

Action Research Proposal

**Misunderstanding Loop Control Structures for
PPU students in Spring Semester 2017**

Dr. Mousa Farajallah & Dr. Hani Salah

Loop Data Structures



Loop Data Structures

- An essential component of computer programs
- An essential part of our “**Computer Programming**” courses
- A **loop** is a sequence of instructions that is continually repeated until a certain condition is reached.

```
printf( "Hello, World!\n");  
printf( "Hello, World!\n");  
printf( "Hello, World!\n");  
printf( "Hello, World!\n");  
printf( "Hello, World!\n");
```

```
int i = 0;  
while ( i < 5 ) {  
    printf( "Hello, World!\n");  
    i = i + 1;  
}
```

Step(1): Problem

- Teaching and learning computer programming is challenging.
- Misunderstanding the basics will make it hard to learn more complicated concepts.
- **Our focus:** Looping Control Structures

ILOs: The student should be able to:

- Explain loop control structure
- Design loop control structures
- Implement loop control structures

– **Many students face problems in:**

- Properly using loops
- Designing and implementing loops (loop parameters, stopping conditions,)
- Tracing loops

Low grades

Step (2): Plan of Action

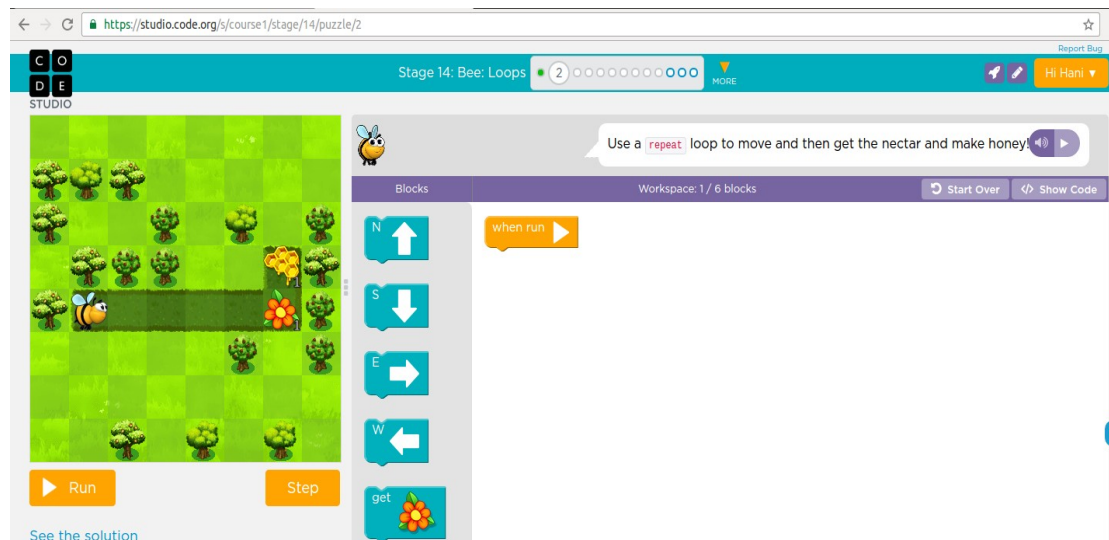
- **Two-fold strategy:**

(1) Programming exercises (naïve, intermediate, and advanced)

- Individual
- Group work

- **Why not sequential?**
- **Find errors!**
- ...

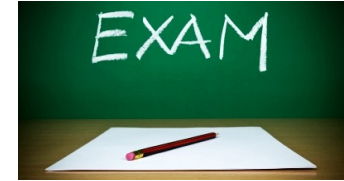
(2) Play!



Step (2): Plan of Action (cont.)

- **Data collection tools:**

- Exams



- Quizzes



- Projects



Step (3): Data Collection / Action

- Apply the strategy
- Collect data in action

Step (4): Assess

- Grade exams, quizzes, and projects

Step (5): Evaluate

- Comparing the results before and after implementing the strategy

Step (6): Future Action

- In case we achieve a significant improvement, we will propose our strategy to be applied next semesters