Day in Court - Teaching Contract Disputes in Construction Management

Mr. Celio Biering P.E., Department of Civil and Mechanical Engineering, United States Military Academy

Major Celio Biering is an Instructor in the Civil Engineering Department at the U.S. Military Academy, West Point, NY. He received his B.S. from the Military Academy, and his M.S. from the Georgia Institute of Technology. He is a registered Professional Engineer in Missouri. His research interests include scouring, hydraulic modeling, and engineering education.

Prof. Joseph P Hanus, U.S. Military Academy

Colonel Joseph Hanus is the Civil Engineering Program Director at the U.S. Military Academy, West Point, NY. He received his B.S. from the University of Wisconsin, Platteville; M.S. from the University of Minnesota, Twin Cities; and Ph.D. from the University of Wisconsin, Madison. He is an active member of ASEE and is a registered Professional Engineer in Wisconsin. His research interests include fiber reinforced polymer materials, accelerated bridge construction, and engineering education.

Mr. Rahul Verma P.E., United States Military Academy
The United States Military Academy seeks to educate and inspire their civil engineering students through a rigorous and realistic academic program. One of the cornerstone courses in the program is a Construction Management Course that incorporates a variety of hands-on, real-world, learning challenges. The objective of the first third of the course is for the students to gain a foundational understanding of the basics of construction management to include project bidding, contract mechanisms, scheduling, estimating, and project controls. The topics are presented in a traditional classroom environment. The students are then challenged in the next third of the course to apply those construction management skills in a hands-on construction simulation exercise identified as the K’NEXercise.

The KʼNEXercise is a competitive learning event where groups of students form construction companies which then bid on multiple projects. The projects are scaled structures constructed of rapid setting concrete for foundations and KʼNEX components for the structure. The three projects are a bridge, a tower, and a hall. Upon completion of project bidding, student teams are awarded one of the three projects. Each team then proceeds to conduct construction planning and scheduling for their project, which lasts over several class periods. After their preparation, the student teams are assembled against each other according to their project, and complete against each other during a day of construction. The winning criteria is to complete the project with the lowest construction costs. Construction costs included the direct costs of material, labor, and equipment, and indirect costs of bonding, retainage, overhead, fines, and OSHA safety violations. The prize for winning the completion in project category is exemption from writing a reflective essay on why their team lost. The stakes are high and the students take the competition very seriously. Inevitably there were heated disputes and challenges during and after the competition, which the faculty began to appreciate that this mimicked a real construction project and needed to be addressed.

Starting two years ago, the faculty instituted a Day in Court following the KʼNEXercise. Each student team was required to file one to three grievances for their project. A faculty member, who was not an instructor in the course, would act as the judge in these proceedings. The instructor played the part of the owner; hence, they could not be the judge. The judge would hear both sides of the case and rule on the case. These results would then be applied to the KʼNEXercise scoring and potentially change the outcome. The students always reported that the KʼNEXercise was a fantastic learning environment and the Day in Court provided an even more realistic conclusion to the competition.

The student’s experience in the Day in Court addressed several of the program’s ABET student outcomes. These outcomes include: Incorporating the knowledge of contemporary issues into the solution of engineering problems, Explaining the basic concepts of management and Speaking effectively. The assessment of these specific ABET student outcomes include direct and indirect embedded indicators. Additionally, the impact on both the cognitive and affective developmental domains is considered with respect to educating and inspiring our future civil engineers.
Introduction
The mission of the United States Military Academy (USMA) has evolved since the institution’s inception in 1802:

To educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country, and prepared for a career of professional excellence and service to the Nation as an officer in the United States Army.

The Department of Civil and Mechanical Engineering is one of 11 departments at the Academy, and both the civil and mechanical engineering programs are ABET accredited. The mission of the Department of Civil and Mechanical Engineering parallels the Academy’s mission, while focusing on educating and inspiring students in the fields of civil and mechanical engineering:

To educate cadets in civil and mechanical engineering, such that each graduate is a commissioned leader of character who can understand, implement, and manage technology; and to inspire cadets to a career in the United States Army and a lifetime of personal growth and service.

The civil engineering program established 16 student outcomes to achieve the mission and meet the ABET accreditation requirements:

Our students upon graduation:
1. Design civil engineering components and systems.
2. Demonstrate creativity, in the context of engineering problem-solving.
3. Solve problems in the structural, construction management, hydraulic, and geotechnical discipline areas of civil engineering.
4. Solve problems in math through differential equations, calculus-based physics, and general chemistry.
5. Design and conduct experiments, and analyze and interpret data.
6. Function effectively on multidisciplinary teams.
7. Describe the roles and responsibilities of civil engineers and analyze the issues they face in professional practice.
8. Use modern engineering tools to solve problems.
9. Write effectively.
10. Speak effectively.
11. Incorporate knowledge of contemporary issues into the solution of engineering problems.
12. Draw upon a broad education to anticipate the impact of engineering solutions in a global and societal context.
13. Are prepared and motivated to pursue continued intellectual and professional growth—both as Army officers and as engineers.
14. Explain the basic concepts of management.
15. Explain the basic concepts of business and public policy.
16. Are leaders of character.
Recognizing that the Department’s mission statement includes educating and inspiring, the civil engineering faculty have sought to develop their program appropriately along a set of commonly accepted educational taxonomies; that is, Bloom’s Taxonomy. These widely known taxonomies are based on the seminal work of the 1950’s educational committee chaired by Benjamin Bloom. The committee established a set of taxonomies in three domains of learning: cognitive, affective and psychomotor. The cognitive domain taxonomy is widely accepted in many fields and has been identified as, “arguably one of the most influential education monographs of the past half century.” The taxonomies are a language that describes the progressive development of an individual in each domain and are defined as follows:

- Cognitive: of, relating to, being, or involving conscious intellectual activity.
- Affective: relating to, arising from, or influencing feelings or emotions.
- Psychomotor: of or relating to motor action directly proceeding from mental activity.

A set of development levels for each domain are shown in Table 1 based on work by Bloom (1956), Krathwohl et. al. (1973), and Simpson (1972), respectively. Each column shows the levels in each domain, from the simple at the top, to the more complex at the bottom.

<table>
<thead>
<tr>
<th>Cognitive Domain</th>
<th>Affective Domain</th>
<th>Psychomotor Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Receiving</td>
<td>Perception</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Responding</td>
<td>Set</td>
</tr>
<tr>
<td>Application</td>
<td>Valuing</td>
<td>Guided Response</td>
</tr>
<tr>
<td>Analysis</td>
<td>Organization</td>
<td>Mechanism</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Characterization by a Value Complex</td>
<td>Complex Overt Response</td>
</tr>
<tr>
<td>Evaluation</td>
<td></td>
<td>Adaptation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Origination</td>
</tr>
</tbody>
</table>

The authors recognized that their institutional mission statement expects both education (cognitive domain) and inspiration (affective domain) in their program. Furthermore, the authors believe that the engineering education profession is setting an expectation for student development in both of these domains. In particular this trend is evident in the American Society of Civil Engineers (ASCE) Body of Knowledge 2 (BOK2) and has been studied in detail by the third author. As such, courses in the Academy’s civil engineering program strive to develop their students in both domains.

The purpose of this paper is to present the structure and assessment of a learning experience in one of the core civil engineering program courses (CE450 – Construction Management) at the United States Military Academy. The experience is a courtroom simulation following a construction team competition, called the K’NEXercise. The paper will detail the course, the construction team competition, and the courtroom simulation. An assessment will then be presented with respect to the CE450 Construction Management course scope and course objectives, civil engineering program student outcomes, and department mission to educate and inspire.


**Literature Review**

The courtroom simulation used to illustrate the complexities and challenges of construction law in practice are compositely unique. However, individually in the areas of construction law, simulations, and courtroom case studies the literature is significant.

The teaching of construction law in a construction management course is well established. One of the more prolific authors on the topic, Professor Paula Gerber at the Monash University, Australia, defines the topic as, “Construction law is an umbrella term that covers all the legal principles relating to the construction of structures on land.” Stephen Donohoe recognizes the broad nature of the subject in that, “Construction Law is not precisely defined.” And John Uff expands on this with his opinion that, “It is an interactive subject which includes management in addition to law.” Professor Gerber recommends in *How to Stop Engineers from becoming ‘Bush Lawyers’: the Art of Teaching Law to Engineering and Construction Students*, that “construction students do not need to be taught the law, but rather they need to learn how to recognize when legal issues arise, how to respond to those issues, how to protect their interests, and how to best assist their legal team to deal with problems when they do arise.” The same opinion is garnered by by Braye et. al, that the objective of including law in non-law subjects is “not to create legal experts. Rather, the aim is to provide legal education that enables students to operate effectively in their environment.”

Having established the subject of construction law in the construction management course, several techniques were considered. The legal simulation experience was selected because the authors embraced that “Theory without practice is as lifeless as practice without theory is thoughtless.” Furthermore, Professor Gerber with her colleagues identifies that “Construction law is a subject that lends itself to problem-based and experiential learning.” And this is reinforced by Evensen and Hmelo with the position that, “it is therefore recommended that those teaching a law subject to construction students adopt a problem-based learning approach.” Furthermore, Byles and Soetendorp conducted a study on this subject and concluded that with regard to the teaching of law to [non-law students] that there ought to be an emphasis on practical work. As such, the goal of the simulation experience was to engage in a process “whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience.”

Although the literature is well documented with examples of construction law education in construction management courses, and also the application of simulation experiences, there is not a lot of documentation supporting courtroom simulations. Howard Medoff does report on the use of mock trials with well-known engineering failures and disasters, challenging the students to act the roles of attorneys, plaintiff, defendants, expert witnesses, eyewitnesses, and public sector officials. The authors do embrace the intent of Professor Judith Ettinger in her paper on mock trial activities that, “Educators must enthusiastically go about designing and providing classroom experiences that will capture the imagination and energy each student brings to the learning process.”
**CE450 Course, K’NEXercise and Day In Court Description**

CE450 – Construction Management is the construction management course a student may take in USMA’s Civil Engineering Department. It is a mandatory course for Civil Engineering majors and civil engineering trackers, and taken as an elective by students majoring in Management. Civil engineering trackers are non-engineering majors fulfilling the Academy requirements to take a three course sequence in engineering, and civil engineering with CE450 as the culminating course is an option. As an introductory construction management course, the scope is as varied as the background of the students who take it, as articulated in the course description:

> This course provides an in-depth study of special topics in construction planning and management. The course covers life-cycle facility management to include planning, programming, design, bid, and construction. Students will learn how commercial construction projects are planned and executed. Major blocks in the course include project scope definition, construction estimating (budget estimates and detailed estimate), scheduling (Critical Path Networks and computer scheduling tools), and management controls (progress reporting, payments, change order control, project closeout) during construction.

CE450 is divided into three major blocks for the course. During the first block, students gain knowledge in the fundamentals of construction management on such topics as project delivery methods, bonding, contracts, construction estimating, and construction scheduling. Building upon this knowledge with regards to Bloom’s Taxonomy, students apply these fundamentals in a group construction simulation known as the K’NEXercise. Upon completion of the K’NEXercise, and armed with a better understanding of how to utilize project controls to manage construction, students work in groups to design a base camp in an austere environment. In support of these three sections of the course, CE450 – Construction Management has the following course objectives:

- Develop, refine and manage the triple constraints of a project (Scope, Budget and Schedule) throughout the Project Life Cycle Phases.
- Plan, organize, estimate, schedule and control a construction project (K’NEXercise).
- Design a base camp and its construction.

For the K’NEXercise, students in each section are split into three different groups. Each group serves as a general contractor, with one student serving as the construction manager. The students are given three different projects to build using K’NEXs for the structure and quick-setting concrete for the foundation: a bridge, a tower, and a hall. As general contractors, each team must submit a bid for each project to the owner (played by the instructor), who awards the project to the most reasonable and competitive bidder. By the end of the bidding process, each group in each section is awarded a project that they then have to prepare to build. Each team is given a $50,000 loan from the bank that they must use to project material orders by month, organize equipment rental requirements and scheduling, as well as negotiate a schedule of values with the owner. This preparation and planning culminates in construction day, known as the K’NEXercise, where the student groups from the various sections compete against other groups building the same project.
In 20-minute time blocks used to simulate a month of construction, the construction manager organizes his company by managing the number of workers required, what equipment is necessary to rent, and what tasks to accomplish to maximize their cash flow for the month. At the end of the month, the owner and construction manager review the negotiated schedule of values to determine how much the owner pays the contractor, but the contractor is then forced to account for labor rates, retainage, overhead, bonding, and rentals to determine whether or not he must use credit or cash to purchase the pre-arranged material order for the following month. Traditionally, the winner for each project of the K’NEXercise was the group that has the lowest “construction costs” from the event, which directly relates to the minimal use of credit, accurately ordering materials, minimizing the use of labor and equipment, and not being fined by OSHA for unsafe working conditions. Teams that did not win the K’NEXercise had to deliberate on their results in a reflective essay.

As is likely to happen when young adults are allowed to compete, and additional homework is the price of failure, there are always those that cry foul when the results do not favor their team. Several years ago, CE450 instructors realized that allowing the students to go to court following the K’NEXercise not only allowed a way for students to air their grievances against other teams, the owner (instructor), or OSHA, but also presented the opportunity to teach about construction law. Students are given a handout (see Appendix 1) following the K’NEXercise giving them an overview of how the different ways disputes in the construction industry are mediated, arbitrated, and litigated, and also instructed to submit two claims: one against another team, and one against the owner. The teams must then present their cases the following class lesson in court to a judge, who weighs the cases’ validity and rules accordingly. These new fines are then added to the construction cost of the previous lesson, and the team with the lowest construction costs wins the K’NEXercise and is exempt from the reflective essay.

**Assessment**

As the K’NEXercise and Day in Court has evolved, the authors were interested to see how effective these two events were in helping students grow in the cognitive domain. This assessment was two-fold. The first assessment involved having the students complete a survey (see Appendix 2) following the K’NEXercise and Day in Court with questions that allowed them to self-assess their confidence on specific lesson objectives that were mapped to the specific Student outcomes. These questions allowed the students to assess their confidence on their understanding of these lesson objectives before the K’NEXercise and following the Day in Court, and how much they believed the event aided in their confidence. The survey was made voluntary and anonymous in order to comply with the United States Military Academy (USMA) Human Research Protection Program (HRPP), but participation was incentivized by offering bonus points to sections with 100% attendance. Of the 37 cadets in the course, 24 responded.

The second assessment involved the instructors comparing the students’ grades on a reading quiz from before the K’NEXercise and a portion of the Term End Exam that assessed the students on the same lesson objectives as measured in the survey. The reading quiz was a 20-point assessment given to the cadets to assess their understanding of project control topics, and completed by filling in their responses with short answers. The portion of the Term End Exam that was used for comparison involved cadets completing cash flow calculations for a project, very similar to what they completed during the construction simulation.
From the 16 student outcomes listed earlier, the authors nested the following topics found in lesson objectives. These topics were used to ask the questions for the voluntary survey:

10. Speak effectively.
   Topics – Ability to Present a Case in Court (Question 1)
11. Incorporate knowledge of contemporary issues into the solution of engineering problems.
   Topics – Ability to use the combination of Project Delivery Methods (PDM), Bonding, and Contract to Minimize Risk (Questions 2 – 3)
13. Are prepared and motivated to pursue continued intellectual and professional growth—both as Army officers and as engineers.
   Topics – Familiarity with Contracting and Construction Disputes (Question 4)
14. Explain the basic concepts of management.
   Topics – Familiarity with how retainage, bonding, frontloading, schedule variance, budget variance, and project controls (Questions 5 – 10)

The students’ responses were quantified by assigning a score to their response, ranging from -2 to “Strongly Disagree” to 2 for “Strongly Agree.” The means of their responses are posted below.

![Survey Results Diagram]

**Figure 1. Survey Results**

From the data we observe that, in general, the students self-assessed their confidence in the ten topics as improving, and they also generally attribute their increased confidence to the K’NEXercise/ Day in Court. In particular, Q4, which inquired upon the students’ familiarity with construction disputes, had one of the largest increases in confidence.
To ensure there were no statistical anomalies or false-positives, statistical hypothesis testing was used to determine the significance of the results. Utilizing a t-distribution and all the results were found to be statistically significant, with p-values significantly lower than the $\alpha$-value of 0.05. The highest p-value, which indicates the probability of a false-positive, comes out to less than 4%, with questions dealing with bonding and how it is used to minimize risk. The hypothesis testing results are listed below:

**Table 2. Statistical Analysis Survey Questions**

<table>
<thead>
<tr>
<th>Question</th>
<th>$\alpha$-crit</th>
<th>$t$-crit</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.05</td>
<td>1.7030</td>
<td>2.2576</td>
<td>0.01613</td>
</tr>
<tr>
<td>2</td>
<td>0.05</td>
<td>1.7030</td>
<td>3.2320</td>
<td>0.00161</td>
</tr>
<tr>
<td>3</td>
<td>0.05</td>
<td>1.7030</td>
<td>3.9286</td>
<td>0.00032</td>
</tr>
<tr>
<td>4</td>
<td>0.05</td>
<td>1.7030</td>
<td>5.2914</td>
<td>7E-06</td>
</tr>
<tr>
<td>5</td>
<td>0.05</td>
<td>1.7030</td>
<td>2.4476</td>
<td>0.01058</td>
</tr>
<tr>
<td>6</td>
<td>0.05</td>
<td>1.7030</td>
<td>1.8275</td>
<td>0.03935</td>
</tr>
<tr>
<td>7</td>
<td>0.05</td>
<td>1.7030</td>
<td>4.5628</td>
<td>4.9E-05</td>
</tr>
<tr>
<td>8</td>
<td>0.05</td>
<td>1.7030</td>
<td>3.7587</td>
<td>0.00042</td>
</tr>
<tr>
<td>9</td>
<td>0.05</td>
<td>1.7030</td>
<td>3.4008</td>
<td>0.00105</td>
</tr>
<tr>
<td>10</td>
<td>0.05</td>
<td>1.7030</td>
<td>3.8491</td>
<td>0.00033</td>
</tr>
</tbody>
</table>

Students were also assessed on project controls on two different assignments, and these grades were compared to their self-assessed confidence levels from questions 5-10. The results from the grade assessment and hypothesis are listed in the table below:

**Table 3. Statistical Analysis Graded Events**

<table>
<thead>
<tr>
<th>Event</th>
<th>Sample Mean</th>
<th>Sample Std. Dev.</th>
<th>$\alpha$-crit</th>
<th>$t$-crit</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Quiz 7</td>
<td>0.7750</td>
<td>0.1500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Term End Exam - Project Controls</td>
<td>0.8976</td>
<td>0.0976</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothesis</td>
<td>0.1226</td>
<td>0.1800</td>
<td>0.05</td>
<td>1.6895</td>
<td>4.0872</td>
<td>0.00012</td>
</tr>
</tbody>
</table>

The first assignment, Reading Quiz 7, was a 20-point reading comprehension test given in class after students had the opportunity to study the material in the book on their own. The Term End Exam (TEE) Project Controls section was a 70-point section of the exam covering cash flow, bonding, retainage, and schedule variances in particular. The averages increased from the reading quiz to the TEE, from 78% to 90%, with a hypothesis test p-value with less than 1% of reporting a false positive. These values indicate that not only did K’NEXercise and Day in Court help students feel more confident on these materials, but their confidence also helped translate to a better final exam grade.
Conclusion

To further assess the project in terms of realism and potential impact on the graduates, the third author assessed the project with respect to his experience as a practitioner. His assessment is presented herein as a conclusion.

Through education and practice, the Army ingrains into every soldier the skills to recognize, minimize, and avoid threats. A similar mindset can be applied to train engineers to recognize, minimize, and avoid potential disputes during construction of engineering projects.

Litigation is an unfortunate reality of the modern civil engineering profession. Often, litigation can be avoided by awareness and recognition of potentially litigious issues during project development and construction. Historically, this awareness has been achieved by engineers only after being involved in a construction dispute, and can be an expensive lesson to learn. The K’NEXercise and Day in Court bring this lesson into the classroom by requiring students to present and defend construction disputes, with the "legal" decision affecting the final project cost and, ultimately, their grade.

The course structure provides a realistic experience for the students. Students enter the construction management process with minimal training and experience, similar to junior staff in a business environment. They are given a project that has already been designed, the assumption that the construction contract has been negotiated and executed, and then proceed to construction in an environment that includes a tendency towards contention and dispute (competing for the best grade). As the course proceeds, students are provided basic information on mediation, arbitration, and litigation- which constitutes their "on-the-job" training. As construction proceeds, various disputes arise that must be resolved in order to minimize the impact on construction schedule and cost- manifested as their grade in the class.

During class the students meet with the instructor, which simulates routine meetings between a contractor and Owner. These meetings allow time to review construction progress and identify potentially contentious issues. If these issues are not minimized during the routine construction meeting, they may continue to escalate into litigation.

The K’NEXercise and Day in Court components of this class continue to evolve. As the construction management profession continues to develop, this course can be improved to reflect those developments and improve the experience for students.

At present, students construct the project and manage the construction with instruction on the basics of contracts, bonding, insurance, scheduling, and planning. Minimal instruction is provided in the classroom with respect to loss prevention- understanding the issues that result in disputes, how to identify these issues during project development and contracting, how to prevent these issues from becoming contentious, and how to resolve them.
In the current iteration of the Construction Management course, students are required to submit two claims which are addressed via litigation during the Day in Court. Most modern construction contracts include the requirement to use a series of dispute resolution techniques. These techniques typically include mediation and/or arbitration, followed by litigation. Effective use of mediation and arbitration can be introduced into the course as methods of dispute resolution. Similar to the Day in Court, where the teams present their claim to a judge (played by a senior faculty member), a team may choose to resolve a dispute using mediation. Like litigation, the mediation process will consume time and resources, with the decision potentially impacting their grade.

The CE450 Construction Management Course, K’NEXercise, and the Day in Court has evolved and will be continually assessed with respect to course objectives, Department mission, and civil engineering program student outcomes. The authors believe they are realistic and challenging, and meets the assessment goals as presented in this paper. Furthermore, the real-world approach exercise is being considered for other courses in the program and will hopefully inspire other engineering instructors to develop and execute similar exercises in their courses.

Acknowledgements
The Authors would like to thank MAJ Michael Seminelli for his assistance in statistical hypothesis testing.

Bibliography


Appendix 1 - Day-In-Court Handout
Claims in the construction industry  
(Knutson, et. al 2009; Sweet and Schneier 2009)

Definitions:

Claim: allegation of ill-affect on the project by one or more player (contractor, sub-contractor, owner, architect, etc.)

Dispute: unresolved claim

Preponderance of evidence: burden of proof standard in which the claimant (plaintiff) must provide enough evidence to make it more likely that not that the fact the claimant seeks to prove is true

Burden of proof: duty placed on a party to prove or disprove a disputed fact

Why do claims occur in construction?

- Typically a disagreement between two or more project team players (owner, architect, designer, contractor, etc.)
- Can result from:
  - Late payments
  - Delays in the project
  - Material defects
  - Defective design
  - Construction mistakes
- Money is ALWAYS involved; poor communication is almost always involved

Dispute Resolution:

Primary method:

- Litigation:
  - Occurs in court before a judge
  - Judge often not an expert in construction matters
  - Court costs are added costs

Alternate resolution methods:

- Partnering: charter signed by all parties agreeing to mutual trust in dispute resolution matters
- Mediation: non-binding mutual agreement; requires neutral 3rd party (mediator)
- Arbitration: bound by contract; requires licensed arbitrator; an expert in construction matters; if parties choose to dispute arbitration it MUST go to litigation (see above)
- Mini Trial: a judicial proceeding
- Project Neutral: new approach in which a team (or person) is hired before the project to resolve disputes early and efficiently

Burden of proof:

- The burden of proof rests with the claimant and must meet the preponderance of evidence standard.
  - Contractors should keep meticulous records of events during the construction process.
    - Pictures
    - Delivery ledgers
    - Time-stamped correspondence
    - Etc.
Lesson 24 In-class Exercise
Each team must present one claim (no matter how vexatious or frivolous) against a competitor, and one against either the owner, government, rental yard, or concrete company. Claims must include hard evidence, and will be presented in front of the court using a single powerpoint slide per claim on Lesson 24. The sheet below will also be turned in for each claim. Based upon the presentation of evidence and arguments from both sides (owner and contractor), the court will make a final judgement and award restitution as appropriate. The final results of the K’NEXercise, to include any restitution awarded by the court, will be published NLT 1600 on Lesson 24.

Litigation proceedings:
1. Plaintiff presents claim to the court to include any exhibits / witnesses
2. Defendant presents rebuttal to the court
3. Plaintiff closing arguments
4. Defendant closing arguments
5. Judgment (all judgments made by the court are final)

Team Name (Plaintiff): ________________________________

Claim
   General Description: ____________________________________________
   ____________________________________________

Restitution value we are seeking: ________________________________

Facts / Exhibits:
1) ________________________________
2) ________________________________
3) ________________________________
4) ________________________________

For court use only
Defendant rebuttal: ____________________________________________

__________________________________________

Final judgment: ____________________________________________

Restitution Award: ____________________  Judge: ________________
Appendix 2 - Day in Court Survey - Google Forms
Day in Court Survey

This survey is used to assess the efficacy of the KNEXercise and Day in Court Simulations that you completed in CE450. Please assess your confidence in the following topics BEFORE the KNEXercise, AFTER the Day in Court, and how much the KNEXercise / Day in Court helped in your confidence.

You will be tracked by section. If everyone in your section participates, you will be given 5 bonus points on PS5. You can only take the quiz once, but you may change your responses if required.

*Required

TOPIC - Ability to Present a Case in Court

1. 1A) I felt confident in my ability to present a construction or contracting dispute PRIOR to the KNEXercise. *
   
   Mark only one oval.
   
   [ ] Strongly Disagree
   [ ] Disagree
   [ ] Neutral
   [ ] Agree
   [ ] Strongly Agree

2. 1B) I feel confident in my ability to present a construction or contracting dispute FOLLOWING the Day in Court. *
   
   Mark only one oval.
   
   [ ] Strongly Disagree
   [ ] Disagree
   [ ] Neutral
   [ ] Agree
   [ ] Strongly Agree

3. 1C) The KNEXercise / Day in Court helped me understand how to present a construction or contracting dispute. *
   
   Mark only one oval.
   
   [ ] Strongly Disagree
   [ ] Disagree
   [ ] Neutral
   [ ] Agree
   [ ] Strongly Agree
4. What aspect of the KNEXercise / Day in Court raised your confidence in your ability to present a case in court? *

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

**TOPIC - Ability to use the combination of PDM, Bonding, Contract to Minimize Risk**

5. 2A) I felt confident in my ability to choose the best PDM and contract type to minimize my risk as the OWNER PRIOR to completing the KNEXercise. *

*Mark only one oval.*

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

6. 2B) I feel confident in my ability to choose the best PDM and contract type to minimize my risk as the OWNER FOLLOWING the Day in Court. *

*Mark only one oval.*

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

7. 2C) The KNEXercise / Day in Court helped me to understand how to choose the best PDM and contract type as the OWNER to minimize my risk. *

*Mark only one oval.*

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree
8. What aspect of the KNEXercise / Day in Court raised your confidence in your ability to minimize your risk as the OWNER? *

9. 3A) I felt confident in my ability as a GENERAL CONTRACTOR to choose the best project that balanced risk with reward based on the the PDM and contract PRIOR to completing the KNEXercise. *

   Mark only one oval.
   
   [ ] Strongly Disagree
   [ ] Disagree
   [ ] Neutral
   [ ] Agree
   [ ] Strongly Agree

10. 3B) I feel confident in my ability as a GENERAL CONTRACTOR to choose the best project that would balance risk with reward based on the the PDM and contract FOLLOWING the Day in Court. *

    Mark only one oval.
    
    [ ] Strongly Disagree
    [ ] Disagree
    [ ] Neutral
    [ ] Agree
    [ ] Strongly Agree

11. 3C) The KNEXercise / Day in Court helped to me understand how to choose the projects that would best balance risk and reward if I were the GENERAL CONTRACTOR. *

    Mark only one oval.
    
    [ ] Strongly Disagree
    [ ] Disagree
    [ ] Neutral
    [ ] Agree
    [ ] Strongly Agree
12. What aspect of the KNEXercise / Day in Court raised your confidence in your ability to minimize your risk as the GENERAL CONTRACTOR? *


TOPIC - Familiarity with Contracting and Construction Disputes

13. 4A) PRIOR to completing the KNEXercise, I was familiar with the types of issues that caused contracting and construction disputes. *

   Mark only one oval.
   
   □ Strongly Disagree
   □ Disagree
   □ Neutral
   □ Agree
   □ Strongly Agree

14. 4B) FOLLOWING the Day in Court, I was familiar with the types of issues that cause contracting and construction disputes. *

   Mark only one oval.
   
   □ Strongly Disagree
   □ Disagree
   □ Neutral
   □ Agree
   □ Strongly Agree

15. 4C) The KNEXercise / Day in Court helped me to become more familiar with the issues that cause contracting and construction disputes. *

   Mark only one oval.
   
   □ Strongly Disagree
   □ Disagree
   □ Neutral
   □ Agree
   □ Strongly Agree
16. What aspect of the KNEXercise / Day in Court increased your familiarity with contracting and construction disputes? *

........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

TOPIC - Familiarity with the Basic Concepts of Management

17. 5A) PRIOR to the KNEXercise, I was familiar with how the OWNER used RETAINAGE to minimize his risk. *

   Mark only one oval.
   
   [ ] Strongly Disagree
   [ ] Disagree
   [ ] Neutral
   [ ] Agree
   [ ] Strongly Agree

18. 5B) FOLLOWING the Day in Court, I was familiar with how the OWNER used RETAINAGE to minimize his risk. *

   Mark only one oval.
   
   [ ] Strongly Disagree
   [ ] Disagree
   [ ] Neutral
   [ ] Agree
   [ ] Strongly Agree

19. 5C) The KNEXercise / Day in Court helped me to better understand how the OWNER used RETAINAGE to minimize his risk. *

   Mark only one oval.
   
   [ ] Strongly Disagree
   [ ] Disagree
   [ ] Neutral
   [ ] Agree
   [ ] Strongly Agree
20. What aspect of the KNEXercise / Day in Court increased your familiarity with how the OWNER utilized RETAINAGE to minimize risk? *

   

   

   

   

   

TOPIC - Familiarity with the Basic Concepts of Management

21. 6A) PRIOR to the KNEXercise, I was familiar with how the OWNER used BONDING to minimize his risk. *

   Mark only one oval.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neutral
   ☐ Agree
   ☐ Strongly Agree

22. 6B) FOLLOWING the Day in Court, I was familiar with how the OWNER used BONDING to minimize his risk. *

   Mark only one oval.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neutral
   ☐ Agree
   ☐ Strongly Agree

23. 6C) The KNEXercise / Day in Court helped me to better understand how the OWNER used BONDING to minimize his risk. *

   Mark only one oval.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neutral
   ☐ Agree
   ☐ Strongly Agree
24. What aspect of the KNEXercise / Day in Court increased your familiarity with how the OWNER utilized BONDING to minimize risk? *

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

TOPIC - Familiarity with the Basic Concepts of Management

25. 7A) PRIOR to the KNEXercise, I was familiar with how the GENERAL CONTRACTOR used FRONT LOADING to ensure sufficient cash flow throughout a project. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

26. 7B) FOLLOWING the Day in Court, I was familiar with how the GENERAL CONTRACTOR used FRONT LOADING to ensure sufficient cash flow throughout a project. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

27. 7C) The KNEXercise / Day in Court helped me to better understand how the GENERAL CONTRACTOR used FRONT LOADING to ensure his cash flow throughout the project. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree
28. What aspect of the KNEXercise / Day in Court increased your familiarity with how the GENERAL CONTRACTOR utilized FRONT LOADING to minimize risk? *

..................................................................................................................................................................................
..................................................................................................................................................................................
..................................................................................................................................................................................
..................................................................................................................................................................................
..................................................................................................................................................................................

TOPIC - Familiarity with the Basic Concepts of Management

29. 8A) PRIOR to the KNEXercise, I was familiar with how SCHEDULE VARIANCE was used to assess whether or not a project was on- or behind- schedule *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

30. 8B) FOLLOWING the Day in Court, I was familiar with how SCHEDULE VARIANCES was used to assess whether or not a project was on- or behind- schedule. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

31. 8C) The KNEXercise / Day in Court helped me to better understand how SCHEDULE VARIANCE was used to quantify a project's progress. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree
32. What aspect of the KNEXercise / Day in Court increased your understanding with how SCHEDULE VARIANCE is utilized to quantify a project's progress? *

33. 9A) PRIOR to the KNEXercise, I was familiar with how BUDGET VARIANCE was used to assess whether or not a project was on- or behind- budget. *
   
   Mark only one oval.
   
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

34. 9B) FOLLOWING the Day in Court, I was familiar with how BUDGET VARIANCES was used to assess whether or not a project was on- or behind- budget. *

   Mark only one oval.
   
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

35. 9C) The KNEXercise / Day in Court helped me to better understand how BUDGET VARIANCE was used to quantify a project's progress. *

   Mark only one oval.
   
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree
36. What aspect of the KNEXercise / Day in Court increased your understanding with how BUDGET VARIANCE is utilized to quantify a project’s progress? *

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

TOPIC - Familiarity with the Basic Concepts of Management

37. 10A) PRIOR to the KNEXercise, I was familiar with how PROJECT CONTROLS were used to correct SCHEDULE and BUDGET VARIANCES. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

38. 10B) FOLLOWING the Day in Court, I was familiar with how PROJECT CONTROLS were used to correct SCHEDULE and BUDGET VARIANCES. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

39. 10C) The KNEXercise / Day in Court helped me to better understand how PROJECT CONTROLS were used to correct SCHEDULE and BUDGET VARIANCES. *

Mark only one oval.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

https://docs.google.com/forms/d/1orKIP4H5692j_YRXyUJmxvkXY03DjuUJwLYY_e0-0Q/edit
40. What aspect of the KNEXercise / Day in Court increased your understanding of how PROJECT CONTROLS are used? *

-----------------------------------------------

-----------------------------------------------

-----------------------------------------------

-----------------------------------------------

-----------------------------------------------

-----------------------------------------------

-----------------------------------------------

-----------------------------------------------

Student Tracking
You will be tracked based on the number of responses I get per section. If everyone from your section participates, you will be given 5 bonus points on PS5. You can only take the quiz once, but may change your responses if required.

41. Were you a Project Manager during the KNEXercise? *

   Mark only one oval.

   ☐ Yes
   ☐ No

42. What Section are you in? *

   Mark only one oval.

   ☐ Section H1, AY 16-1
   ☐ Section I2, AY 16-1
   ☐ Section J3, AY 16-1