

Introducing Formative and Summative Short Answer and Essay Questions in a Third Year Pharmacotherapy Course



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INTRODUCTION AND OBJECTIVE

- Formative assessments with timely, constructive feedback are valuable tools to enhance student learning
- There is not a prescribed format for formative assessment composition
- Short answer and essay style questions
 - Allow students to explain their rationale and encourage critical thinking
 - Assess skills and knowledge on different cognitive levels

Objective:

- To evaluate student perceptions and performance on formative and summative assessments in a third-year pharmacotherapy course using three different question types: multiple choice, short answer, and essay style

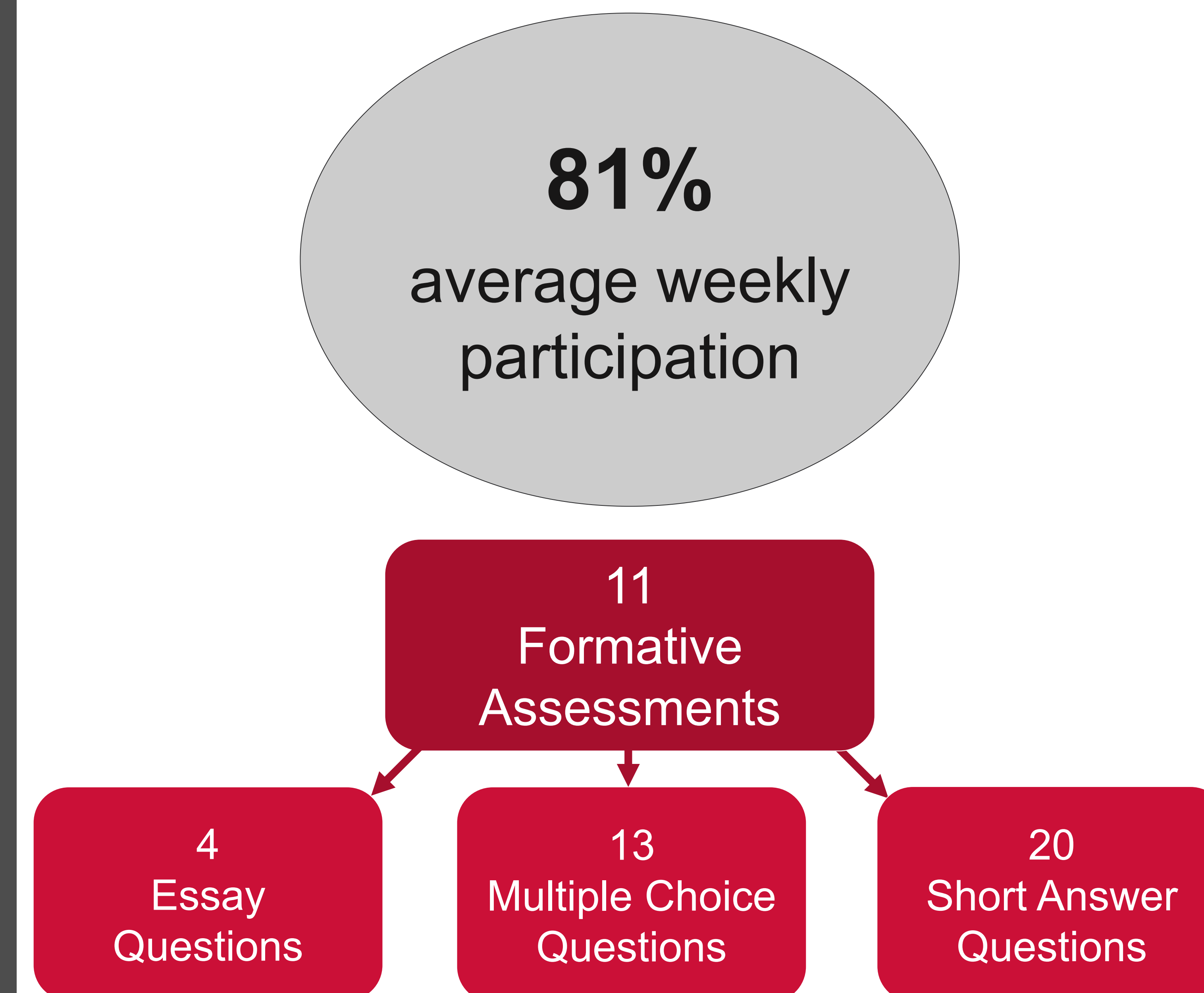
METHODS

- Formative assessments were created for Pharmacotherapy IV (required didactic course, 4 credits, offered during fall of the 3rd professional year)
- All students enrolled in Pharmacotherapy IV during 2023 were eligible to participate in both the formative assessments and the survey
- Course content consists of infectious diseases with liver disease and oncology material
- Course structure utilizes an active-learning, flipped classroom model
- Formative assessments:
 - Objective based, closed note, same content as pre-class material, included 1-page case
 - Increased in complexity throughout the semester
 - Optional, administered weekly at end of week, and did not contribute to overall course grade
- Survey instrument was developed using Qualtrics and administered on paper, during scheduled in-class activities at the end of semester

Formative assessments were HELPFUL and improved summative assessment PERFORMANCE

RESULTS

Figure 1: Formative Assessment Composition and Participation

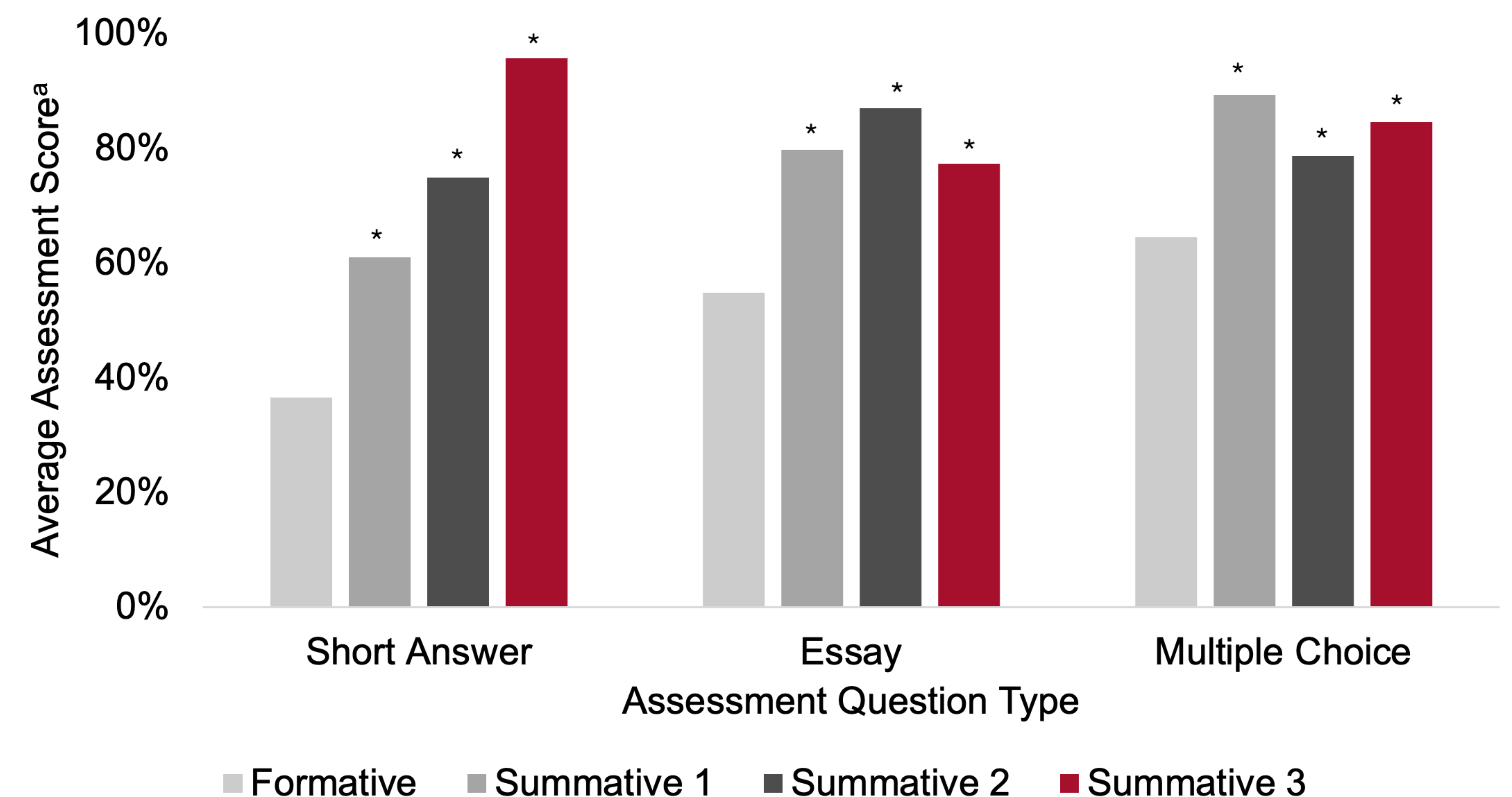


RESULTS

Table 1: Student Responses to Likert-Scale Survey Questions

Question	Question Type	Agree/ Strongly Agree N (%)	Neutral N (%)	Disagree/ Strongly Disagree N (%)
Question type increased likelihood I would complete pre-class activities	Short Answer	46 (58.2)	24 (30.4)	9 (11.4)
	Essay	56 (70.9)	14 (17.7)	9 (11.4)
Question type clarified expectations for the exam	Short Answer	66 (83.5)	10 (12.7)	3 (3.8)
	Essay	73 (92.4)	5 (6.3)	1 (1.3)
Question type increased my confidence in infectious diseases	Short Answer	54 (69.2)	15 (19.2)	9 (11.5)
	Essay	59 (74.7)	15 (19)	5 (6.3)
Question type should be incorporated into more courses	Short Answer	34 (43)	32 (40.5)	13 (16.5)
	Essay	34 (43)	34 (43)	11 (13.9)
Improved my ability to select appropriate empiric antibiotic therapy on the exam	Short Answer	58 (73.4)	17 (21.5)	4 (5.1)
	Essay	62 (78.5)	12 (15.2)	5 (6.3)
Improved my ability to associate the correct pathogen to the appropriate infection on the exam	Short Answer	65 (82.3)	11 (13.9)	3 (3.8)
	Essay	68 (86.1)	8 (10.1)	3 (3.8)

Figure 2: Average Score by Question Type on Formative and Summative Assessments



^a Survey was administered on paper during class on the second to the last week of the semester
^b One student did not complete one question on the survey. Their responses for all other questions were included in the analysis.

^a Student's t test comparing mean assessment score of each summative assessment to the formative assessments, $p < 0.05$ considered significant
^{*} $p < 0.001$ for each summative assessment