

Goal

COMPS collaborative small-group exercises are being used in NC A&T computer science classes. During computer-lab time students work together by special computer-chat page.

- It is a one-stop web page where instructors can register classes, upload student rosters, and schedule lab sessions
- This project provides the tools for professors to integrate COMPS exercises into a regular classroom curriculum
- The web site delivers the lab experience. The students sign into this web page, where they are guided through pre-tests, the lab sessions, posttests, and surveys
- These disparate student activities and resulting data are hosted by different web sites, but the control page provides one place for the student to log in and links together the separate records for each student The aim is to produce simple and friendly interface to export our COMPS
- curriculum to students and faculty from around the country



Figure1: Entity Relationship Diagram for COMPS webpage

Login COMPS Try not to use **refresh** or **back** to change pages while on this site ◄ Info Group 2 Hover to Show Previous Answer Student A ha Student B has joined the group. 11:45:14.63 e your final answer here 11:45:41.80 A_DuyBui has joined the group. ent B: Hey what do you think for question 1? 1:46:20.4 lent A: I am not sure dent A: I am thinking it should be 6 because 1 foo f nd 5 foo array? 11:53:23.3 lent A: 😤 dent B: Did professor say in class that array is rence variable to an object? And object is only alize by keyword "new" ent A: Uhm, Let check with @T 11:54:39.0 uyBui: Hi. Student B has correct Idea 11:55:08.96 lent B: So the answer is one. Let submit the answer Answer is unlocked The current Answer has been submitted and locked Submit TA_DuyBui has marked your answer as correct!

Discussion /Chat Engine

Figure 2: Chat Engine Interface

Students are assigned to group and work together to find the answer Teaching Assistant is there to check students' answers and to give helpful hints

type and press enter to chat Chat

:

Web site for Deployment of COMPS Computer-aided Collaborative Learning Curriculum in Classrooms

Student: Duy Bui (MS)

Web

Table 1: Upload class roster First Name Last Name

John	Smith	Jsmith@aggies.ncat.edu	Jsmith
Duy	Bui	dqbui@aggies.ncat.edu	Dqbui
North	Carolina	caro2@aggies.ncat.edu	Caro2

F Name	L Name	Group Num	Stud Status
duy	bui	11	ACTIVE
John	Carden	10	ACTIVE
Matthew	Trotter	12	IN ACTIVE
Michael	Glass	11	ACTIVE
Kaila	Billie	12	IN ACTIVE
Jung Hee	Kim	10	IN ACTIVE

Figure 3: Lab roster control

- Track students' activity and assign discussion group numbers Setup lab ahead of time and save Professor/Teaching Assistant use webpage to sequence activities during the lab time
- Server is available 24/7 and protected

Logins		Log Out
	COMPS Computer Mediated Problem Solving	
Pick School Name		
North Carolina A&T University		
Login as		
Student		•
	Submit	

Figure 5: Landing Page

Student login at lab time, guided through ac Students activity is recorded and linked tog

Future

- Streamlining the lab process including imp smart feature reduce manual input from us
- Establish better communication between Q experiment for both students and professo

Acknowle

Partial support for this work was provided by Improving Undergraduate STEM Education (Any opinions, findings, and conclusions or material are those of the author(s) and do no **National Science Foundation.**

This work is made possible thank to undergr

Labadmins		Log C		
ACTIONS		00		
Add Roster	LapAdmin Id :	30		
Edit Roster	Lab Name	COTR Java Lab Section3		
Edit All	Lab Instructor	Dr.Bryant		
Edit Status	Lab Status	FINISHED		
Edit Stage	Lab Stage	POSTEST		
Return Home	Lab Comments	Section 3 from 2:00 to 4:00 P m on 4/11/2018		
Delete	Instructions			
	LabAdmin ID	36		
	School ID	13		
	Group Num Offset	30		
	Lab Time	4/11/18, 7:46 PM		

page		Data Visual	izat
Primary Email	Username	Eiguro 7 - End Lab Survey power by Qualtrice	
ith@aggies.ncat.edu	Jsmith	Figure 7 : End Lab Survey power by Qualtrics	
oui@aggies.ncat.edu	Dqbui	25 -	
o2@aggies.ncat.edu	Caro2	20 -	
 Class roster can file from Blackbo Quick and Easy s 	be extracted as CVS bard setup for classes	15 - 10 -	2
Labadmins	Log Out	5 -	N
ACTIONS Add Roster	Admin Id :36	0-	
Edit Roster Lab	Name COTR Java Lab Section3		
Edit All	Instructor Dr.Bryant	Not At All True of Me Somewhat Not True of Me Neutral	l Tel angel
Edit Status	Stage POSTEST	1. I gained an understanding of the concepts in this exercise.	2. I fee
Lab	Comments Section 3 from 2:00 to 4:00 P m on 4/11/2018	3. The group conversation was effective for teaching and learning the conce	4.1
Delete	ructions	🧧 6. This lab has things that grab my attention. 📕 7. This collaborative exercise was	engaç
Lab/	Admin ID 36		
Scho	up Num Offset 30	 Student generally express good feeling toward the lab exercise. In additio 	n, the
Lab	Time 4/11/18, 7:46 PM	by discussing with their classmates	
Figure 4: Lab Admi	in control		
		IsnA stau	I <mark>ys</mark> i
STATE	UNIVERSITY		
Classes, Objects, Please consider the following code and ans public class Foo { private int x; private int y; private static int z; public Foo() { z++; } public Foo(x, y) { this(); this.x = x; this.y = y; z += x + y; } Figure 6: Pretest, use	, and Reference Types: Pre-Test wer the questions below.	<pre>public static void main(String [] args) { int i = 0; Foo f = new Foo(); Foo [] fooarray = new Foo[5]; System.out.println(f.toString()); // A for (i=0; i<fooarray.length;);="" b="" c="" foo(="" fooarray[fooarray.length-1]="f;" fooarray[fooarray.length-1].tostring()="" fooarray[i]="new" i="" i++)="" i,="" pre="" system.out.println(="" }<=""></fooarray.length;></pre>	
ctivities gether for class and	d research purposes		
		Analyze the main method down through the line marked // A in the code.	Figu
provement of User	Interface and adding	P1) At the line marked // A in the main method how many objects of class Foo have been created?	a) 2 (array Ba
sers Qualtrics and COMF	PS page to enhance user	 b) 1 c) 5 	
ors		d) 6	array Ba
dgement		Figure 8: Example question for pre-test	c) 6 o array Ba
y the National Scie (IUSE) program und recommendations of ot necessarily reflee	nce Foundation's der Award No. 1504918. expressed in this ct the views of the	 Pre-test and Post-test is being graded automatically Data is used to measure learning gain from lab exercise Data is used to calculate and determine effectiveness of the lab itself Revision of question is needed if question is too hard 	d) 3 o array Ba
rad student, Matthe	ew Trotter.	 Strengthen student's knowledge in particular area is needed if too many students' answer is incorrect 	Figu
	7th An	nual COE Graduate Poster Pres	en



Advisor: Dr. Jung Hee Kim **Department of Computer Science** North Carolina A&T State University



ging. 📕 8. This collaborative exercise seemed to drag on forever.





ntation Competition