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Use of Objective Tests in Examining Law Courses at Daystar University

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Abstract

The use of multiple-choice questions (MCQs) in law schools has not gained widespread acceptance, unlike in medical schools where they enjoy global usage. Law Schools traditionally use essay-type/problem-solving questions to assess students. The efficacy of this form of assessment is increasingly being attacked due to increasing numbers of students and advancements in technology that enable students to generate answers. Bloom's Taxonomy provides for a hierarchy of learning processes, which include 'remember', 'understand', 'apply', 'analysis', 'evaluate', and 'create'. Studies on whether MCQs can test higher-order learning processes required in law courses have been inconclusive. We did a retrospective study to investigate whether MCQs are an efficient and effective way of assessing law courses. Underlying this study was the desire to find an alternative mode of assessment to overcome the threats facing the essay type. Results from selected law courses were analyzed in which students' performance on MCQ tests, oral tests, and final examinations were compared. MCQs were analyzed on a two-dimensional Bloom's table to establish the extent to which they tested higher-order learning processes. We compared the results of scores on the MCQs with those of oral tests and final essay-type examinations using correlational analysis and one-way analysis of variance (ANOVA). This was for the courses Constitutional Law (n = 22, MCQs = 75), Intellectual Property Rights (n = 113, MCQs = 100), Broadcast & TV Law (n = 11, MCQs = 76), Administrative Law (n = 65, MCQs = 91), and Cyberspace Law (n = 28, MCQs = 101). In general, students performed best on the MCQ test compared to orals and final exams. A two-tailed correlation analysis comparing all five courses showed a strong correlation between MCQs and Orals ($r = 0.699$, $p = 0.189$) and a weak correlation between MCQ test and final exam ($r = 0.196$, $p = 0.752$). Sixty-eight percent of 75 MCQs in Constitutional Law tested higher-order processes. The mean scores for MCQ ($\bar{x}\pm\sigma = 39.45 \pm 4.83$), orals ($\bar{x}\pm\sigma = 7.64\pm18.72$), and final exam ($\bar{x}\pm\sigma = 28.5 \pm 8.88$) showed a best performance for MCGs. ANOVA comparing test scores for MCQs, Orals and Final examination showed a very significant difference ($F_{(2, 63, 0.05)} = 38.11$, $p < 0.0001$). Fifty-four out of 100 MCQs for intellectual property Law tested higher-order learning processes. The mean scores for MCQ ($\bar{x}\pm\sigma = 39.78 \pm 5.22$), orals ($\bar{x}\pm\sigma = 18.88\pm14.66$), and final exam ($\bar{x}\pm\sigma = 29.0442 \pm 7.71$) showed a best performance for MCQs. ANOVA results were highly significant ($F_{(2,342,0.05)} = 125.565$, $p < 0.0001$). In Broadcast & TV Law, 44.7% of 76 MCQs tested higher-order learning processes. The mean scores for MCQ ($\bar{x}\pm\sigma = 43.27\pm6.89$), orals ($\bar{x}\pm\sigma = 31.09\pm12.53$), and final exam ($\bar{x}\pm\sigma = 32.09 \pm 6.69$) were different. ANOVA results were very significant ($F_{(2,30,0.05)} = 6.057$, $p < 0.01$). There were 91 MCQs in Administrative Law of which 74% tested higher-order processes. The mean scores for the three tests were MCQ ($\bar{x}\pm\sigma = 33.05 \pm 4.76$), orals ($\bar{x}\pm\sigma = 22.89 \pm 16.08$), and final exam ($\bar{x}\pm\sigma = 32.58 \pm 5.58$). ANOVA results were very significant with $F_{(2,191,0.05)} = 20.388$, $p < 0.0001$. Cyberspace Law had 101 MCQs of which 38.6% tested higher-order learning processes.

The mean scores for MCQ ($\bar{x}\pm\sigma$ = 43.50 $\pm$ 4.51), orals ($\bar{x}\pm\sigma$ = 36.43 $\pm$ 2.27), and final exam ($\bar{x}\pm\sigma$ = 35.04 $\pm$ 7.71) were different. ANOVA results were very significant ($F_{(2,81,0.05)}$ = 20.375, $p < 0.0001$). We concluded that MCQs are efficacious and efficient in testing higher-order learning processes. MCQs can be used to assess learning of law courses. We recommend that law schools should embrace MCQs for assessing law courses.

Key words: assessment, Bloom's taxonomy, final exam, multiple-choice questions (MCQs), oral test

1. Introduction

The training of lawyers is geared towards producing professionals who can read, distinguish, evaluate, analyze, synthesize legal materials, form arguments, and make judgments. This requires that the mode of evaluation must be geared towards achieving that goal. In particular, evaluation should test abilities of appraisal, arguing, judgment, selection, weighing and critiquing. For many decades, evaluation of law courses has been done through the essay or problem questions both during a continuous assessment test and in the final examination. In answering questions students are required to show a mastery of the law, through recall analysis and application of relevant statutory provisions, decided cases as well as underpinning legal theories. In more practical courses, they are required to draft court papers. The regulator in Kenya, the Commission for University Education (CUE), insists that a curriculum for the law program, should contain objectives that require the learners to acquire skills that enable them to be analytical, evaluative, creative, and problem solvers. CUE requires law Lecturers to categorize and specify the expected learning outcomes of each course unit according to Bloom's Taxonomy.

Bloom's original Taxonomy identified six types of cognitive processes that show how students process and apply the information they are taught.[1] Each cognitive process is associated with a certain set of verbs. The Taxonomy depicts a hierarchy according to which students must first muster the lower domains before moving on to the higher processes.

The hierarchy which consists of the lowest to the highest of 'remember', 'understand', 'apply', 'analyze', 'evaluate', and 'create'.[2] In the end, law students are expected to draft legal briefs, construct arguments, and interpret law and cases, all of which fall under the higher-order skills under Bloom's taxonomy. These objectives — in turn — direct on the form of assessment needed to test these skills.

The higher-order mental processes are necessary for problem-solving and making decisions. Such processes include comparing, evaluating, justifying, and making inferences. Developing higher-order thinking skills enables students to cultivate analytical, rational, and synthetic thinking for problem-solving and decision-making. Critical thinking is said to be a thinking act which uses knowledge, evidence, exploration and information to arrive at a reasonable conclusion. Analytical thinking is thus blended with critical thinking.[3] Legal reasoning is a skill required of all law students and legal practitioners. The examinations used need to be able to assess these particular skills.[4]

Consequently, a well-planned set of expected learning outcomes helps a Lecturer to plan and deliver appropriate instruction, come up with relevant assessment questions and to ensure that instruction and assessment are in tandem with the expected learning outcomes.[5] Assessments help Lecturers ascertain whether learning objectives have been achieved. Subsequently, appropriate assessments are expected to be used.

Law students are expected to muster the 'lower complexity' cognitive processes as a basis for moving up on the hierarchy. This gives such students the foundation necessary for them to advance to higher cognitive domains. It is therefore important that Lecturers assess students on materials taught on the 'lower complexity' cognitive processes and knowledge.

The traditional essay-type questions allow students to showcase their abilities in higher-order learning outcomes. This they do within a narrow scope of specific topics as such questions are not suitable for the 'lower complexity'

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[1] BS Bloom et al., (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook 1: Cognitive Domain*. David McKay Company Inc, 10.

[2] BS Bloom et al., (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook 1: Cognitive Domain*. David McKay Company Inc, 10.

[3] T Thaneerananon, W Triampo & A Nokkaew, (2016). Development of a Test to Evaluate Students' Analytical Thinking Based on Fact versus Opinion Differentiation. *International Journal of Instruction*, *9*(2). https://www.researchgate.net/publication/305722319; http://www.e-iji.net/dosyalar/iji_2016_2_9.pdf. DOI: 10.12973/iji.2016.929a

[4] D Bozin, F Deane & J Duffy, (2020). Can Multiple Choice Exams be Used to Assess Legal Reasoning? An Empirical Study of Law Student Performance and Attitudes. *Legal Education Review*, *30*(1), 1-23. https://doi.org/10.53300/001c.23484.

[5] LW Anderson et al., (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives.* Editors, Lorin W. Anderson, David Krathwohl; Contributors, Peter W. Airasian et al., Complete ed., Longman.

level that focuses on recall and cognitive skills. Essay-type examinations allow students to cherry-pick topics in preparation for such assessments. This makes the essay form of assessment limited in assessing the breadth of the curriculum. This limitation is inherent in essay-type questions.[6] In Kenya, Law Schools place a lot of emphasis on essay-type assessments. This is done both as part of mid-semester and end-of-semester examinations. It is customary that students will be given one question on a topic to 'research' and write their answers during the mid-semester assessment. At the end of the semester, students are given problem-based questions to test their skills of logical thinking, analysis, synthesis of facts, and ability to solve problems. Further, as part of the assessment of 'creative' abilities, students are required to write a dissertation on a topic of their choice. As a result, Multiple Choice Questions (MCQs) are not really considered as a serious form of assessment.

Meaningful assessment of law students based on this traditional approach faces challenges from increasing numbers of students and advancement in technology. On the one hand, increasing numbers of learners enrolled to study law makes it difficult and laborious for lecturers to give essay-type assessments because they take a long time to mark. In certain instances, lecturers are not able to give students feedback in time, making formative assessments a mirage. On the other hand, technological developments make it possible for students to download other essays on the internet and copy, paste and paraphrase without giving it much thought. In the alternative, students use AI technology to generate essays. This way it is difficult to ascertain whether a student has acquired the requisite knowledge.

The advent of technology has revolutionized the mode of reading, learning, teaching, and evaluation. Databases of various materials have been developed. Of significance are e-books, online journals, and digital repositories of case law of courts from all over the world. These materials make research easier and faster.

A more recent development is that of artificial intelligence (AI) and machine learning (ML). AI is designed to mimic human intelligence. Accordingly, a machine can be programmed to think and reason like a human being. Under ML a lot of data is gathered and organized in a certain way.

AI can facilitate the writing of term papers and dissertations, essay-type questions, final exams, making submissions to court, legal opinions, and Judgements within minutes.[7] While efforts have been made to help detect AI-generated content, several applications are coming up to disguise AI work and it is hard to keep up.[8] This then raises the question of a suitable mode of assessment for law courses. Law teachers are called upon to come up with types of assessments and questions that can be done without involving AI. This means that a heavy reliance on essay questions may be more of a routine than useful.

An overall goal for any assessment program is to ensure that students can use the information to analyze situations and provide solutions. This means that if properly constructed, multiple choice questions (MCQs) can also effectively and efficiently assess law students for such attributes.[9]

Interestingly, multiple-choice questions are the all-time favorite assessment tool in medical schools and universities worldwide.[10] There are several advantages of using MCQs, including rapid marking, superior advantage of testing the breadth of the curriculum, objective marking, reducing the burden of testing large numbers of students, a diagnostic value — can tell where students are having problems, motivate students to cover the entire curriculum.[11] Summative assessment using MCQs motivates students to read the whole course. MCQs may not assess higher-order complexity processes such as 'create' because the correct and wrong answers are pre-

[6] S Whittaker & T Olcay, (2021). Multiple-Choice Questionnaire Assessments: Do They Have a Role in Assessing Law Students? *The Law Teacher*. DOI:10.1080/03069400.2021.1979762. https://doi.org/10.1080/03069400.2021.1979762

[7] Z Wang, (2024). On Artificial Intelligence (AI) and Academics. https://doi.org/10.58445/rars.1133

[8] J Conde et al., (2023). Understanding the Impact of Artificial Intelligence in Academic Writing: Metadata to the Rescue. https://oa.upm.es/77072/1/Accepted_verseion_copyright.pdf

[9] K Doig, (2000). Common Formats of Multiple Choice Questions Testing Analytical Skills in Clinical Laboratory Science. *Clinical Laboratory Science*, *13*(1), 40. https://www.proquest.com/openview/a95f3c01a7f68edab088784ee1f626cc/1?pq-origsite=gscholar&cbl=35972

[10] A Ayyub, U Mahboob, (2017). Effectiveness of Test-Enhanced Learning (TEL) in Lectures for Undergraduate Medical Students. *Pak J Med Sci.*, *33*, 1-5; D Nicol, (2007). E-Assessment by Design: Using Multiple-Choice Tests to Good Effect. *J Furth High Educ.*, *31*, 53-64; GG Nair & M Feroze, (2023). Effectiveness of Multiple-choice Questions (MCQS) Discussion as a Learning Enhancer in Conventional Lecture Class of Undergraduate Medical Students. https://journals.lww.com/mjdy/fulltext/2023/16002/effectiveness_of_multiple_choice_questions__mcqs_.3.aspx

[11] N McNamara & E Barnett, (2012). Learning in Law: Using MCQs for Summative Assessment in Core Law Courses. *International Journal of Organisational Behaviour*, *17*(3), 46-61.

determined.[12] MCQs are considered as a method of providing rapid feedback to students as well as a way of reducing faculty time in marking. The other benefits of taking MCQ exams are that they are highly motivating for students, facilitate the development of self-esteem, and help faculty to identify an area of learning difficulty. MCQs are a common feature of assessment in Medical Schools worldwide as they are believed to enhance retention.[13]

However, there are disadvantages attributed to MCQs, mainly that they encourage guessing the right answers and encourage rote-learning approach.[14] Some scholars consider that MCQs are unrealistic as they could lead to heightened performance.[15] Others hold the view that MCQs encourage surface learning and that they do not address higher-order learning objectives.[16] And yet another criticism against MCQs is that they appear less intellectually rigorous and therefore unrelated to the actual practice of law.[17]

To mitigate the weaknesses of MCQs, some authors have made certain proposals. Firstly, it has been stated that the use of MCQs as part of the various modes of assessment of law students can lead to a more balanced assessment of students.[18] Secondly, the test-items for MCQs need to be both efficient and effective. A test-item is considered efficient when its construction and responses are connected to the expected learning outcomes and if it is free from duplication. It is considered effective if the test is valid, reliable, different from other modes of assessment and fairly assesses students' leaning effort. Thirdly, a very strong correlation between the results of the MCQs and essay questions that test problem-solving capabilities would suggest that MCQs can be used to assess legal reasoning skills and differentiate the performance of students just like essay-type questions. Such a correlation would also imply that there is no need of using both modes of assessment to test the same skill.[19]

The use of MCQs in Law Schools is accepted in the USA and India.[20] Bloom's Revised Taxonomy is used as a basis for using MCQs in US law schools.[21] More recently, the UK Solicitors Regulatory Authority has introduced MCQs as a qualifying exam to practice as a Solicitor.[22]

Bozin et al. investigated the question of whether MCQs are effective in testing 'reasoning' skills.[23] They used 20-item MCQs and 8 problem-based questions all in one to be done in two hours 10 minutes. They were allowed a

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[12] S Whittaker & T Olcay, (2021). Multiple-Choice Questionnaire Assessments: Do They Have a Role in Assessing Law Students? *The Law Teacher*. DOI:10.1080/03069400.2021.1979762. https://doi.org/10.1080/03069400.2021.1979762

[13] Y Touissi et al., (2022). Does developing multiple-choice Questions Improve Medical Students' Learning? *Medical education online*, *27*(1). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8725700/; D W Farthing et al., (1998). Permutational Multiple-Choice Questions: An Objective and Efficient Alternative to Essay-Type Examination Questions. *ACM*, 81. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=4515c9c10b0b4d7c5d6c7367ad77373ec586ad7d; E Barnett & N McNamara, (2012). Supporting Learning in Law: Using Formative MCQ Assessment in Criminal Law Core Courses. *International Journal of Organisational Behaviour*, *17*(2), 72-86. https://core.ac.uk/download/pdf/11048964.pdf

[14] N McNamara & E Barnett, (2012). Learning in Law: Using MCQs for Summative Assessment in Core Law Courses. *International Journal of Organisational Behaviour*, *17*(3), 46-61.

[15] E Higgins & L Tatham, (2003). Exploring the Potential of Multiple-Choice Questions in Assessment. *Learning and Teaching in Action*, *2*(1). http://www.celt.mmu.ac.uk/ltia/issue4/higginstatham.shtml

[16] J Selby, P Blazey & M Quilter, (2008). The relevance of Multiple-Choice Assessment in large cohort business law units. *Journal of the Australasian Law Teachers Association*, *1*, 203-212.

[17] S Case & B Donahue, (2008). Developing High-Quality Multiple-Choice Questions for Assessment in Legal Education. *Journal of Legal Education*, *58*(3), 372-387.

[18] D Bozin, F Deane & J Duffy, (2020). Can Multiple Choice Exams be Used to Assess Legal Reasoning? An Empirical Study of Law Student Performance and Attitudes. *Legal Education Review*, *30*(1), 1-23. https://doi.org/10.53300/001c.23484

[19] D Bozin, F Deane & J Duffy, (2020). Can Multiple Choice Exams be Used to Assess Legal Reasoning? An Empirical Study of Law Student Performance and Attitudes. *Legal Education Review*, *30*(1), 1-23. https://doi.org/10.53300/001c.23484

[20] J Fisher, (2009). Multiple-Choice: Choosing the Best Options for More Effective and Less Frustrating Law School Testing. https://www.researchgate.net/publication/228222488_MultipleChoice_Choosing_the_Best_Options_for_More_Effective_and_Less_Frustrating_Law_School_Testing/citation/download

[21] EM Bloom, (2018). Creating Desirable Difficulties: Strategies for Reshaping Teaching and Learning in the Law School Classroom. *University of Detroit Mercy Law Review*, *95*, 115, 118-19.

[22] S Whittaker & T Olcay, (2021). Multiple-Choice Questionnaire Assessments: Do They Have a Role in Assessing Law Students? *The Law Teacher*. DOI:10.1080/03069400.2021.1979762. https://doi.org/10.1080/03069400.2021.1979762

[23] D Bozin, F Deane & J Duffy, (2020). Can Multiple Choice Exams be Used to Assess Legal Reasoning? An Empirical Study of Law Student Performance and Attitudes. *Legal Education Review*, *30*(1), 1-23. https://doi.org/10.53300/001c.23484

30-minute perusal period. The exam was open book. This was a summative assessment. The MCQs were designed to test the same topics as the problem-solving questions. A bivariate correlation analysis revealed a positive correlation at $p<0.001$ signifying the efficacy of MCQs in assessing reasoning skills. It appears that these researchers did not intend to test all the knowledge taught in that course. In addition, the time allocated appears quite generous.

Thaneerananon et al. developed a 30-item MCQ test with one correct answer. They found that their test can evaluate students' analytical skills in Thailand. They said the test can help students in developing their analytical thinking, problem-solving ability, and right decision-making. However, they are emphatic that MCQs should not be used as the sole mode of assessment.[24]

McNamara & Barnett conducted a comparison in student performance on the essay, short answer (problem-solving) questions, and MCQs in four core courses namely, Contract Law A & B, and Criminal Law A & B over two years.[25] The majority of the students performed better in the essay and final exam problem questions than in the MCQs in contract law. In criminal law, there was no marked difference in performance between MCQs and the short answer questions in the final exam. A comparison of the essay assignment, MCQs, and short answer questions showed the best performance in the essay assignment. The results showed that the MCQs were not any easier. They concluded that MCQs have a legitimate place in summative assessment of law students. The authors were satisfied that MCQs enabled them to test all aspects of the curriculum. These results contradict the view that MCQs are easier than essay modes of assessment.

Whittaker & Olcay applied this mode of assessment to one course unit that is offered in the first year of the law curriculum.[26] They gave two summative tests, an essay-type test at mid-semester to earn 30% of the marks and a 35-item MCQ at the end of the semester to earn the students 70%. The MCQ was available over a 23-hour period but once a student logged in, they had to finish within two (2) hours. The MCQ covered the breadth of the material taught in the course. The breadth of the curriculum is important because law students are expected to be knowledgeable in law. They observed that the intersection of cognitive processes and knowledge processes is beyond the reach of MCQs. They found that MCQs can assess higher-order complexity processes such as 'evaluate'. MCQ questions can be formulated in such a way that they test beyond the 'recall' and 'understanding' processes. Nevertheless, they stated that the emphasis on higher-complexity cognitive processes at the later stages of the Law program would make MCQs not suitable for final-year students. They conclude by saying that MCQs cannot be the sole mode of assessment as these cannot assess the creative processes and metacognitive domains. We consider the time of two hours to answer 35 questions too generous.

At Daystar University, the assessment of Law courses is done through sit-in tests, term papers, orals, moot court presentations, class participation, and final examinations that are heavy on problem-based essay type of questions. The semester assessments carry 40% while the final exam carries 60%. Due to large numbers of students, class participation, and moot court presentations do not appear sharp enough to differentiate an individual's ability. This is because some of these assessments are done as group work. Whereas orals can help bring out an individual's ability, a teacher may not have sufficient time to probe a student deeper. The end-of-semester exams can bring out an individual's performance. However, if a diligent student earns enough marks through the term assessments, then the final examination will be of little consequence. Assessment through final examinations becomes the more meaningless where such examinations are offered through online mode or for students involved in distance learning. This is because they can easily employ ChatGPT to write for them. These developments notwithstanding, there is a need for learning institutions like law schools to satisfy themselves that the products they bring to the market have sufficient content. This therefore calls for innovations in the mode of assessment.

A mode of assessment that has not found footing in Kenyan law schools is the use of MCQs. These researchers sought to use MCQs as part of the assessment for law courses. Each test was designed to cover details of the course outline. The main objective being to test the cognitive processes of remembrance, understanding, application, analysis, and evaluation. The test was offered in the last week before final examinations. This way, candidates were expected to revise the entire content of the semester.

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[24] T Thaneerananon, W Triampo & A Nokkaew, (2016). Development of a Test to Evaluate Students' Analytical Thinking Based on Fact versus Opinion Differentiation. *International Journal of* Instruction. DOI: 10.12973/iji.2016.929a. http://www.e-iji.net/dosyalar/iji_2016_2_9.pdf

[25] N McNamara & E Barnett, (2012). Learning in Law: Using MCQs for Summative Assessment in Core Law Courses. *International Journal of Organisational Behaviour*, *17*(3), 46-61.

[26] S Whittaker & T Olcay, (2021). Multiple-Choice Questionnaire Assessments: Do They Have a Role in Assessing Law Students? *The Law Teacher*. DOI:10.1080/03069400.2021.1979762. https://doi.org/10.1080/03069400.2021.1979762

In light of the challenges that technology poses to traditional modes of assessment of law courses, coupled with the increasing numbers of students, not to forget the need to assess foundational knowledge, this study investigated whether MCQs can provide the solution.

The problem of investigation in this study was whether MCQs are effective and efficient means of assessing learning in law programs. The Objectives of the study were first, to evaluate the effectiveness of MCQs in assessing learning in law programs and second, to evaluate the efficiency of MCQs in assessing learning in law programs. The independent variable was the type of assessment whilst the dependent variable was performance.

The study design was correlational and quasi-experimental.

2. Ethical Issues

Clearance for this investigation was granted by Daystar University Ethics Review Committee. This was a retrospective analysis of data. The ethical question that arose here was that relating to privacy, that is, data protection. To protect the data of individuals, names or registration numbers or anything that could identify them was left out.

3. Methods

This was a retrospective correlational study involving results of a total of 239 students and 453 MCQs comprising Constitutional Law (N=-22), intellectual property rights (N=113); Broadcast and TV Law (N=11); Administrative Law (N=65); and Cyberspace Law (N=28). Constitutional Law is offered in the first year, Intellectual Property Law in the second year, Broadcast and TV Law as well as Administrative Law in the third year, Jurisprudence and Cyberspace Law in the fourth year.

Objective tests were designed for the courses Constitutional Law (75 MCQs), Intellectual Property Rights (100 MCQs), Administrative Law (91 MCQs), Broadcasting and TV Law (76 MCQs), and Cyberspace Law (101 MCQs). The number of questions covered all the topics on the course outline. The tests were administered at week 13 of a 15-week semester. The test was posted on the e-learning portal to be available on the actual day of the lesson. Although each was timed to last a specific time, the test was made available from 6.00 am to 10.00 pm, with only one attempt allowed. After pressing the 'submission' button, each candidate was able to see their score. The Lecturer can see the scores of all candidates.

Objective questions were designed to test remembrance, understanding, application, analysis, and evaluation. They were further designed to be self-executing. The tests were uploaded onto a learning platform in the space of the week in which they were meant to be done. This was mostly at week 13 out of a 15-week teaching semester. The time allowed for each test was the number of questions plus 10 minutes. For example, for 100 questions — the time was 110 minutes. A candidate was allowed only one attempt. The test closed automatically either at the expiry of the allotted time or when a candidate logged out before time. This timing was chosen to minimize incidences of looking up answers in relevant materials before answering a question. To avoid collusion amongst candidates, the tests were programmed to 'shuffle around'. That is, question one for candidate P could be question 47 for candidate R. Also, there was 'shuffling' within the multiple choices. That is, the order of choices for the same question varied from student to student. This means whereas the correct answer to question 72 for candidate X could be 'B', it will move to position 'D' for candidate Z. Added to the limited time available, there was no room for discussion or working in groups to answer this test.

We set out to use MCQs as one of the tests in an assessment suit that comprises of class participation/presentation, term essay (done over 6-7 weeks), oral test, Moot Court assessment, and the MCQ-test. Class participation sometimes took the form of group work for large classes of over 40 students. The Moot Court assessment was through a fictitious question that required students to research throughout the semester and form two groups (plaintiffs/petitioners versus defendants/respondents). From the outset, it was recognized that group work does not differentiate individual performance. Of these modes of assessment, the MCQ-test and orals were fairly similar to the extent that they tested individual effort within a restricted time. However, the orals focused on either a topic or a case study. The large numbers of students do not allow for intensive testing of students using this mode of assessment. Nevertheless, just like in the MCQ test, oral tests came at the end of the semester. They were intended to test all the knowledge as well as all aspects of Bloom's taxonomy, except 'creativeness'. In terms of coverage of the course, this was comparable to the end-of-semester exam in which students were required to answer three questions out of five, with one compulsory question. We subsequently compared the results of MCQs, oral tests and the final exam.

4. Analysis

Each of the MCQ tests used was categorized on a two-dimensional Bloom's chart to give an overview of the cognitive processes tested. Percentages were used to show the proportion of higher-order learning processes represented in the tables. Descriptive and inferential statistics were employed to treat the results. Line-, bar graphs,

and tables were used to present the results. Frequencies were used to show overall performance. The mean and standard deviation were used as measures of central tendency. Pearson Moment Correlation was used to test for relationships between the objective test scores and oral test scores, and objective test scores with those of the final exam scores. Raw scores for MCQs, oral test, and final exam were converted to 60 before treating them with Pearson's. One-way and multivariate analysis of variance (ANOVA) were used to test for significance between the MCQs, oral test, and final exam. Significance was accepted at $p < 0.05$.

5. Results

This section presents the results of the analysis of MCQs used on a two-dimensional Bloom's Taxonomy as well as a statistical analysis of the scores obtained in the MCQ test, orals, and final examinations of the study units used. These results are presented from first-year courses through the fourth-year ones.

5.1 Constitutional Law

This is a first-year course. There were 22 students and 75 MCQs were used.

Table 1. A Two-Dimensional Analysis of MCQs Used for Constitutional Law on Bloom's Taxonomy (75 MCQs)

	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge	Q4, Q20, Q27, Q28, Q39, Q46, Q64	Q10, Q21, Q30, Q41	Q9, Q22, Q45, Q51	Q6, Q35	Q14, Q73, Q74	
Conceptual Knowledge	Q1, Q2, Q49, Q57	Q5, Q7, Q33, Q69	Q42, Q58, Q61	Q8, Q24, Q31, Q36, Q37, Q38, Q47, Q48	Q15, Q16, Q66, Q75	
Procedural Knowledge		Q3, Q59	Q67	Q53, Q72	Q32, Q40, Q70	
Metacognitive Knowledge	Q50	Q26, Q29	Q11, Q12, Q34, Q52, Q62	Q13, Q19, Q43, Q54, Q55, Q63, Q65, Q68	Q17, Q18, 123, Q25, Q44, Q56, Q60, Q71	

Of the 75 MCQs, 51 (68%) questions tested higher-order learning processes.

5.1.1 Statistical Analysis

Figures 1-5 below show the distribution of scores on the MCQ test, the frequency distribution of MCQ scores, distribution and frequency distribution of scores on the final test, the comparative distribution of MCQs and final test scores, and a summary of means scores of MCQ test, oral test, and final examination.

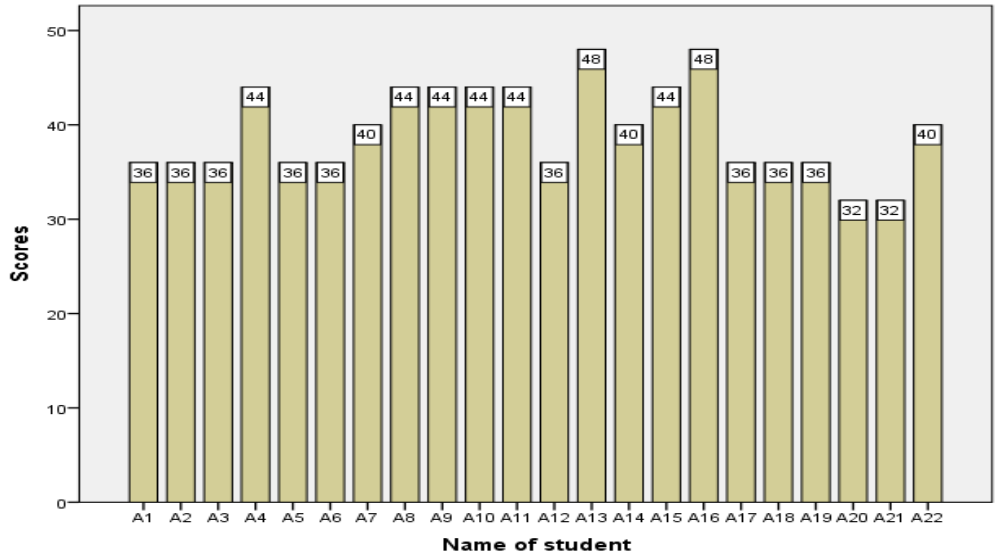

Figure 1. Distribution of the scores on the Objective test in Constitutional law (N=22)

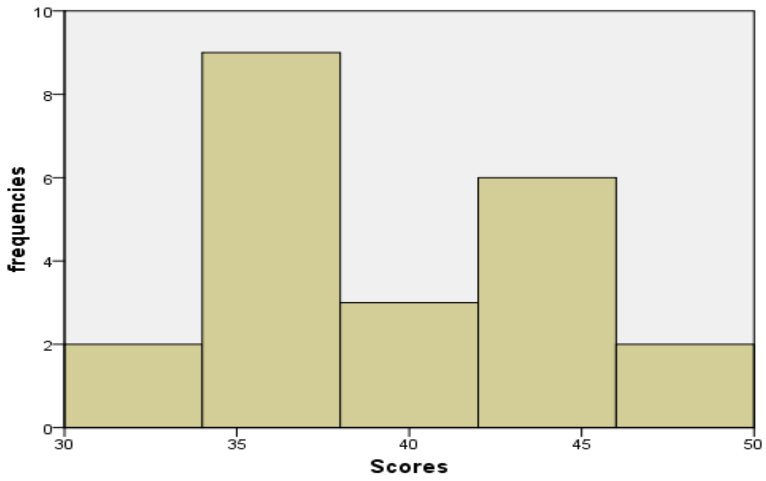

Figure 2. Frequency distribution of Objective test scores in Constitutional law (N=22)

The performance in Figures 1 and 2 shows that Objective test had almost a uniform distribution where students scored marks within the same range. This result shows a low variability within the data.

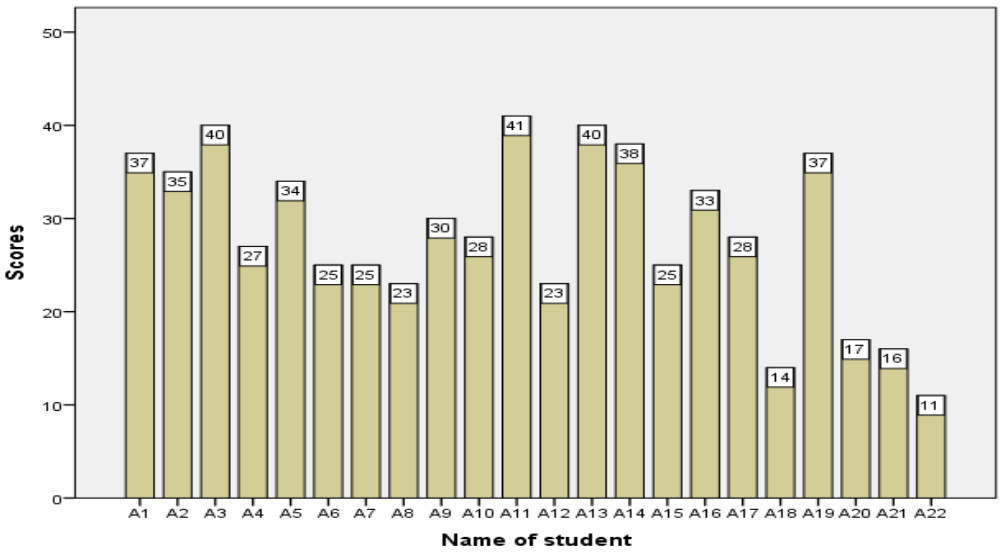

Figure 3. Distribution of scores on the Final exam in Constitutional law (N=22)

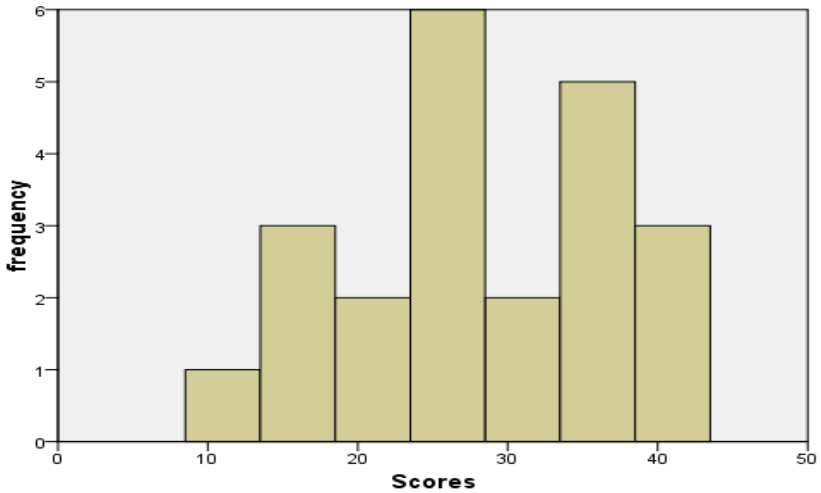

Figure 4. Frequency distribution of Final exam scores in Constitutional law (N=22)

The performance in Figures 3 and 4 shows that the Final exam marks had a normal distribution.

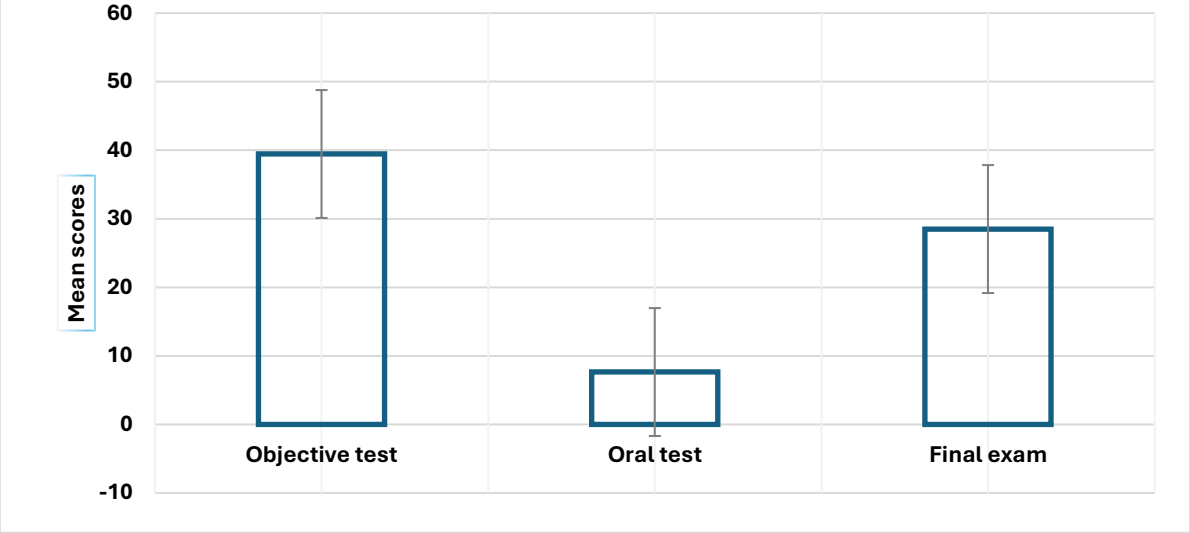

Figure 5. Summary of mean scores for Objective test, Oral tests, and Final exam in Constitutional Law (N=22)

Students performed better on the objective test ($\bar{x}\pm\sigma$ = 39.45 ± 4.83) compared to the performance on the Oral test ($\bar{x}\pm\sigma$ = 7.64±18.72). There was a very weak correlation between the two tests (r = 0.023, p=0.919). A comparison of Means between the Objective test and the Final exam shows that the students performed better in the objective test ($\bar{x}\pm\sigma$ = 39.45 ± 4.83) compared to the performance of the final exam ($\bar{x}\pm\sigma$ = 28.5 ± 8.88). There was a weak correlation between the two tests (r = 0.296, p = 0.182).

A one-way ANOVA comparing performance between the MCQ test, oral test, and final test was done. There was a very high significant difference in performance on the three types of tests ($F_{(2,63,0.05)}$ = 38.11, p < 0.0001). This shows the tests varied in what they tested.

5.2 Intellectual Property Rights

This course is offered in the second year. There were 113 students and 100 MCQs were used.

Table 2. A Two-Dimensional Analysis of MCQs Used for Intellectual Property Rights on Bloom's Taxonomy (100 MCQs)

	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge	Q51-Q54, Q56, Q59-Q66, Q75, Q76, Q78-Q80, Q82-Q87, Q90, Q91	Q10, Q14, Q22-Q24, Q39-Q45, Q50	Q33, Q34, Q47, Q48, Q73, Q74			
Conceptual Knowledge	Q94-Q96, Q99		Q2, Q12, Q13, Q21, Q38, Q55, Q57, Q58, Q67, Q81, Q93, Q98		Q15-Q17, Q20, Q26, Q36, Q46, Q49, Q97, Q100	
Procedural Knowledge				Q68, Q69, Q71, Q72, Q77	Q3-Q5, Q7, Q8, Q29-Q31, Q35, Q37, Q88	
Metacognitive Knowledge					Q6, Q9, Q11, Q18, Q19, Q25, Q27, Q28, Q32, Q70, Q72, Q89, Q92	

Fifty-four (54) questions out of 100 (54%) tested higher-order learning processes.

5.2.1 Statistical Analysis

Figures 6-10 below show the distribution of scores on the MCQ test, the frequency distribution of MCQ scores, distribution and frequency distribution of scores on the final test, the comparative distribution of MCQs and final test scores, and a summary of means scores of MCQ test, oral test, and final examination.

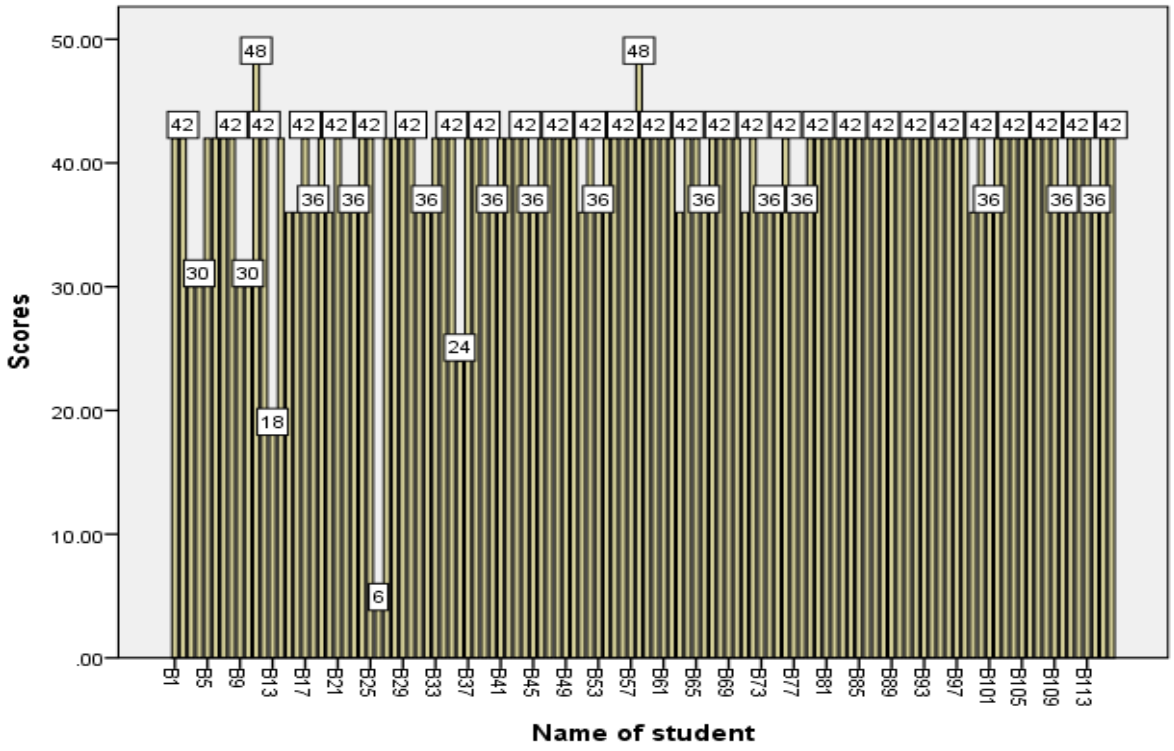

Figure 6. Distribution of the scores on the Objective test score in Intellectual Property Rights (N=113)

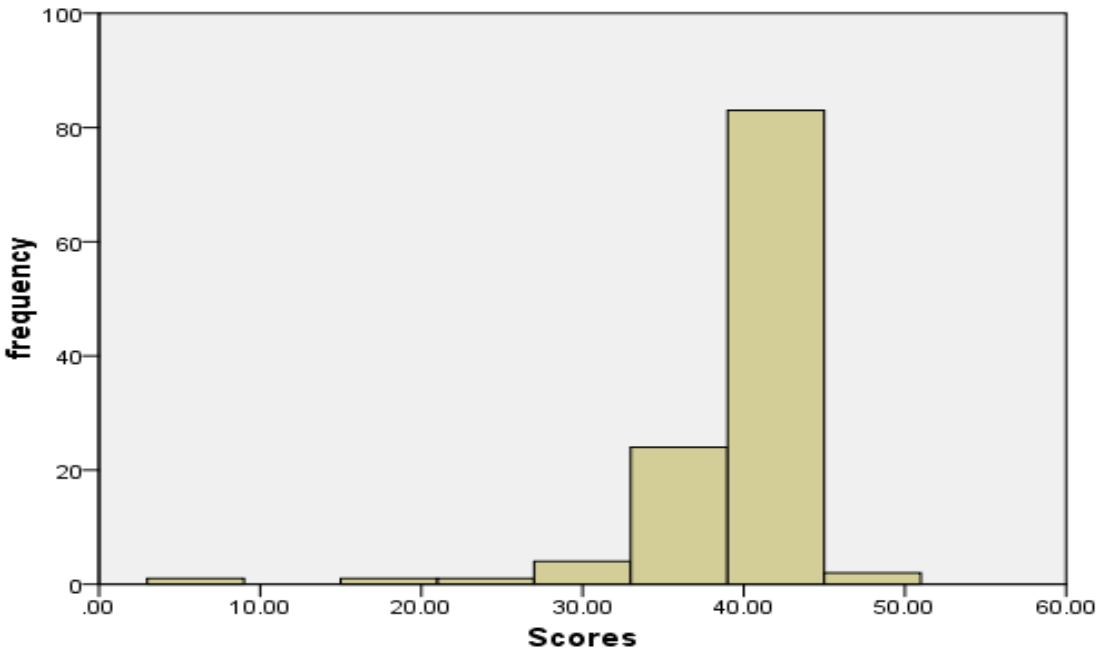

Figure 7. Frequency distribution of Objective test scores in Intellectual Property Rights (N=113)

The performance in Figures 6 and 7 shows that the Objective test had a negative skewness.

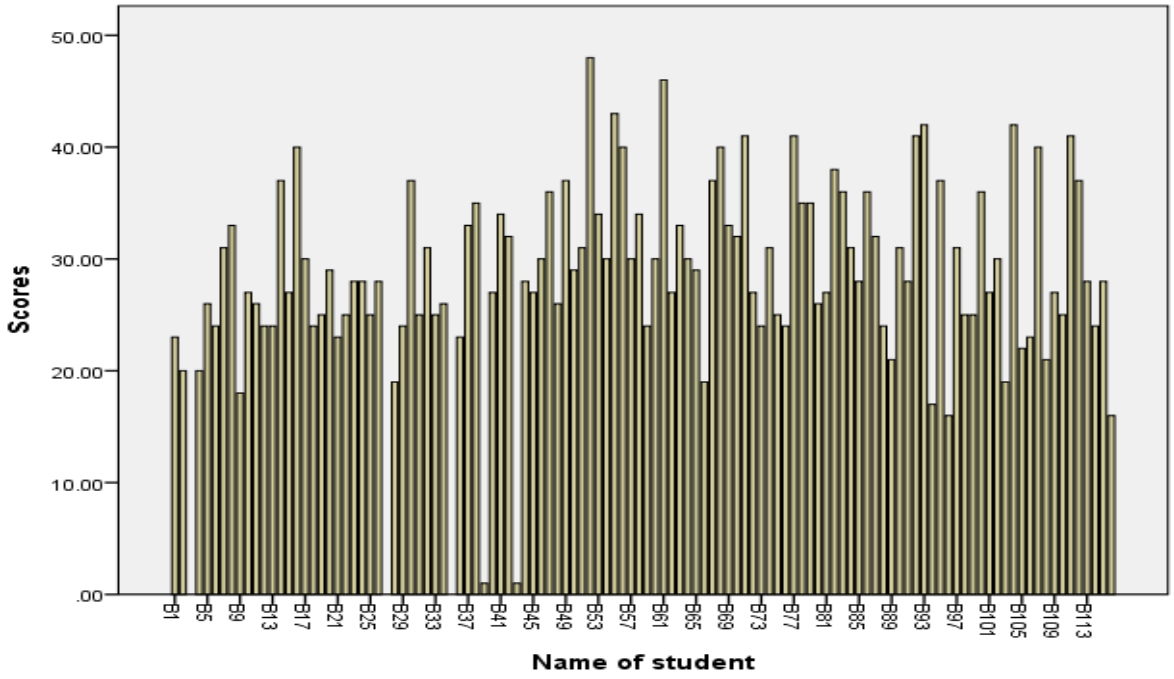

Figure 8. Distribution of the scores on the Final exam scores in Intellectual Property Rights (N=113)

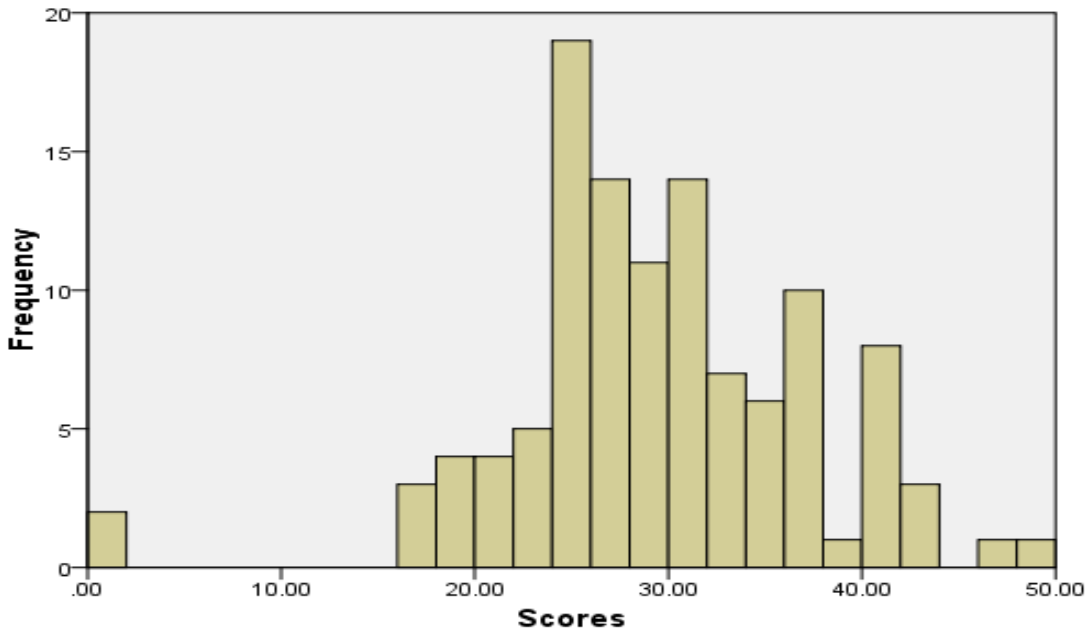

Figure 9. Frequency distribution of Final exam scores in Intellectual Property Rights (N=113)

The performance in Figures 8 and 9 shows that the Final exam had a normal distribution.

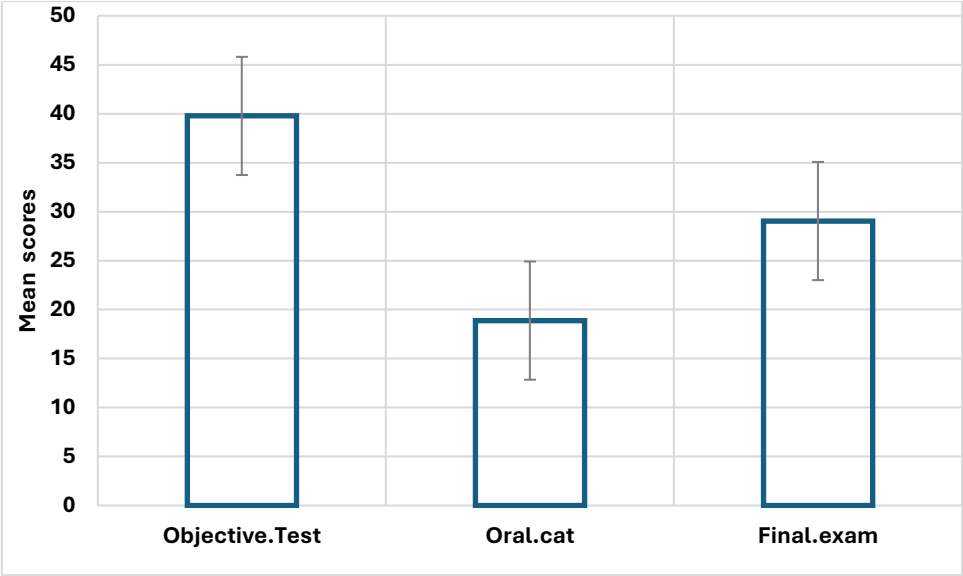

Figure 10. Summary of mean scores for Objective test, Oral test, and Final exam in Intellectual property rights (N=113)

From Figure 10, we conclude that students performed differently in the three tests but excelled better in the Objective test.

The students performed better on the objective test ($\bar{x}\pm\sigma$ = 39.78 $\pm$ 5.22) compared to the performance on the Oral test ($\bar{x}\pm\sigma$ = 18.88$\pm$14.66). There was a very weak correlation between the two tests (r = 0.234, p < 0.011). A comparison of the means revealed that students performed better in the objective test ($\bar{x}\pm\sigma$ = 39.8230 $\pm$ 5.20) compared to the performance of the final exam which had a mean ($\bar{x}\pm\sigma$ = 29.0442 $\pm$ 7.71). A paired correlation analysis showed a weak correlation between the two tests (r = 0.12, p = 0.205).

An analysis of variance (ANOVA) comparing the performance of the MCQ-test, oral test, and final test was done. There was a high significant difference in performance on the three types of tests ($F_{(2,342,0.05)} = 125.565$, $p < 0.0001$). This also shows that the three tests assessed varied aspects.

5.3 Broadcast and TV Law

This course is offered in the third year. There were 11 students and 76 MCQs were used.

Table 3. A Two-Dimensional Analysis of MCQs used for TV and Broadcast Law on Bloom's Taxonomy (76 MCQs)

	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge	Q27, Q28, Q29, Q30, Q35, Q36, Q41, Q43, Q44, Q46, Q47, Q60, Q61, Q62, Q73	Q1, Q2, Q6, Q7, Q9, Q10, Q11, Q22	Q15	Q59, Q72		
Conceptual Knowledge		Q20, Q23, Q25, Q40, Q63, Q64, Q65	Q5, Q8, Q13, Q14, Q16, Q17, Q18, Q26	Q74, Q75, Q76	Q54, Q67, Q68, Q69, Q70, Q71	
Procedural Knowledge		Q31, Q34	Q19, Q45			
Metacognitive Knowledge			Q51, Q52, Q53, Q55, Q56, Q57, Q58	Q12, Q37, Q39, Q42, Q48, Q49, Q50	Q3, Q4, Q21, Q24, Q32, Q33, Q34Q35,	

There were a total of 76 MCQs in this course. Of these, 34/76 (44.7%) tested higher-order processes.

5.3.1 Statistical Analysis

Figures 11-15 below show the distribution of scores on the MCQ test, the frequency distribution of MCQ scores, distribution and frequency distribution of scores on the final test, the comparative distribution of MCQs and final test scores, and a summary of means scores of MCQ test, oral test, and final examination.

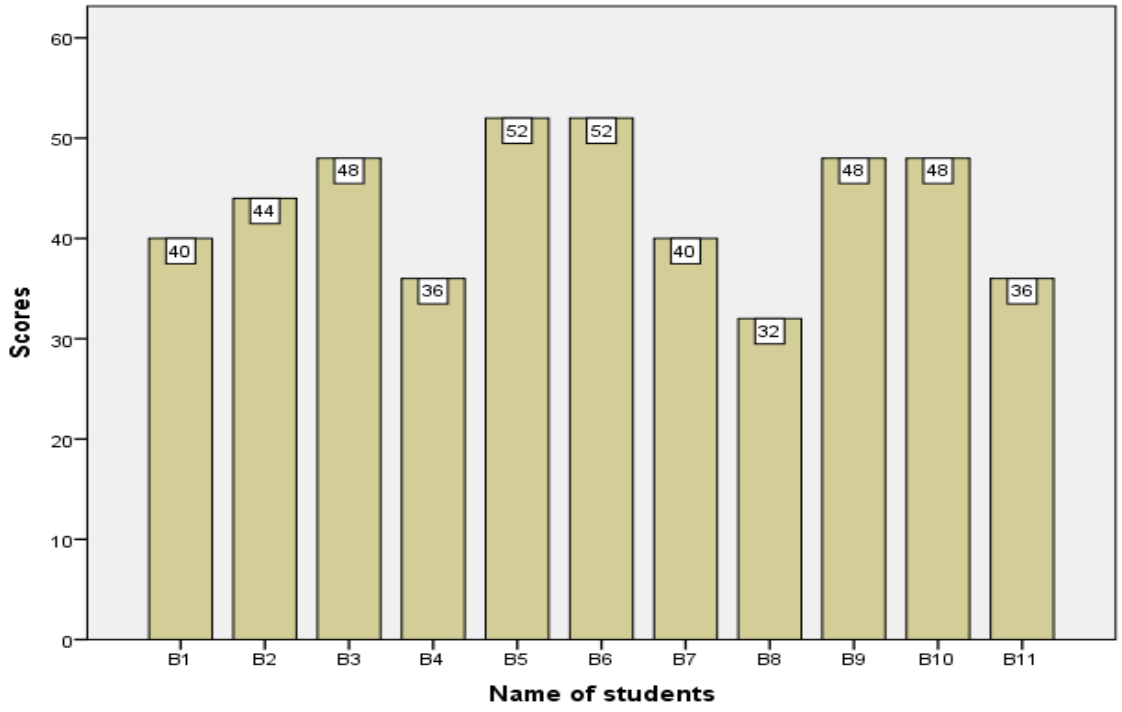

Figure 11. Distribution of the scores on the Objective test score in Broadcasting and TV law (N=11)

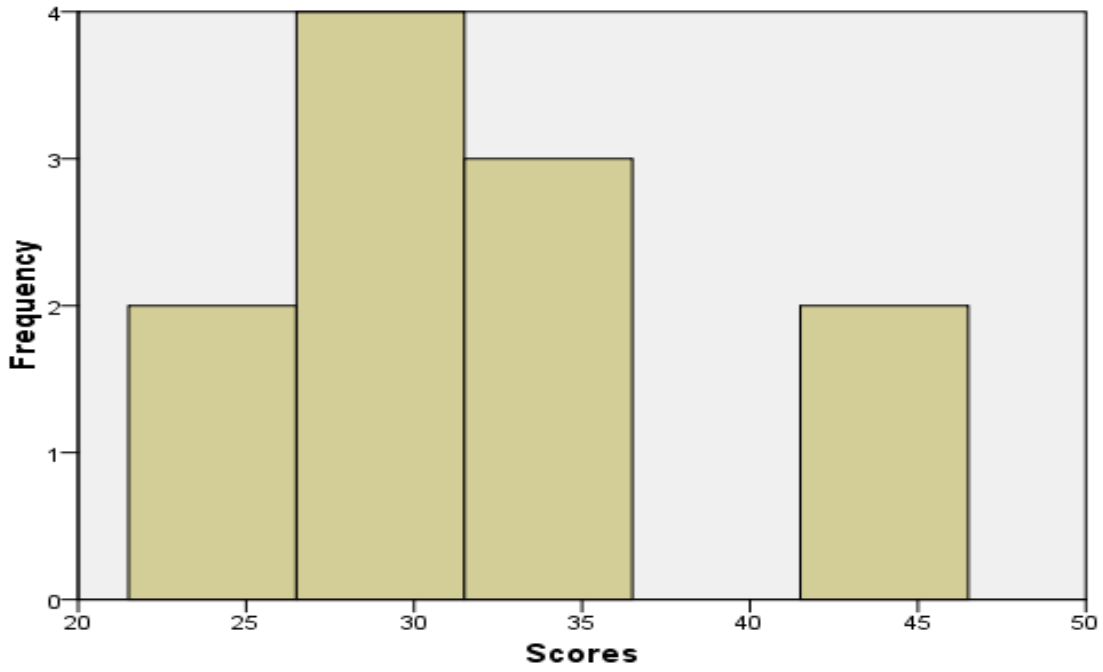

Figure 12. Frequency distribution of Objective test scores in Broadcasting and TV law (N=11)

The performance in Figures 11 and 12 shows a near-normal distribution of scores on the Objective test.

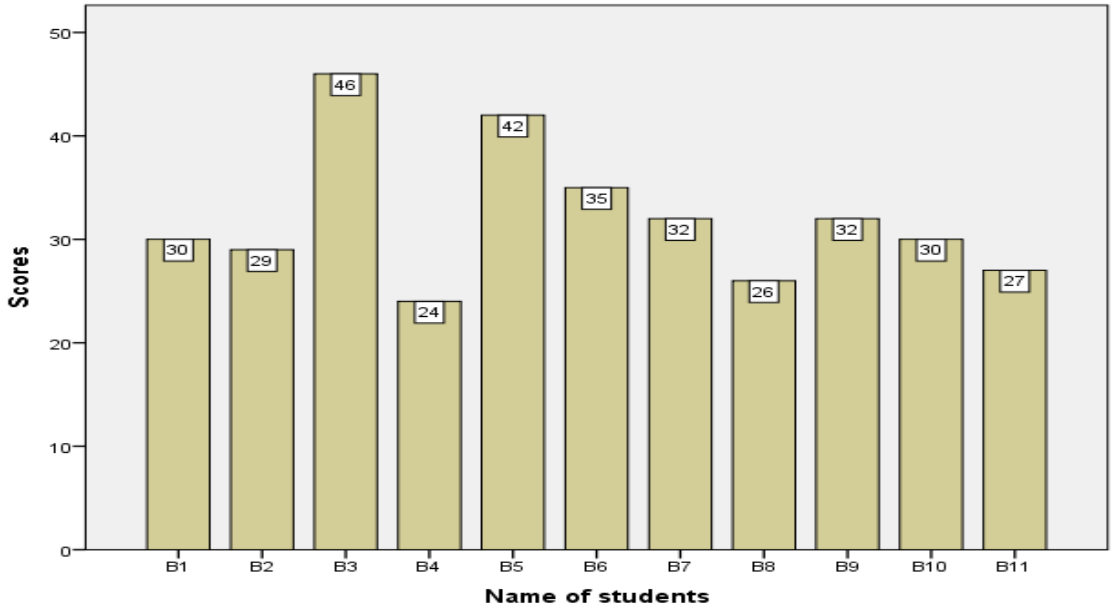

Figure 13. Distribution of the scores on the Final exam in Broadcasting and TV law (N=11)

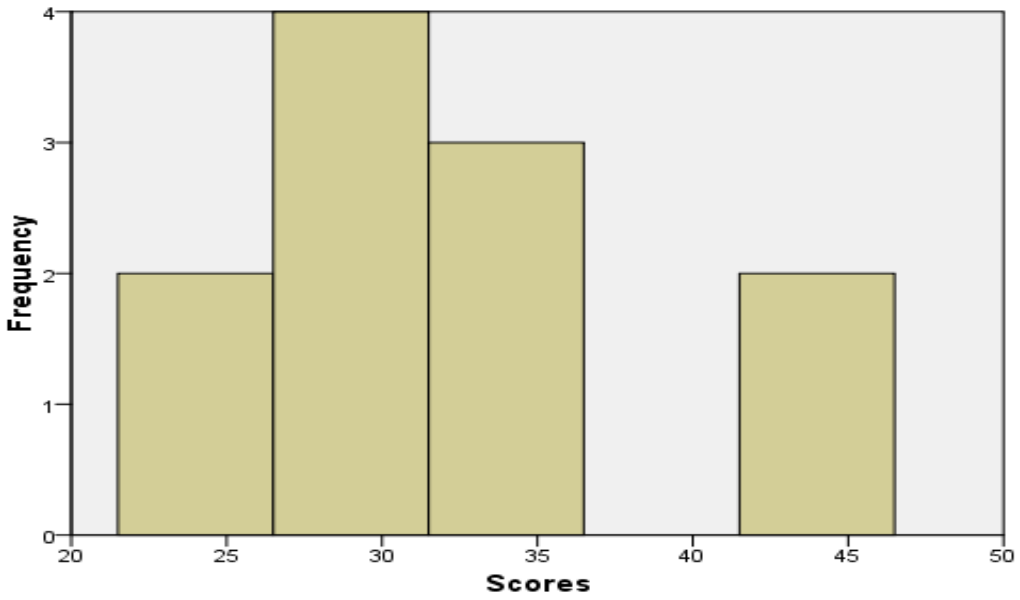

Figure 14. Frequency distribution of Final exam scores in Broadcasting and TV law (N=11)

The performance in Figures 13 and 14 shows almost that the Final exam had a normal distribution.

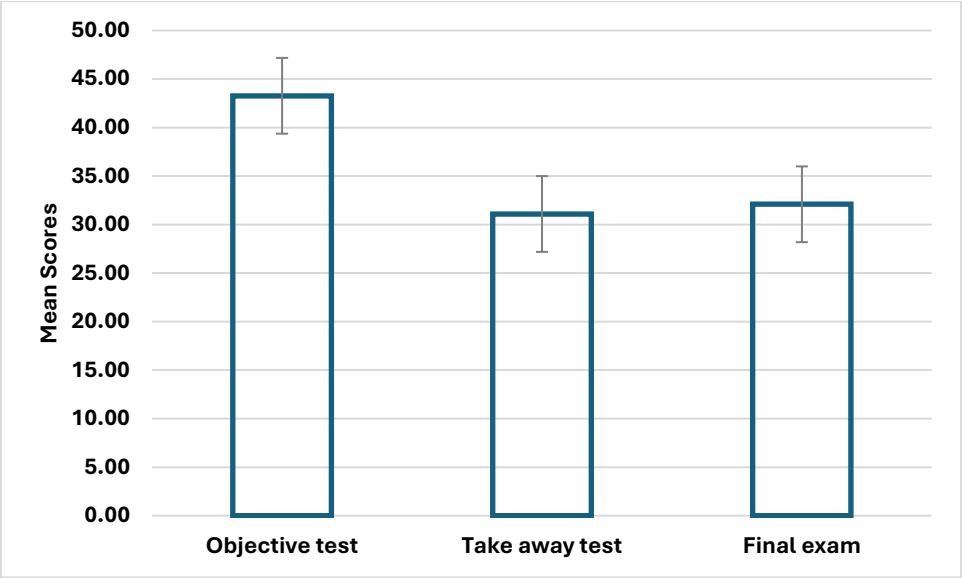

Figure 15. Summary of Mean Scores for Objective Test, Oral Tests, and Final Exam in Broadcasting and TV Law (N=11)

Figure 15 shows that students performed better in the Objective test than both the Oral test and Final exam where they did almost equally the same.

Students performed better on the objective test ($\bar{x}\pm\sigma$ = 43.27±6.89) compared to the performance on the Oral test ($\bar{x}\pm\sigma$ = 31.09±12.53). There was a strong correlation between the two tests (r = 0.622, p=0.041). A comparison of means showed that the students performed better in the Objective test ($\bar{x}\pm\sigma$ = 43.27 ± 6.89) compared to the Final exam ($\bar{x}\pm\sigma$ = 32.09 ± 6.69). The two tests had a strong correlation (r = 0.731, p< 0.011). This significant correlation shows that either of the two tests would have sufficed to assess the students.

An analysis of variance (ANOVA) comparing the performance on the MCQ test, oral test, and final test showed a significant difference in performance on the three types of tests ($F_{(2,30,0.05)} = 6.057$, p= 0.006).

5.4 Administrative Law

This is a third-year course. There were 65 students and 91 MCQs were used.

Table 4. A Two-Dimensional Analysis of MCQs Used for Administrative Law on Bloom's Taxonomy (91 MCQs)

	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge	Q65, Q68, Q71, Q76, Q77, Q80, Q81	Q6, Q7, Q10, Q12	Q11, Q27, Q31, Q32, Q58, Q59, Q60, Q61, Q62	Q51, Q63, Q64, Q78, Q79	Q43, Q46, Q48, Q49, Q55, Q66, Q69, Q73	
Conceptual Knowledge		Q33, Q34, Q39, Q40, Q52, Q54, Q56, Q57, Q68, Q72	Q90, Q91	Q13, Q15, Q16, Q17, Q18, Q20, Q26, Q35, Q41	Q2, Q4, Q5, Q8, Q22, Q23, Q24, Q25, Q29, Q30	
Procedural Knowledge				Q37, Q38, Q42, Q53, Q75	Q9, Q14, Q19, Q21, Q28, Q44, Q45, Q47, Q50	
Metacognitive Knowledge					Q67, Q74, Q82, Q83, Q84, Q85, Q86, Q87, Q88, Q89	

There were 91 MCQs out of which 67/91 (74%) tested higher-order processes.

5.4.1 Statistical Analysis

Figures 16-20 below show the distribution of scores on the MCQ test, the frequency distribution of MCQ scores, distribution and frequency distribution of scores on the final test, the comparative distribution of MCQs and final test scores, and a summary of means scores of MCQ test, oral test, and final examination.

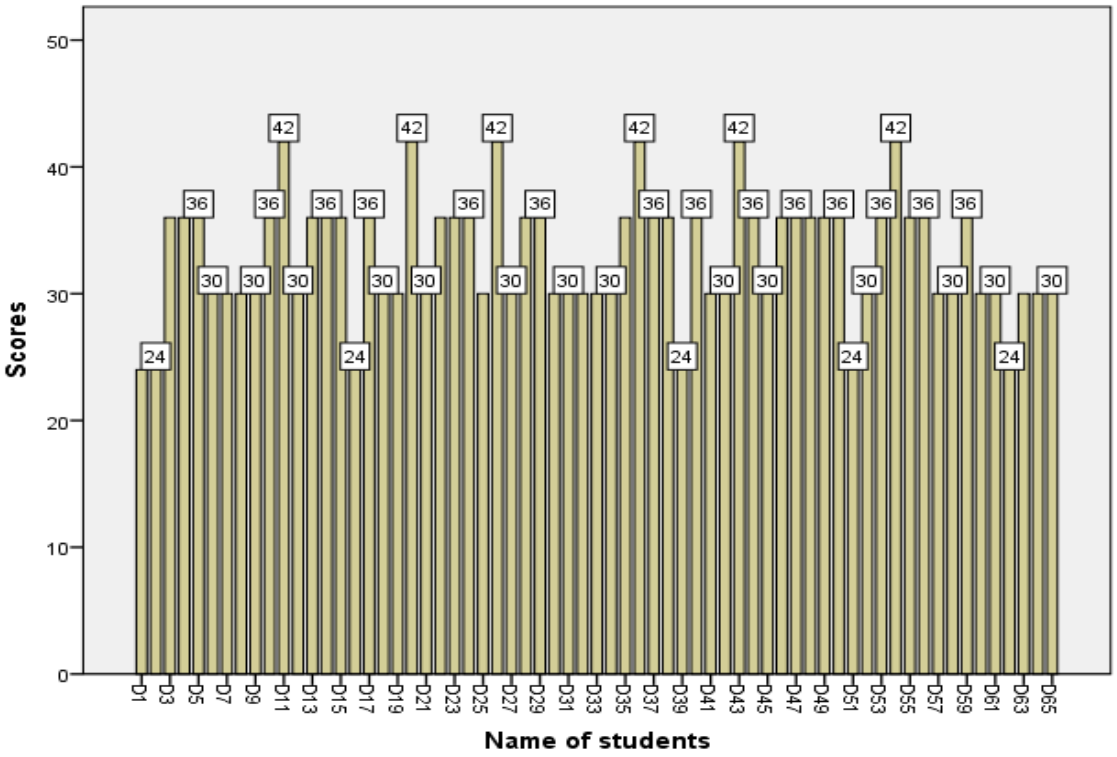

Figure 16. Distribution of the Scores on the Objective Test in Administrative Law (N=65)

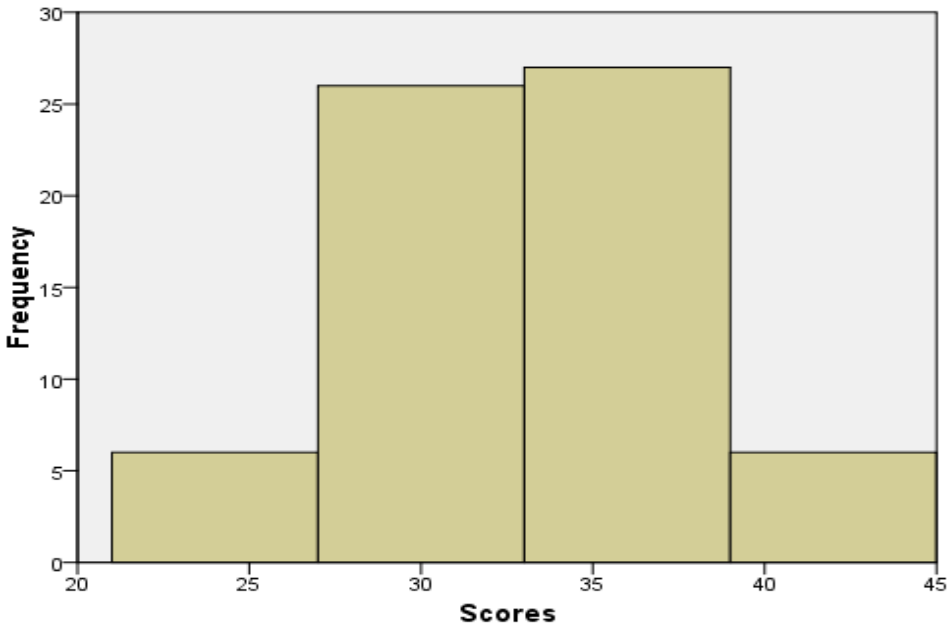

Figure 17. Frequency Distribution of Objective Test Scores in Administrative Law (N=65)

The performance in Figures 16 and 17 show that the Objective test had a normal distribution.

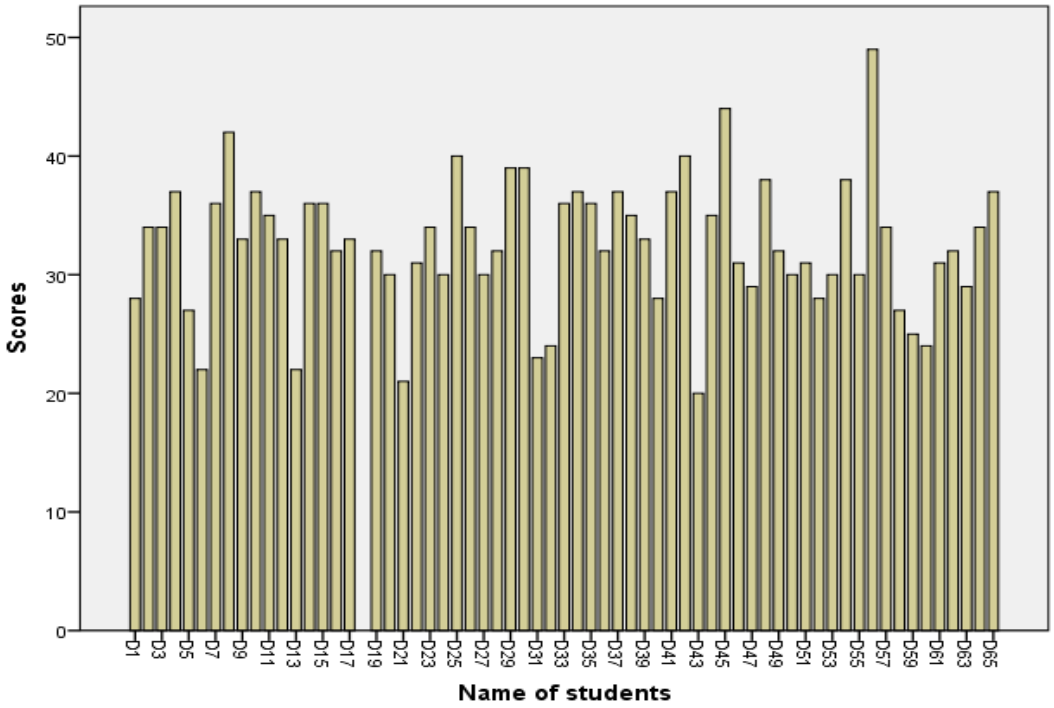

Figure 18. Distribution of Scores on The Final Exam in Administrative Law (N=65)

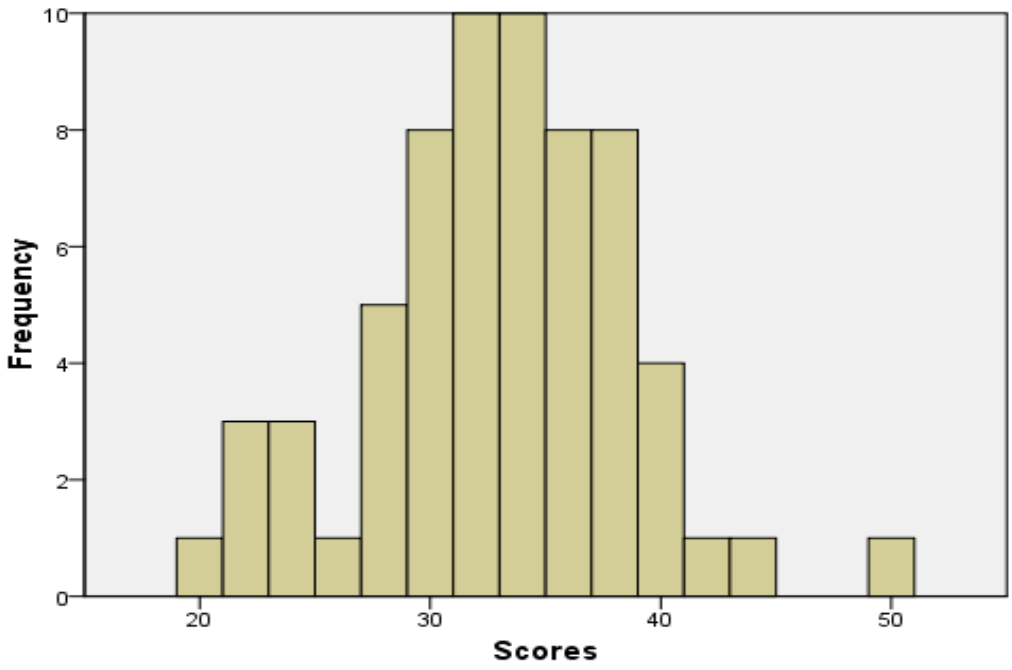

Figure 19. Frequency Distribution of Final Exam Scores in Administrative Law (N=65)

The performance in Figures 18 and 19 shows that the Final exam had a normal distribution.

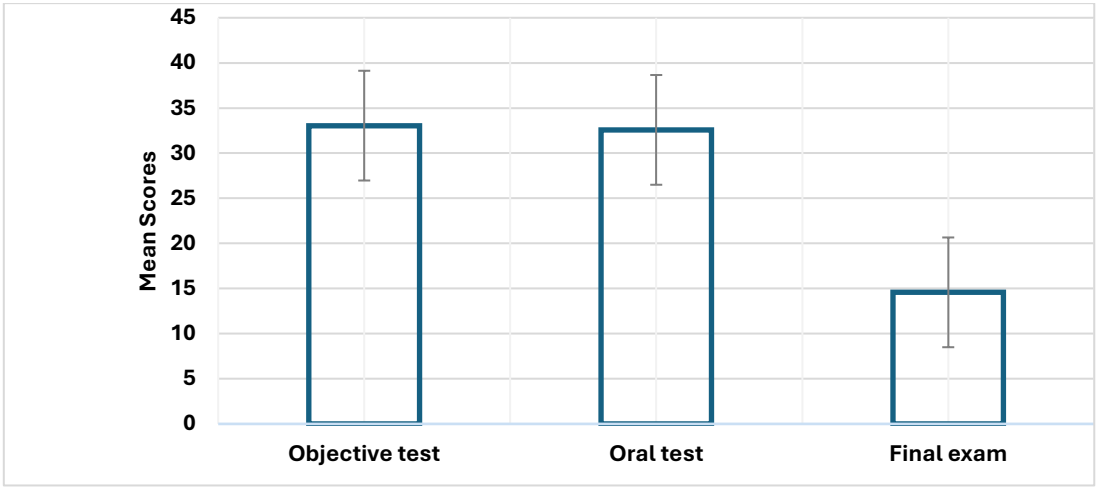

Figure 20. Summary of mean scores for Objective tests, Oral tests, and Final exam in Administrative Law (N=65)

From Figure 20, we conclude that students performed almost the same in the Objective test and Final exam but did poorly in the Oral test. An analysis of means between the objective test and the oral test showed that the students performed better in the Objective ($\bar{x}\pm\sigma$ = 33.05 $\pm$ 4.76), compared to the performance of the Oral test ($\bar{x}\pm\sigma$ =22.89 $\pm$ 16.08). A paired sample correlation analysis revealed a very weak correlation between the two tests (r = 0.067, p = 0.597). Conversely, the students performed almost equally in the Objective test ($\bar{x}\pm\sigma$ = 33.05 $\pm$ 4.78) and the Final exam ($\bar{x}\pm\sigma$ = 32.58 $\pm$ 5.58). There was a very weak correlation between the two tests (r = 0.021, p = 0.868).

A one-way analysis of variance (ANOVA) comparing performance on the MCQ test, oral test, and final test was done. There was a significant difference in performance on the three types of tests ($F_{(2,191,0.05)} = 20.388$, $p < 0.0001$).

5.5 Cyberspace Law

This is a fourth-year course. There were 28 students and 101 MCQs were used.

Table 5. A Two-Dimensional Analysis of MCQs used for Cyberspace Law on Bloom's Taxonomy (101 MCQs)

	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge	Q1, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q84, Q87, Q88, Q90, Q92	Q2, Q3, Q4, Q17, Q18, Q19, Q28- Q53, Q56-Q62, Q67				
Conceptual Knowledge	Q95, Q96, Q97, Q100, Q101	Q55, Q68, Q71-Q82, Q93,	Q20- Q27			
Procedural Knowledge			Q70, Q83, Q98, Q99			
Metacognitive Knowledge				Q54, Q63, Q64, Q86, Q89, Q91, Q94		

There were 101 MCQs in this course of which 13/101 (12.9%) tested higher-order processes.

5.5.1 Statistical Analysis

Figures 21-25 below show the distribution of scores on the MCQ test, the frequency distribution of MCQ scores, distribution and frequency distribution of scores on the final test, the comparative distribution of MCQs and final test scores, and a summary of means scores of MCQ test, oral test, and final examination.

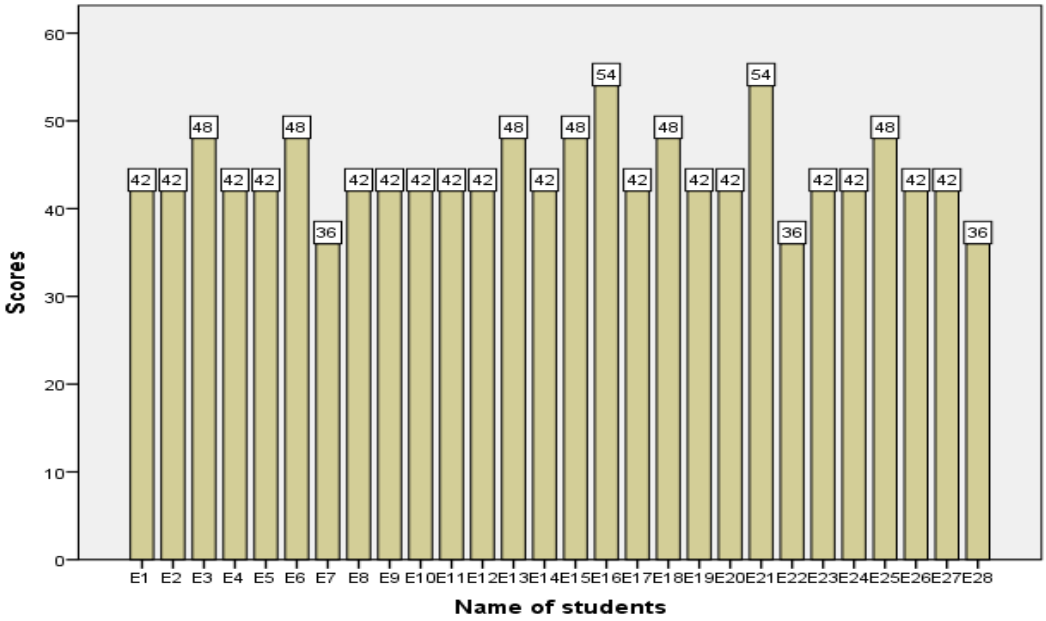

Figure 21. Distribution of the scores on the Objective test score in Cyberspace Law (N = 28)

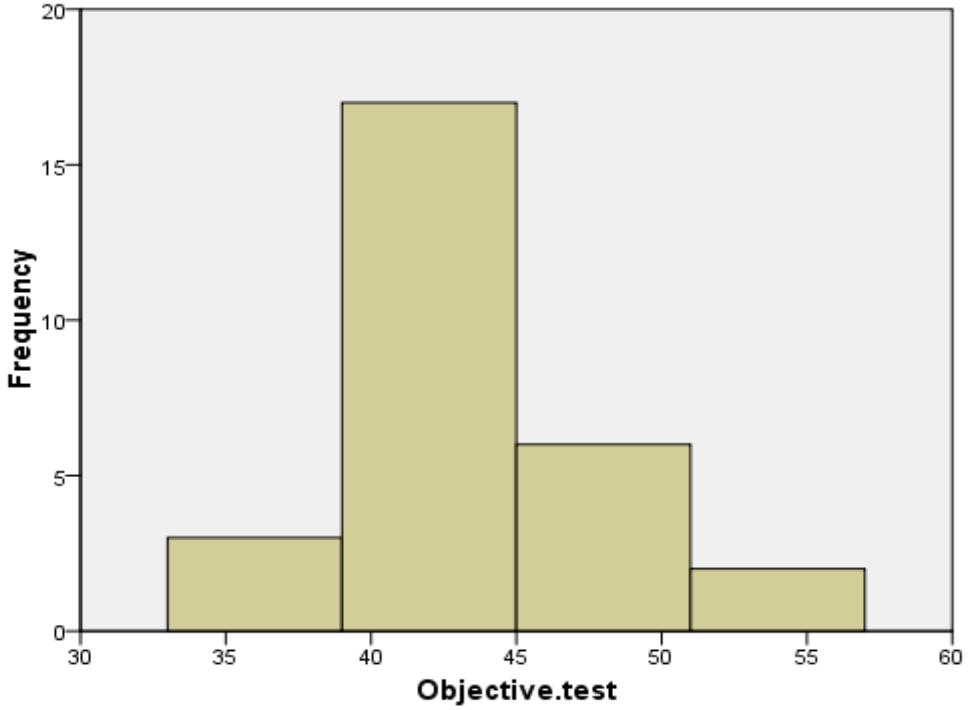

Figure 22. Frequency distribution of Objective test scores in Cyberspace Law (N = 28)

The performance in Figures 21 and 22 show that the Objective test had a normal distribution.

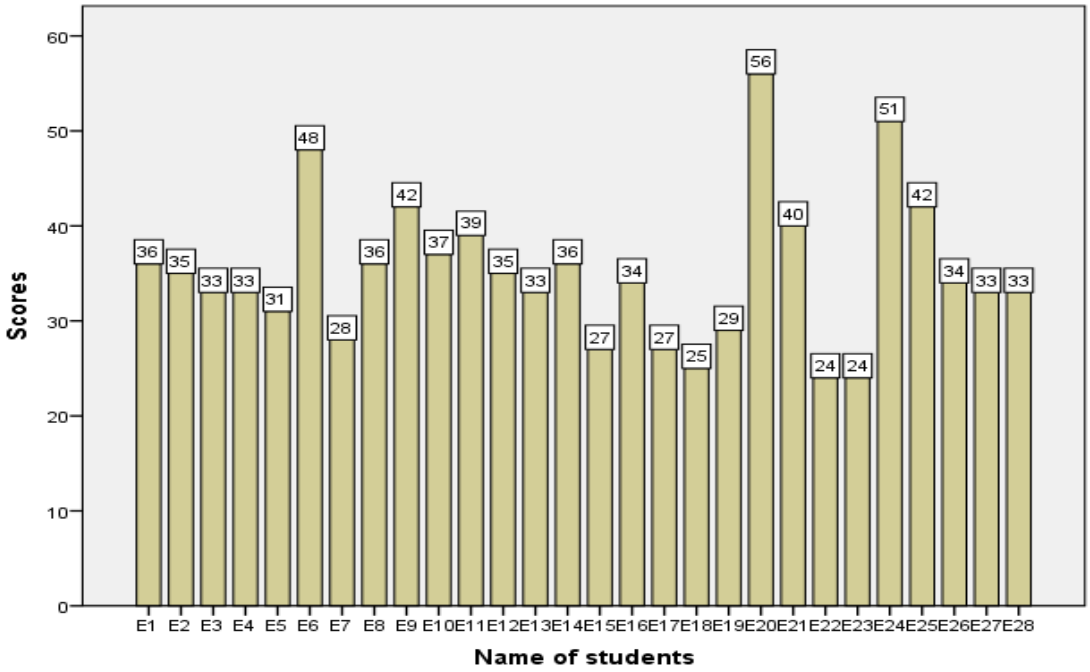

Figure 23. Distribution of the scores on the Final exam in Cyberspace Law (N = 28)

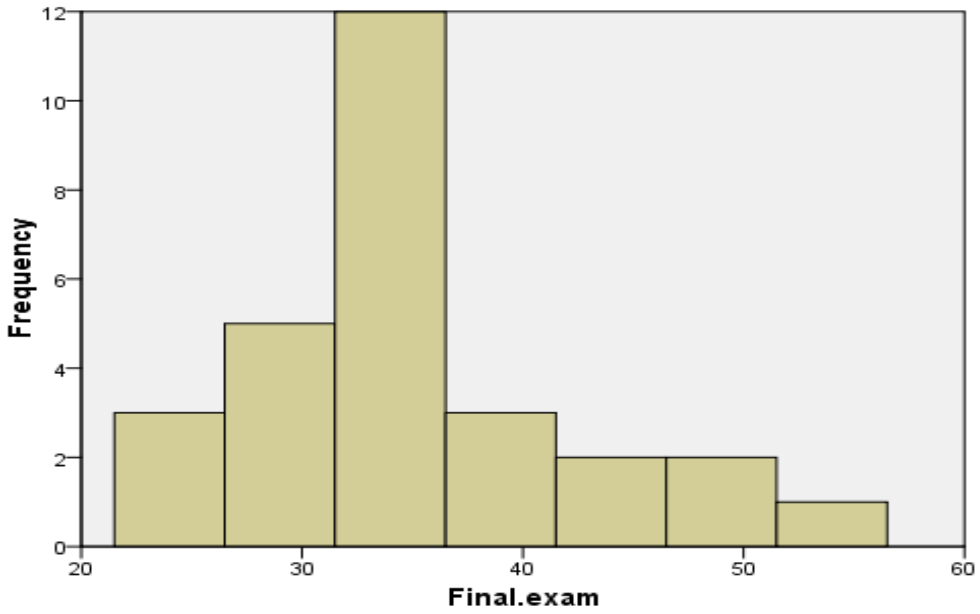

Figure 24. Frequency distribution of Final exam scores in Cyberspace Law (N = 28)

The performance in Figures 23 and 24 shows that the Final exam had almost positive skewness.

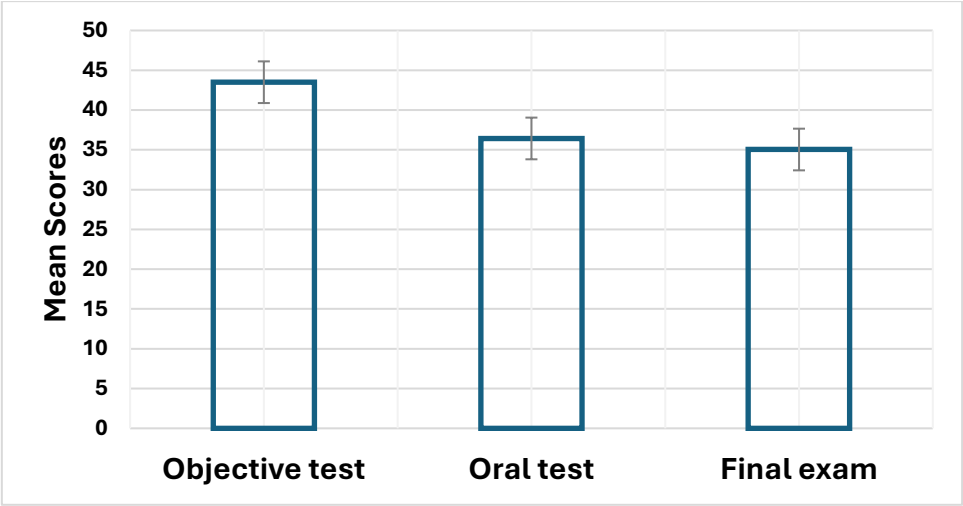

Figure 25. Summary of mean scores for Objective test, Oral tests, and Final exam in Cyberspace Law (n = 28)

Figure 25 shows that students performed better on the objective test ($\bar{x}\pm\sigma$ = 43.50 $\pm$ 4.51) than on the Oral test ($\bar{x}\pm\sigma$ = 36.43 $\pm$ 2.27), ($\bar{x}\pm\sigma$) and Final exam ($\bar{x}\pm\sigma$ = 35.04 $\pm$ 7.71) the last two of which faired almost equally. There was a very weak correlation between the objective and oral tests (r = 0.326, p = 0.09), as well as between the objective and the final exam (r =0.165, p = 0.403).

An analysis of variance (ANOVA) comparing performance between the MCQ-test, oral test, and final test revealed a significant difference ($F_{(2,81,0.05)} = 20.375$, $p < 0.0001$).

Figure 26 depicts that the objective test was performed best followed by the Final exam in all the courses subjected to the comparison.

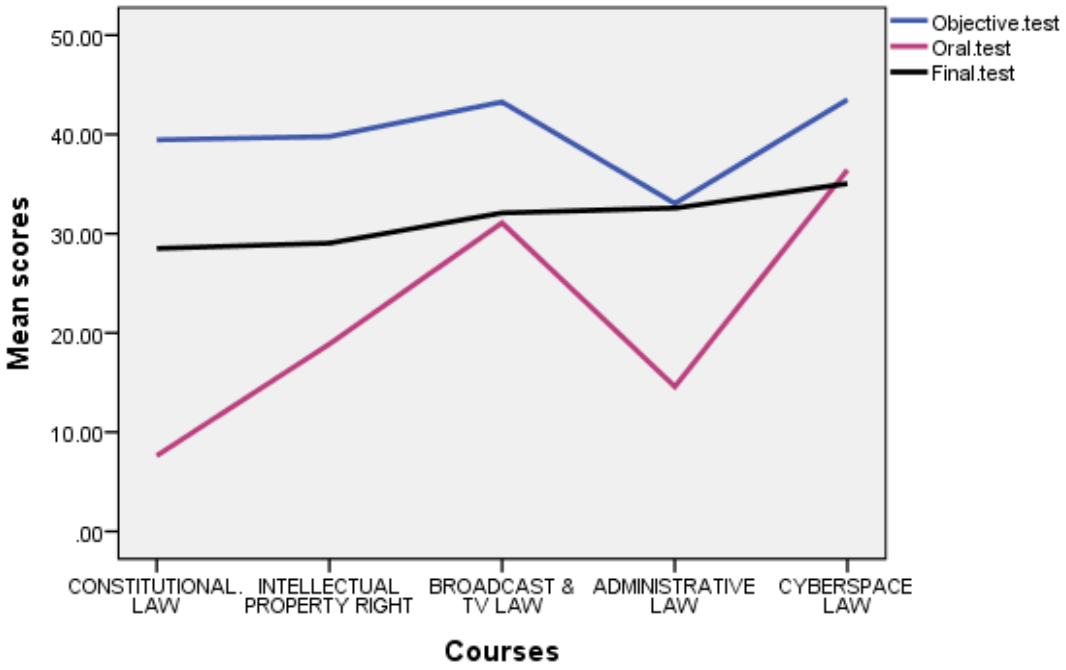

Figure 26. Summary of Objective test, Oral test, and Final exam test for Constitutional Law, Intellectual Property Rights, Broadcasting and TV Law, Administrative Law, and Cyberspace Law

6. Discussion

It has been said that in assessing a law programme, Lecturers should ensure that students are able to ably the information they have in such a manner that they provide solutions. The relationship between knowledge and the

application of problem-solving skills is synergetic.[27] A person cannot apply what they do not know. Hence, students must have information that they can then later apply. We proceeded in this study on the premise that application of higher-order learning processes depends on knowledge. Our MCQs were constructed to embrace as many learning processes on Bloom's Taxonomy as possible.

6.1 MCQ Analysis on Two-Dimensional Bloom's Taxonomy

Results showed that MCQs tested higher order learning processes in Constitutional Law (68%), Intellectual Property Rights (54%), TV & Broadcast Law (44.7%), Administrative Law (74%), Jurisprudence (50%) and Cyberspace Law (12.9%). These results negate the view held by Selby, Blazey & Quilter to the effect that MCQs test only superficial knowledge.[28] Equally, our results do not support the presupposition by Case & Donahue that MCQs test things unrelated to law.[29] The discrepancy in the percentages may be because Administrative Law applies several concepts learned earlier in Constitutional Law, whereas the other courses are relatively new to the students. Nonetheless, this analysis also shows that MCQs for Cyberspace Law need to be improved to include more higher-order questions. We also found that MCQs found that MCQs can be used to rest all learning processes on Bloom's Taxonomy except the process of 'create'.

In the era of ChatGPT, we consider that students can provide computer-generated answers so that the answers do not reflect mastery of the law but rather a mastery of computer knowledge. As opposed to Bozin & colleagues who allowed plenty of time for students to answer the questions, we gave a very short time (the number of questions plus 10 minutes) to avoid any form of reference to law materials, discussion amongst the students or even an attempt to use ChatGPT. However, we are not sure whether such timing — with all good intentions — brings out the analytical and evaluative processes in Bloom's Taxonomy.

In their study, McNamara & Barnett [30] concluded that MCQs can be used to cover all aspects of the course content in legal education. They also stated that MCQs are an additional opportunity for students to demonstrate knowledge beyond problem-solving.

6.2 Statistical Analysis

Driessen, van der Vleuten & van Berkel [31] used a 40-item MCQ test and one essay question in their study. They found a strong positive correlation between MCQs and essay-type questions. This would mean that both tests tested the same thing with the logical conclusion that there is no need to use both. However, they conclude that MCQs should not be used as a standalone mode of assessment for law courses. Bozin et al administered 20-item MCQs and 8 problem-based questions all in one in a total of two hours and 40 minutes. Their exam was also not only an open book but also their MCQs tested the same topics as the short answer questions. They found a significant relationship between the scores on MCQs and problem-solving questions. This could be because their MCQs tested the equivalent subject matter as the problem-solving questions. Our study produced no significant relationship between MCQs and final exams. We attribute this to the fact that whereas MCQs are objective, writing answers introduces subjectivity in the whole answer. Our results showed a weak correlation between MCQs and final exams across all the courses considered.

Based on the distribution of marks on the MCQ and the problem-solving questions, Bozin and colleagues concluded that MCQs can be used to differentiate individual student performance in a similar way as essay type questions. Our results confirm this finding. They further concluded that MCQs can be used in law schools to assess legal reasoning but that this should be used as a complimentary to the problem-solving tests.

We used ANOVA to test for differences in the means of the various tests used. We found no significant differences. Previous researchers did not interrogate this aspect.

The relatively higher marks in the MCQs observed across all courses in our study stand in stark contrast to the findings by McNamara & Barnett. We consider that the higher scores on MCQs could be due to some element of

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[27] N McNamara & E Barnett, (2012). Learning in Law: Using MCQs for Summative Assessment in Core Law Courses. *International Journal of Organisational Behaviour*, *17*(3), 46-61.

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guesswork employed by the students, given that they were under pressure of time. Unlike Whittacker & Olcay who allowed for 120 minutes for 35 MCQs (about 4 minutes per question), we gave our candidates about one minute per question. To that extent, our results support the view expressed by McNamara & Barnett that some element of guesswork is employed in answering MCQs. [32] Nevertheless, we agree with previous researchers that MCQs can be used to test higher-order learning processes on Bloom's Taxonomy. Based on this, we hold the proposition that MCQs can be used as a standalone mode of examination. Other skills involved in problem-solving can be developed through weekly/monthly assignments preferably done either individually or in groups such as oral tests, class participation and Moot Court presentation. Further, the highest attribute of Bloom's Taxonomy — creation — can be amply tested through a dissertation, something that is already compulsory in many law schools in Kenya. While agreeing therefore with other researchers that no single mode of assessment should be used to assess legal learning 100%, [33] we are at that point where the traditional use of essay-type assessment is under intense threat. That threat, coupled with the awareness that higher-order learning processes build on lower ones (foundational knowledge) tends to speak for an aggressive inclusion of MCQs in testing legal knowledge.

7. Summary, Conclusion and Recommendations

The use of MCQs to assess law courses has not gained a premium in Kenya. The traditional use of essay-type questions for both mid-semester and end-of-semester assessments faces challenges from increasing numbers of students and AI technology. It is therefore time for law lecturers to consider other forms of assessment. Daystar University uses a suite of assessments comprising of class participation/presentation, term paper, oral tests, Moot Court assessment, and a final essay-type/problem-solving examination. A newer addition is the objective tests. It has been shown that MCQs can test all but one of the learning processes in Bloom's Taxonomy. A two-dimensional analysis of the MCQs used for selected law courses shows that they cover all areas except 'creative' processes. A comparison of performance on various test assessments shows that students at all levels performed better on the objective test. Correlational analysis returned a very weak correlation between MCQs and other types of assessment. Analysis of variance showed very significant differences between performance on MCQs, orals, and final exams. We conclude that MCQs are suitable for assessing law courses. And that MCQs can be used to mitigate both the weaknesses inherent in essay-type tests and the imminent threats to essay forms of assessment, namely large numbers of students and advancement in technology. Two recommendations flow from this study. Firstly, law schools should embrace MCQs as a form of assessment, and secondly, law lecturers should collaborate with specialists in test construction to build MCQ question banks that test all aspects of Bloom's Taxonomy.

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