A GLOBAL PERSPECTIVE ON ARGUMENT DIAGRAMMING TO SUPPORT WRITING SKILLS

Kevin D. Ashley[1], Mohammad Falakmasir[2]

[1]School of Law, Learning Research and Development Center, University of Pittsburgh (USA)
[2] Intelligent Systems Program, University of Pittsburgh (USA)

Abstract

Can online argument diagramming help students learn written argumentation skills? Students at Moi University Law School in Erldoret, Kenya, received free tablet computers through the University of Pittsburgh School of Law. Researchers at the Learning Research and Development Center created a learning module to teach legal argumentation skills to over 400 Moi students in three sections of a law course taught by one instructor. Two sections will receive a version that employs argument diagramming. The third section will retrieve a more traditional writing-only version. Objective tests and blindly graded written arguments will determine if/how argument diagramming facilitates learning.

Keywords: argument diagramming, argumentation skills, international research, writing instruction.

1   INTRODUCTION

Students in law and other subjects, in the U.S. and abroad, could benefit if online argument diagramming can help them learn skills of written argumentation. This is true, for example, of the students at Moi University Law School (Moi LS) in Eldoret, Kenya. Since the inception of the Moi LS, the University of Pittsburgh (Pitt) School of Law Center for International Education (CILE) has collaborated in helping develop its faculty and curriculum.

One major obstacle, however, was a lack of sufficient legal textbooks for Moi law students. Pitt CILE Director Ron Brand circumvented this problem by arranging the donation of tablet computers and by issuing a call to Pitt law faculty to provide online pedagogical materials in two legal subjects, Contracts and Torts. Thanks to the generosity of a Danish philanthropist, Moi law students received over 600 Sûrtab7 tablet computers with which they can study the online materials.

The Sûrtab7 tablets, manufactured in Port-au-Prince, Haiti, a socially responsible business success story in its own right [1], are Android tablet computers with 7-inch screens equipped with external keyboards. Instructors can load pedagogical materials onto MUSOMI, the Moi University Moodle-based [2] e-learning portal, and students access the course learning materials via the tablets [3].

The authors and their collaborators at the Pitt Learning Research and Development Center (LRDC) responded to the call for materials by developing a learning module whose instructional goals are to teach students: (1) how to plan and write legal arguments, and (2) lessons about a particular area of tort law. The law of torts governs non-criminal legal proceedings to provide relief for persons who have suffered harm from the wrongful acts of others (e.g., negligence).

The module comprises nine lessons that focus students on making legal arguments with rules and precedents about a hypothetical scenario. The scenario, developed by Pitt Law Professors Teresa Brostoff and Ann Sinsheimer, involves the common law tort duty to act for the protection of others (i.e., the duty to aid) [4]. In 15 hours of activities over a two-week period, the lessons lead students to apply legal rules and cases involving Pennsylvania tort law, a pedagogically useful exercise for Moi law students because Kenya, like Pennsylvani, is a common law jurisdiction. The current plan is to deploy the lessons via MUSOMI in the spring term, 2015, the second term of a year-long Torts course taught by one instructor, Professor Maurice Oduor, to 480 Moi students in three sections.

The module is part of an NSF-supported study to assess the instructional efficacy of teaching argumentation and substantive legal skills using argument diagramming in the tablet computer environment. There are two versions of the module; they both teach a standard scheme for constructing natural language legal arguments, but one uses argument diagramming and the other writing only. Two sections of the Torts class will use the argument diagramming approach and one section will use the writing only version. Given the large number of students, it should be possible to assess objectively whether and how well students learn with the argument diagramming approach.

2   RELATED WORK

Acquiring skills of written argumentation proceeds in stages. In a study comparing arguments prepared by experts and by secondary school students, Crammond demonstrated gradual increases in the use of argument substructures such as warrants (rule-like generalizations supporting claims), countered rebuttals (acknowledgment of circumstances that might defeat a claim and reasons why they do not do so), and reservations (acknowledgment of circumstances that must be absent for the claim to be valid) [5, p. 172]. See also [6, pp. 34-36].

Teaching argumentative writing involves use of "argumentation schemata that guide the organization of claims, reasons, counter positions in a coherent text structure [7, 8]…." [6, p. 63]. Educational interventions to improve students' written argument skills improve students' argumentation schemes enabling them to progress through the stages of increasing expertise [6-11]. Instruction should provide and apply these argumentation schemes. In smaller educational interventions, two tools have improved argumentative writing quality by improving a writer's argumentation schemata: (1) Explicitly instructing (undergraduate) students in the normative criteria and examples of good argumentation [12] and (2) engaging them in using argument diagrams focused on arguments, counterarguments, and reasons [13].

Argument diagramming increases undergraduate students' knowledge of and ability to apply elements of argumentation in reading others' arguments and writing their own arguments [14]. Similarly, [6] reports exploratory findings supporting that students taught to use argument diagramming increased refutation and overall quality of the students' written arguments. Argument diagrams produced by students have also been shown to be diagnostic of the quality of students' arguments based on the diagrams [15]. Technologically supported argument diagramming and peer review can step students through a more effective writing process [6, 16].

A number of computerized instructional tools employ diagramming of legal arguments, and have been applied to teach law students legal argumentation skills. For instance, the expert system in the LARGO program's help facility analyzed students' developing argument diagrams and provided feedback on making more complete and correct diagrams [17]. These tools have been the subjects of empirical evaluation with still somewhat inconclusive results regarding whether and what students actually learned [17, 18, 19].

Using argument diagramming to teach written argumentation skills needs further empirical confirmation. Scheuer et al. [20] conducted a comprehensive survey of pedagogical uses of argument diagramming in law and other fields, finding inconsistent support that argument diagramming can improve students' argumentation skills and understanding. They did find that, to the extent that representations reflected more argument structure, students adopted that structure for their own arguments and constructed more elaborated arguments. In addition, structuring the students' argumentation process also helped students to produce better arguments.

Various software systems support online argument diagramming. See, for example, iLogos [21] and the other argument diagramming tools listed there. In selecting an appropriate argument-diagramming tool, we faced a number of constraints. The tool had to be freeware compatible with the Sûrtab7 software, and capable of converting the diagrams into a standard format, such as the Extensible Markup Language (XML), that is machine-readable for automated analysis. We would have preferred to use the LASAD tool, which we had applied in a law school setting. Although this freeware provided an effective, automated help facility to assist students in constructing diagrams, it ran too slowly on the Sûrtab7 tablet computers, and it required a reliable Internet connection, which is not available to all of the students in Kenya. Of the free argument diagramming tools that ran on Android-type tablets, we selected Smart Diagram Lite (SDLite) [22], primarily because it allows students to work on their diagrams offline, and it also provides the capability to export the diagrams into the XML format.

3   BIG ARGUMENTS / SMALL SCREENS

The most important constraint imposed by the tablet computers, however, was the small screen size. While the Sûrtab7 computers make it possible for Moi students to access online legal pedagogical content, the tablets have seven-inch screens, a significant limitation when presenting fairly large argument diagrams. For instance, using LASAD, students regularly diagrammed legal arguments comprising tens of boxes. More importantly, each box contained text fields, in which students recorded text excerpts and citations. That was simply not possible with the 7-inch screens. The boxes could be

labelled, but did not contain enough room for textual descriptions of legal claims, legal rules, citations, or factual assertions.

Since large, text-rich argument diagrams cannot be represented on such a small screen, we developed a new argument-diagramming scheme. As the Sûrtab screen image in Figure 1 shows, the diagrams comprise boxes and two kinds of arrows. Each box (or node) has a label that corresponds to an entry in an Argument Key, illustrated in Figure 2. Each label has an initial two-letter designation that responds to the type of argument element the node represents: CL- = Claim node, LR- = Legal Rule node, CT- = Citation node, and FA- = Fact Assertion node.

The diagrams illustrate support and attack relationships between the nodes. The arrows indicate that the element in the node where the arrow originates supports (or opposes) the element in the node to which the arrow points.

Each node label, comprising the two-letter label type and a name following the hyphen (-), corresponds to an entry in the Argument Key. Each entry in the Argument Key is a textual proposition in the argument. The argument in Figures 1 and 2 concerns a hypothetical scenario involving a traffic accident in which a pedestrian, Mr. Walker, was injured, an accident that, arguably, would have been avoided if a crossing guard, Ms. Nice, had done her duty. The propositions in the Argument Key are elements in legal arguments about whether Ms. Nice (or other participants) violated a duty to aid Mr. Walker.

Specifically, in the hypothetical, Ms. Nice, a crossing guard at a busy urban street corner with a traffic light, had frequently observed pedestrian Jay Walker crossing the street against the traffic light and risking injury. Ms. Nice had sternly reprimanded Mr. Walker in the past and instructed him to cross the street only when the light permits it. On April 5, Mr. Walker was running to catch a bus at the corner. He ran across the street against the light. As usual, Ms. Nice called out to him not to cross the street. Ms. Nice saw a car about to turn the corner, risking injury to Mr. Walker; however, she did not stop the car. The car, driven by Marlon Kramer, hit Mr. Walker and knocked him to the ground. Another pedestrian, a physician named Dr. Shady, stopped to view the scene of the accident but offered no assistance, even though he carried his medical bag with him. In a nearby coffee shop, two police officers saw a crowd gathering but decided to finish their coffee and donuts before looking into the disturbance. [4]

The argument diagram in Figure 1 represents various legal arguments for and against the claim that Ms. Nice is liable. For example, the Key in Figure 2 indicates that the root node of the argument diagram of Figure 1, CL-Viol, represents the claim that, "Ms. Nice violated her duty to protect Mr. Walker from this harm by not ordering the car to stop." An incoming arrow from node CL-Duty indicates that, "Ms. Nice had a duty to protect Mr. Walker from this harm by ordering the car to stop." That claimed duty, in turn, is supported by a legal rule, LR-SpecRel: "There is a special relationship between a municipally-appointed public safety officer and an individual if …." Finally, the source of that legal rule is CT-S315 (just out of view in Figure 2, which states: "Restatement (Second) of Torts (1965), §315, General Principle: There is no duty so to control the conduct of a third person as to prevent him from causing physical harm to another unless…(b) a special relation exists… between the actor and the other which gives to the other a right to protection…." The Restatement is an authoritative compendium of the common law of torts.

In other words, the arrows and nodes from CT-S315 to CL-Viol in Figure 1, represent a branch of a legal argument asserting that a duty has been violated, providing the source of that duty in a legal rule, and specifying an authoritative source for that legal rule. As described below, this is a typical pattern in legal argument. Teaching law students to identify, understand, and apply such patterns of legal argument is one of the pedagogical goals of these lessons. In a pilot study, a Pitt law student created the argument diagram of Figure 1 using SDLite based on an Argument Key provided in the instructional materials.

One can see, then, that argument diagrams and argument keys like those in Figures 1 and 2 convey a considerable amount of information in a small screen. Ideally, users could observe both the diagram and the key at the same time. In the current implementation, that is not possible. Instead, students using Sûrtabs need to switch from one app, SDLite, to the PDF reader app (or the web-browser) to observe both. If printing on paper is feasible (not a foregone conclusion in some parts of the world) students could print out the Argument Keys. In the future, we hope that, as a student hovers with his cursor over a node in the argument diagram, the corresponding proposition in the Argument Key will be readable.
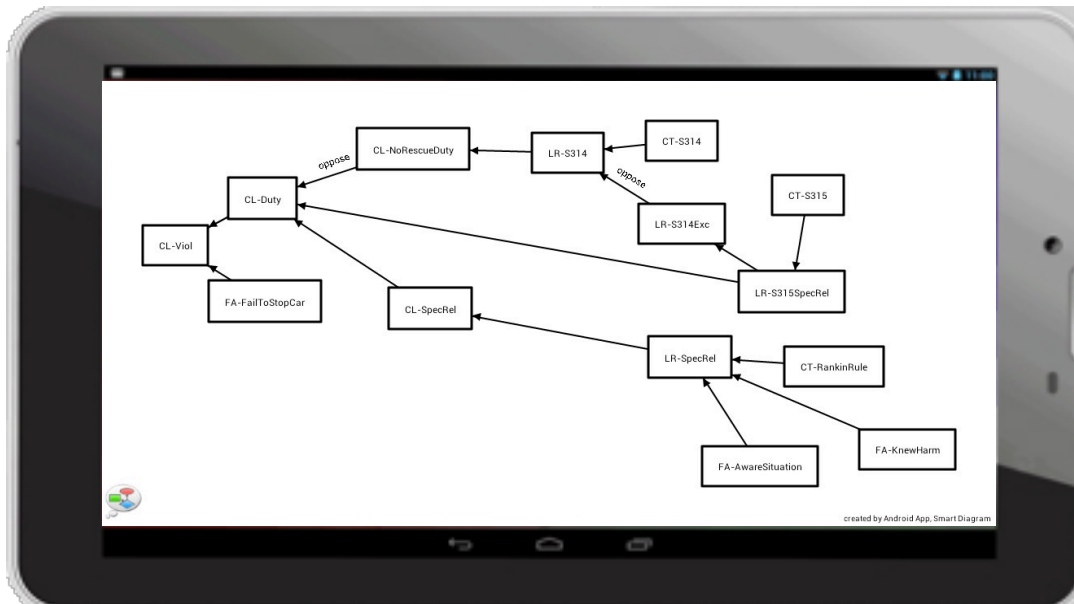
Figure 1: Diagram of Legal Argument in Sûrtab Screen

Figure 2: Corresponding Argument Key for Above Argument Diagram

4 INSTRUCTIONAL APPROACH

The instructional approach is designed to teach first year law students how to plan and write a legal argument. There are nine lessons, including: 1. Introduction to Planning a Legal Argument in Support of a Claim, 2. Supporting Arguments Pro and Con with Legal Rules and Citations, 3. More on Making Counter Arguments …, 8. Applying Precedential Rule to Facts with Argument by Analogy, 9. Putting it All Together.

The first lesson introduces a well-accepted template for constructing legal arguments [23], illustrated in Figure 3. The italicized terms correspond to elements of legal argumentation that are supported and illustrated in the argument diagrams shown above (e.g., *conclusion*, *rule supports conclusion*, *citation to authority*, *counter-analyses*, etc.)

---

1. State your *conclusion*
2. State the primary *rule* that *supports* the *conclusion*.
3. Prove and explain the *rule* through *citation to authority*, description of how the authority stands for the *rule*, discussion of subsidiary rules, analyses of policy, and *counter-analyses*.
4. Apply the *rule*'s elements to the facts with the aid of subsidiary rules, *supporting authority*, policy considerations, and *counter-analyses*; and
5. If steps 1 through 4 are complicated, sum up by restating your *conclusion*. (emphasis added)

Figure 3: Template for Proving Conclusion of Law [23]

The lessons lead students to apply this template in constructing legal arguments concerning the crossing guard hypothetical. The materials also provide a set of authoritative legal rules involving the tort law duty to aid, and a set of three legal precedents applying some of those rules in various factual circumstances. Students can draw analogies to the cases in justifying an application of a rule to the hypothetical.

The lessons are organized in a variety of ways to introduce students gradually to more complex arguments and diagrams.
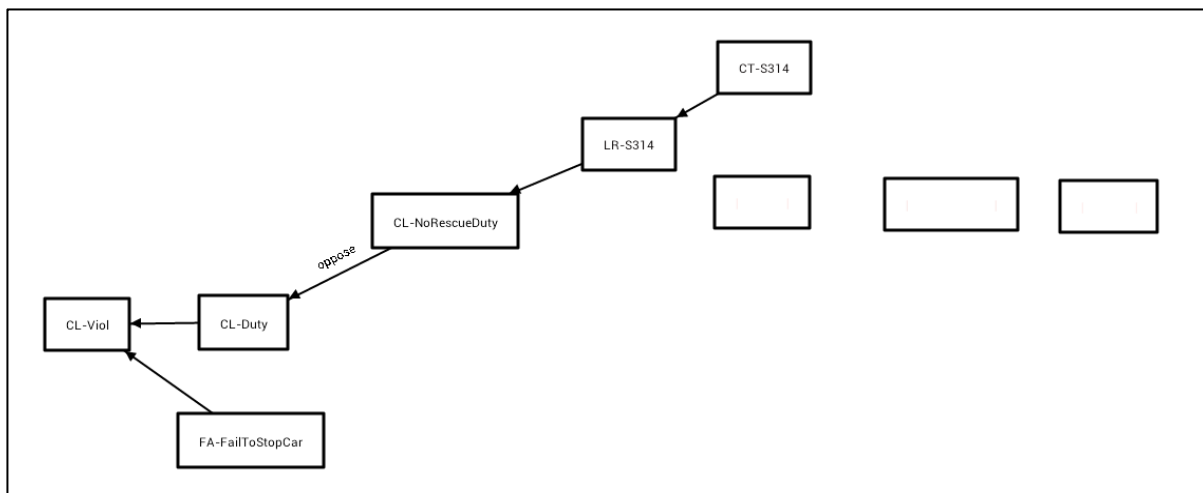
LR-S314Exc: The rule of Restatement (Second) of Torts, §314 has an exception if there is a special relation between the actor and the other.

LR-S315SpecRel: Where a special relation exists between an actor and another person, the former has a duty to protect the latter if the former understands that the latter is in danger.

CT-S315: Restatement (Second) of Torts (1965), §315, General Principle: There is no duty so to control the conduct of a third person as to prevent him from causing physical harm to another unless…(b) a special relation exists between the actor and the other which gives to the other a right to protection. (Adopted in Pennsylvania. *See* Midgette v. Wal-Mart Stores, Inc., 317 F. Supp. 2d 550, 558 (E.D. PA, 2004) *aff'd* 121 Fed.Appx. 980 (3d Cir. 2005).)

Figure 4: Argument Diagram with Blank Nodes with Missing Arrows, and Argument Key Excerpts

First, the lessons begin with quite simple argument diagrams and gradually increase the complexity of the argument diagrams presented. Lesson 1 introduces a 3-node diagram of an argument that another

character, Dr. Shady, violated a duty to aid Mr. Walker. The final argument, a continuation of the argument shown in Figure 1 concerning Ms. Nice's liability to Mr. Walker, contains 24 nodes.

Second, new, more complex argument diagrams are introduced with some nodes left blank or some arrows missing as in Figure 4. Students are asked to fill in the blank nodes with appropriate node labels corresponding to propositions in the Argument Keys or to link up nodes with support or oppose arrows. These new argument diagrams are usually introduced with complete Argument Keys that include labeled propositions for all of the nodes, including those that have been left blank (See Figure 4, bottom). Self-assessment challenges incorporated into the instruction prompt students to read the propositions to find those that reasonably could correspond to the positions of the blank nodes and then to link those nodes into the diagram with arrows. Follow-ups to the self-assessment challenges ask students to compare their answers to a diagram in which the blanks have been filled in correctly. Figure 1 shows the correct fill-ins for the missing labels and arrows.

This means that the primary pedagogical contribution of the argument diagrams in the lessons is to focus students on the *structure* of a legal argument. The propositions are given; students need to read them and then think about where they fit into the structure of the particular argument.

The last lessons, Lessons 8 and 9, introduce a pedagogically motivated complication. In those lessons, the Argument Keys are both under and over inclusive. That is, an Argument Key is missing some propositions that would be useful in the legal argument and diagram. In addition, the Argument Key contains some propositions that would *not* be useful in the legal argument (i.e., red herrings). Students need to find the missing propositions by reading the materials' sets of legal rules and cases, searching for and extracting propositions that would be useful for inclusion in the argument (i.e., that can reasonably be mapped into the argument's structure by filling in the blank argument nodes). Students also need to make determinations about which "extra" propositions are *not* useful to include.

5   PLANNED STUDY

The hypothesis of the planned study is to assess whether argument diagramming improves students' learning and results in better-written arguments. In order to assess this, the 480 students in 3 sections of the Torts course taught by the one instructor will be divided into two groups, an argument-diagramming group (2 sections, 320 students) and a writing-only group (1 section, 160 students).

Each group will engage in the two-week web-based, fifteen-hour set of nine lessons, but each group will employ a different version of the lessons. Both versions present a step-wise approach to planning written legal arguments using the template in Figure 3. Students in both groups will construct final legal arguments on behalf of the same party in the hypothetical scenario (i.e., an argument for Ms. Nice that she is *not* liable to Mr. Walker) by selecting and ordering elements from identical lists of argument propositions.

The version for the writing-only group, however, involves a more traditional, exclusively text-based approach. It closely parallels the above-mentioned set of nine lessons and twelve self-assessment challenges, and uses the same hypothetical scenario, legal rules, and cases, however, no argument diagrams are included. Instead of diagrams, we employed *written* arguments as examples.

In other words, students in the writing-only group encountered the same lists of propositions as appear in each of the diagram group's lessons and Argument Keys, using the same texts but without the node labels. The writing-only group's propositions were organized by type: Claims, Factual Assertions, Legal Rules, and Citations. For each of the nine lessons' gradually more complex arguments, instead of a diagram, a textual argument was provided illustrating how the propositions could be organized into a coherent written argument. The argument texts included paragraphs and sentences into which the propositions' texts were incorporated using appropriate transitional wording between sentences.

Students in the writing-only group were also exposed to increasingly more complex examples of arguments. Instead of being asked to fill in blank node labels and arrows, however, the students were asked to focus on boldface ellipses (i.e., **…**) inserted at the ends of certain arguments and to fill in the ellipses with a missing (textual) argument.

For example, Figure 5 presents the writing-only version of the same argument and exercise as depicted in Figure 4. At the top is a claim that Ms. Nice violated a duty to protect Mr. Walker from harm, followed by an argument based on § 314 that she did not. (Italicized mentions of figures refer to figures in the instructional materials). The challenge in the middle of Figure 5 asks students to fill in the boldfaced ellipsis by constructing an argument that Ms. Nice does have a duty to aid Mr. Walker

despite § 314. The bottom of Figure 5 shows such an argument based on § 315. In order to construct this argument, students in the writing-only group would see and could incorporate the argument propositions corresponding to those at the bottom of Figure 4.

From *Figure 9*: Since Ms. Nice had a duty to protect Mr. Walker from this harm by ordering the car to stop and Ms. Nice failed to order car to stop, it follows that Ms. Nice violated her duty to protect Mr. Walker from this harm by not ordering the car to stop.

An argument can be made that the mere fact that Ms. Nice saw Mr. Walker in risk of danger does not impose a legal duty on Nice to go to Walker's rescue. According to the legal rule, the fact that the actor realizes or should realize that action on his part is necessary for another's aid or protection does not of itself impose upon him a duty to take such action. This rule is based on Restatement (Second) of Torts (1965), §314, Duty to Act for Protection of Others: "The fact that the actor realizes or should realize that action on his part is necessary for another's aid or protection does not of itself impose upon him a duty to take such action." (Substantially identical to Restatement (First) of Torts (1934) § 314, Duty to Act for Protection of Others, adopted in Yania v. Bigan, 155 A.2d 343 (Pa. 1959).)

...

➔ **CHALLENGE 6:** BASED ON THE COMPONENTS IN *FIGURE 10*, FILL IN THE BOLDFACE ELLIPSIS AT THE BOTTOM OF *FIGURE 9* AND COMPLETE THE COUNTER ARGUMENT THAT MS. NICE *DOES* HAVE A DUTY TO AID MR. WALKER. ⬅

➔ **CHALLENGE 6 (FOLLOW-UP):** HAVE YOU COMPLETED THE COUNTER ARGUMENT THAT MS. NICE *DOES* HAVE A DUTY TO AID MR. WALKER? COMPARE YOUR ARGUMENT WITH THE ONE IN *FIGURE 11* (NEXT PAGE). HOW IS IT SIMILAR? HOW IS IT DIFFERENT? WHICH ARGUMENT IS BETTER? WHY? SUBMIT YOUR ANSWER TO CHALLENGE 6 AND FOLLOW-UP QUESTIONS USING THE LINK PROVIDED IN THE COURSE PAGE. ⬅

From *Figure 11*: The rule of Restatement (Second) of Torts, §314, however, has an exception if there is a special relation between the actor and the other. Namely, where a special relation exists between an actor and another person, the former has a duty to protect the latter if the former understands that the latter is in danger. This exception to the rule of §314 is based on Restatement (Second) of Torts (1965), §315, General Principle: "There is no duty so to control the conduct of a third person as to prevent him from causing physical harm to another unless…(b) a special relation exists between the actor and the other which gives to the other a right to protection." (Adopted in Pennsylvania. *See* Midgette v. Wal-Mart Stores, Inc., 317 F. Supp. 2d 550, 558 (E.D. PA, 2004) *aff'd* 121 Fed.Appx. 980 (3d Cir. 2005).)

Figure 5: Writing-only version of argument exercise in Figure 4.

Thus, students in both groups have ready access to the same legal argument content. They both employ the same textual argument propositions. Students in the diagramming group see those propositions, or at least the corresponding labeled nodes, organized in an argument diagram that makes the structure of the argument visually explicit. Students in the writing group see those propositions incorporated into coherent textual arguments.

As noted, the goal of the study is to determine empirically if students learn more about legal argumentation and about the substantive tort law from the argument-diagraming or the writing-only approach. In order to have an objective measure for comparing student learning across the two groups, we developed pre- and post-test instruments with multiple-choice and true/false questions designed to assess students' skills of legal argument and knowledge of the common law tort duty to aid. Both tests included:

1) Legal argument-related questions of a type considered for inclusion in the Law School Admission Test (LSAT): these items assess various argumentation skills in contexts that require no background legal knowledge [24].

2) General questions about the duty to aid and brief scenarios raising duty to aid issues and asking students to pick the best decision and reason.

3) General questions based on the model of legal argument summarized in Figure 3.

The first three problem types appeared on both pre- and post-tests so that learning could be assessed. In addition the post-test included:

4) Factual questions about what happened in the crossing-guard hypothetical: these items assess whether either condition made facts in the scenario more salient to participants.

5) Questions about whether parties in the crossing guard hypothetical or in brief scenarios can rely on various legal rules from the Restatement provisions employed in the 9 Lessons, which are quoted in the post-test.

6) Questions concerning the meaning and usage of the three Pennsylvania cases employed in the nine lessons, which involved interpretations of certain of the Restatement provisions.

The instructor and his assistants, who would be blinded as to in which of the three sections a student author was enrolled, will apply a rubric of criteria for grading the arguments. A rubric has been developed based on the argument template of Figure 3 [23], a checklist for critiquing written legal arguments adapted from [25], and incorporating a criterion focused on assessing substantive knowledge of the common law tort duty to aid. Given the large n, it should be possible to assess objectively how well students learn with each approach.

Using MUSOMI and an Internet connection via the Sûrtabs, each group will take the pre-test and download the appropriate version of the PDF files for the nine lessons. The diagramming group will also download the free SDLite third party app. Both groups will proceed through the nine lessons as homework, which will not require an Internet connection. In the eighth and ninth lessons, the diagramming group will use SDLite to diagram their planned argument and then write the argument. The writing-only group will write the arguments without diagramming them. Students in both groups will then upload their work products online via MUSOMI and complete the post-tests.

The study was intended to take place in the first two weeks of May, 2015. As of this writing, however, the Moi LS has been closed in the spring, 2015 semester due to a faculty labor dispute [26]. We hope to proceed with the study as soon as classes resume.

6   INTERNATIONAL CONSIDERATIONS

As noted, the study is being conducted as part of the NSF-funded ArgumentPeer Project to develop computerized techniques to assist students in university studies, including law, to improve their skills of planning and preparing written arguments.

As the world becomes more accessible through technology and the Internet, *international* research activities are becoming increasingly feasible. In applying for the NSF funding, we did not anticipate that we might be able to conduct this research with law students in Africa. After the opportunity presented itself, in preparing to take advantage of it, a number of issues arose.

First, there are ethical considerations. For purposes of human subjects research, the students at Moi University in Kenya should be treated just as Pitt students in the U.S. would be. Since the research was to be conducted by Pitt researchers and involved participants located outside of the U.S., human subjects research approval had to be sought from the Pitt Institutional Review Board (IRB). The IRB designated the proposed research as covered under the relevant U.S. federal regulation, section 45 CFR 46.101(b)(1) (i.e., "Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) … or (b) research on the effectiveness of or the comparison among instructional techniques, curricula or classroom management methods"). The IRB required approval from the Dean of the Moi University School of Law as well as from the relevant NSF program officer. In addition, Moi students will be requested to provide a waiver releasing for use in the research the data they generate in participating in the study (e.g., their argument diagrams and written arguments).

Second, legal differences across countries can limit the general application of this approach. As noted above, Kenya and the state of Pennsylvania in the U.S. both inherited British common law. As a result, the common law of torts and the use of cases in legal arguments to justify interpretations of legal rules are similar. Indeed, the Pitt Law / Moi U. collaboration's pedagogical use of Pennsylvania legal materials has been predicated on the notion that to the extent that Kenyan law may be less fully developed in certain areas, the Pennsylvania sources provide useful models.

Other countries and jurisdictions are subject to civil law, however, owing to their roots in the French Napoleonic Code or other related legal traditions. In civil law jurisdictions, the manner of legal argument is quite different, and the nine lessons would not be appropriate for teaching new civil lawyers about legal argument in their own jurisdictions. Interestingly, the tort law concerning the duty to aid is also quite different in civil law jurisdictions, in which the duty to aid is far broader than under the common law.

On the other hand, it is pedagogically important for students of the civil law to understand the different assumptions of common law jurisdictions concerning both legal argumentation and the substantive law. One could imagine using the nine lessons above to teach civil law students about the common law. That was the reason why the crossing guard hypothetical was included in [4], a text designed to introduce international law students to the U.S. common law.

Third, certain cultural differences have arisen. In presenting the hypothetical crossing guard scenario to a former graduate of Moi LS, the student advised that the concept of a "crossing guard" may be unfamiliar back home in Kenya. Hence, we have included a picture and a definition, which we hope will be sufficient for students to consider the role of crossing guards and their status as municipal employees.

7   CONCLUSIONS

This unique opportunity for study is possible because of the long-term cooperative relationship between two universities on different continents, the availability to Moi law students of powerful tablet computers but their lack of legal instructional materials, a large number of students in one course, all taught by one instructor, and the NSF-funded ArgumentPeer Project. A successful study demonstrating benefits to law students in this developing country could lead to further funded projects with the potential to improve legal education in a region of Africa very much in need of support for the rule of law.

ACKNOWLEDGEMENTS

REFERENCES

[1]   Sûrtab. About us. http://surtab.com/home/about-us/ (Visited, 04 March 2015).

[2]   Moodle. https://moodle.org/ (Visited, 13 March 2015).

[3]   Oduor, M. (2014) No Books? No Problem!: Teaching with Tablets in Kenya, U. Pittsburgh School of Law CILE Notes, v.19: 6-7. http://law.pitt.edu/sites/default/files/attached/cile/97304%20CILE%20Notes%202014_FINAL_Pages.pdf (Visited, 04 March 2015).

[4]   Brostoff, T. and Sinnsheimer, A. *United States Legal Language and Culture*. New York: Oxford U. Press USA (2013).

[5]   Crammond, J. (1998). The uses and complexity of argument structures in expert and student persuasive writing. *Written Comm., 15*(2), 230-268.

[6]   Chryssafidou, E. (2014) Argument diagramming and planning cognition in argumentative writing, Ph.D. U. Birm. http://etheses.bham.ac.uk/5048/

[7]   Wolfe, C. & Britt, M. (2008). The locus of the myside bias in written argumentation. *Thinking & reasoning, 14*(1), 1-27.

[8]   Wolfe, C., Britt, M., Butler, J. (2009). Argumentation schema and the myside bias in written argumentation. *Written Communication, 26*(2), 183.

[9]   McCormick, C. B. (2003). Metacognition and learning. In I. B. Winer, M. Reynolds & G. E. Miller (Eds.), *Handbook of psychology: Vol. 7. Educational psychology* (pp. 79-102). New York: Wiley.

[10]   Nussbaum, E. M. (2008). Using Argumentation Vee Diagrams (AVDs) for Promoting Argument-Counterargument Integration in Reflective Writing. *Journal of Educational Psychology, 100*(3), 549-565.

[11]   Piolat, A. (1999). Planning and Text Quality among Undergraduate Students: Findings and Questions. In M. Torrance & D. Galbraith (Eds.), *Knowing what to write: Conceptual processes in text production* (pp. 121-136). Amsterdam: Amsterdam University Press.

[12]   Yeh, S. (1998). Empowering Education: Teaching Argumentative Writing to Cultural Minority Middle-School Students. *Research in the Teaching of English, 33*, 49-83.

[13]   Nussbaum, E. M., & Schraw, G. (2007). Promoting argument-counterargument integration in students' writing. *The Journal of Experimental Education, 76*(1), 59-92.

[14]   Harrell, M. and Wetzel, D. (2013) Improving First-Year Writing Using Argument Diagramming. Proc. 35th Ann. Conf. Cog. Science Society.

[15]   Lynch, Collin (2014) *The Diagnosticity of Argument Diagrams.* Doctoral Diss., U. Pitt. http://d-scholarship.pitt.edu/20710/

[16]   Proske, A., Narciss, S., & McNamara, D. S. (2010). Computer-based scaffolding to facilitate students' development of expertise in academic writing. *Journal of Research in Reading*.

[17]   N. Pinkwart, K. Ashley, C. Lynch, V. Aleven. Evaluating an Intelligent Tutoring System for Making Legal Arguments with Hypotheticals. *Int'l J. A. I. in Education* 4:19 (2009) 401-424.

[18]   C. Carr. Using computer supported argument visualization to teach legal argumentation. *Visualizing argumentation*, Springer, London (2003) 75–96.

[19]   S.W. Van den Braak, H. van Oostendorp, H. Prakken, and G.A.W. Vreeswijk.   A critical review of argument visualization tools: Do users become better reasoners? In F. Grasso, R. Kibble,. C. Reed, eds. *Notes, ECAI-2006 Computational Models of Natural Argument (CMNA VI)* (2006) 67-75.

[20]   O. Scheuer, F. Loll, N. Pinkwart and B. McLaren Computer-supported argumentation: A review of the state of the art. *Int'l J. Computer-Supported Collaborative Learning.* 5:1 (2010) 43-102.

[21]   iLogos,   http://www.phil.cmu.edu/projects/argument_mapping/ (Visited, 05 May 2015)

[22]   Smart Diagram Lite https://play.google.com/store/apps/details?id=com.sillycube.android.DiagramMaker.core&hl=en (Visited, 08 May 2015)

[23]   Neumann, R. LEGAL REASONING AND LEGAL WRITING: STRUCTURE, STRATEGY AND STYLE, 5th Ed. (2005).

[24]   Reese L, Cotter R (1994) A compendium of LSAT and LSAC-sponsored item types 1948–1994. Law School Admission Council Research Rept. 94-01. http://www.lsacnet.org/Research/Compendium-of-LSAT-and-LSAC-Sponsored-Item-Types.pdf (visited August 18, 2008)

[25]   Oates, L., Enquist, A., and Kunsch, K. The Legal Writing Handbook (1998) 221-3. Aspen.

[26]   Barasa, O. Moi University law students impatient over Annex closure. Hivisasa (27 April 2015) http://www.hivisasa.com/uasin-gishu/education/157806/moi-university-law-students-impatient-over-annex-closure (Visited, 07 May 2015)