and ensures that students don't have multiple attempts to answer the same question sets.

- **Limit the availability period of an exam.**
  If an exam has a long availability period, it's possible for a few students to take the test early on and share the questions/answers with other students who have not yet taken the exam.

- **Wait until the exam availability period ends before providing exam feedback.**
  Prevent students from seeing which questions they missed until all students have taken and submitted the exam.

Design Logistics

- **Adjust the weight of exams relative to the overall grade in the course, while increasing the weight of project and assignment activities.**
  Assigning higher point values or percentages to assignments and projects helps offset the grading weight generally associated with exams.

- **Require students to agree to an honor statement.**
  Question 1 of a quiz or exam could be set up as a yes/no answer to "I have read and understand the University Policies of Minnesota State University, Mankato as defined in the Student Handbook." In D2L, an honors statement could be displayed in the introductory section of the quiz. Another way to reinforce academic integrity is to have students sign a contract emphasizing the university's academic integrity policy and outlining consequences for violations.

- **Make students aware of D2L's tracking and logging abilities.**
  If students understand that their actions within D2L are recorded in log files, they will be less likely to attempt to circumvent the technology. You can contact the IT Solutions Department for questions regarding student tracking and student activity logging.

Security Measures

- **Employ the use of browser "lock-down" software to reduce access to other software applications and data.**
  Programs commonly referred to as lock-down browsers can be purchased that lock down the testing environment within learning management systems. These programs prevent students from printing, copying, visiting other websites, or accessing applications

during an exam. These applications are not considered to be fool proof, but they can deter most students from cheating.

- [About LockDown Browser](#)

Important Note: The effectiveness of Respondus LockDown Browser, when used in a non-proctored environment, is greatly reduced. When students use LockDown Browser outside a proctored environment, they are free to use multiple computers/devices at once (one for taking the exam, the other for accessing other applications and information). Additionally, students could capture the content on screen with a mobile phone or other device, phone classmates, access printed materials, or even work in small groups.

Other Factors

Grading Resources
Create questions critical thinking and application yet are still self-graded.

Versioning
Multiple Versions and Rotation of Exams

Format
Create exams that promote learning even if the student collaborates.