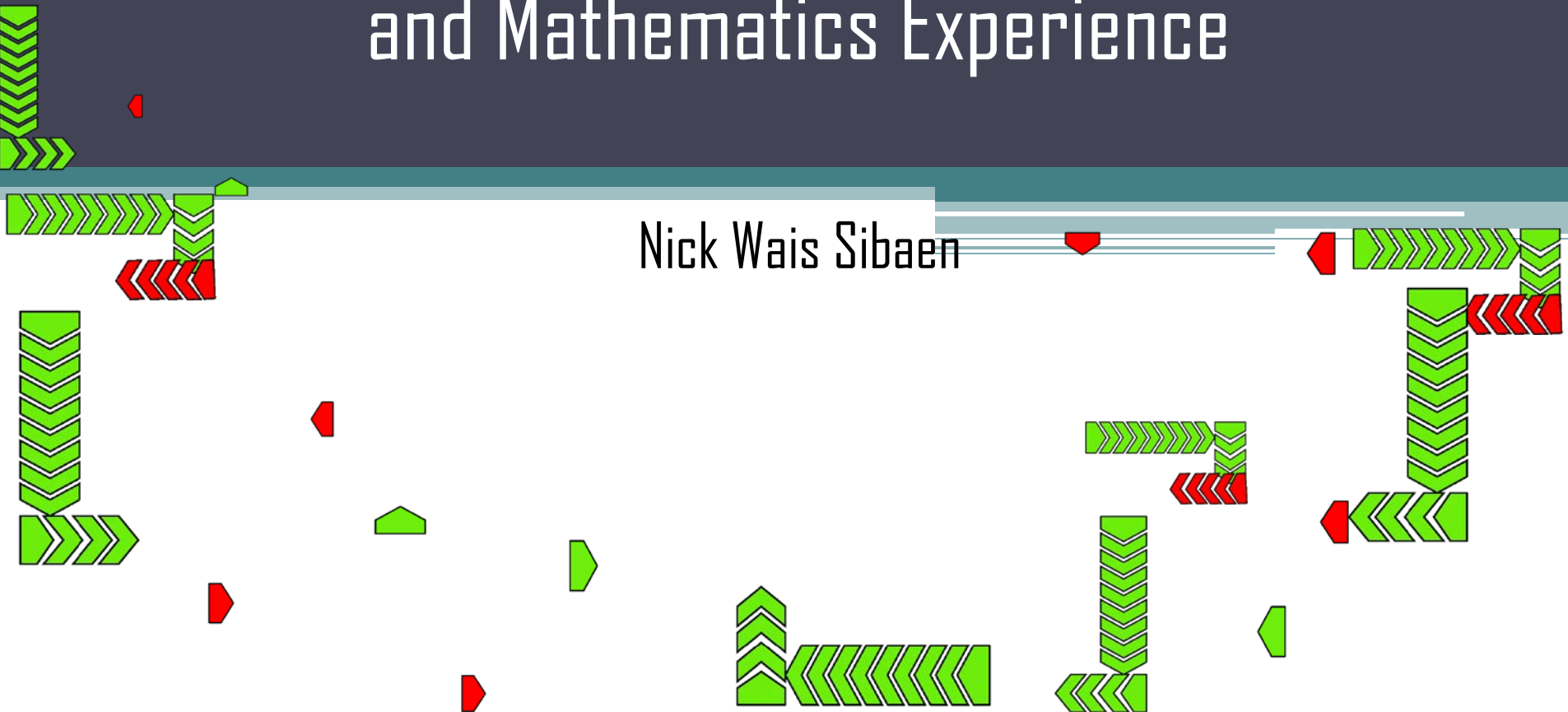


# Knowledge Construction Patterns' Success in Problem-Solving: Its Correlation to Mathematics Grade and Mathematics Experience

Nick Wais Sibaen



**Performance of  
Filipinos  
Students in  
Mathematics**



**Performance of  
Singapore,  
Japan, and  
Korea in  
Mathematics**



**Problem-  
Solving**

# Knowledge Construction Patterns (KCPs)

## Problem-Solving

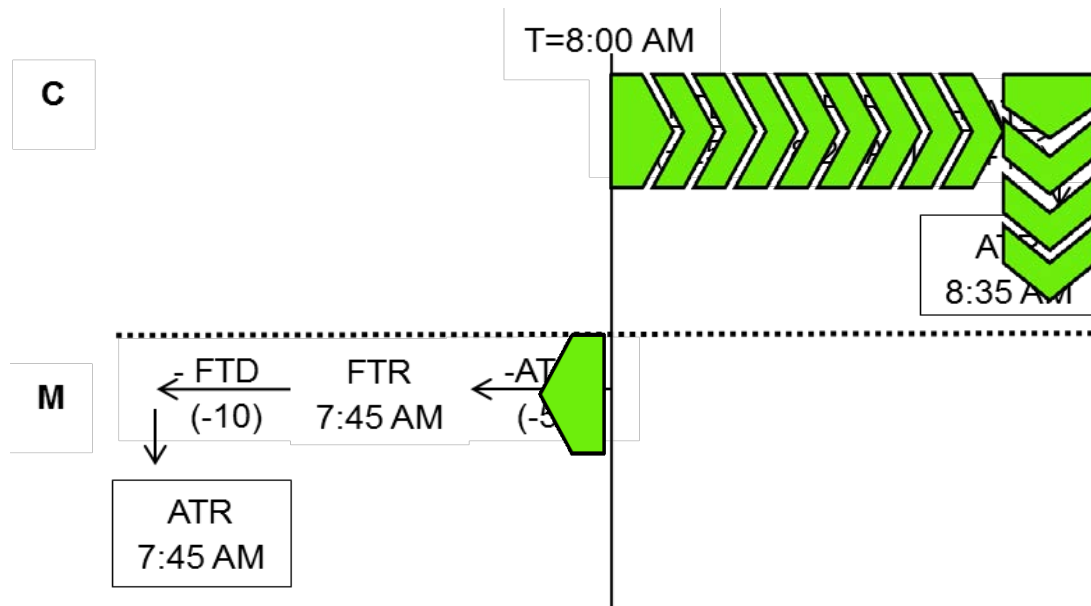


Figure 5. KCP 1: Charlie is 35 minutes late while Mike is 15 min early

**Successful KCP**

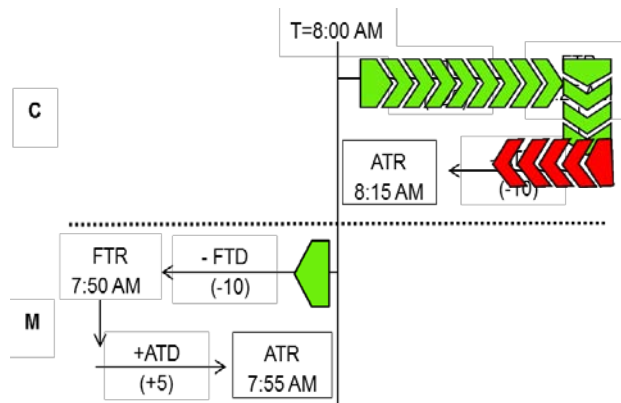


Figure 5. KCP 2: Charlie is 15 min late while Mike is 5 min early.

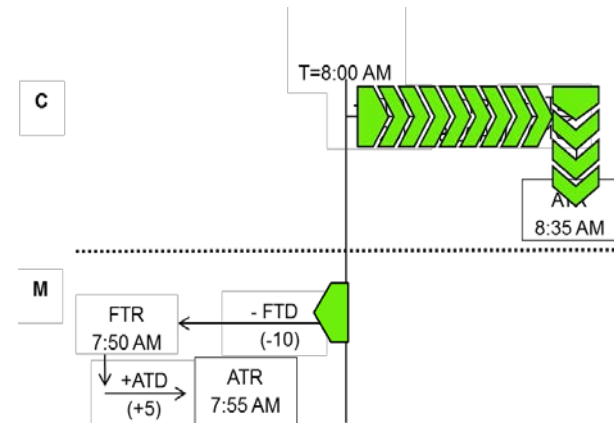


Figure 9. KCP 5: Charlie is 35 min late while Mike is 5 min early.

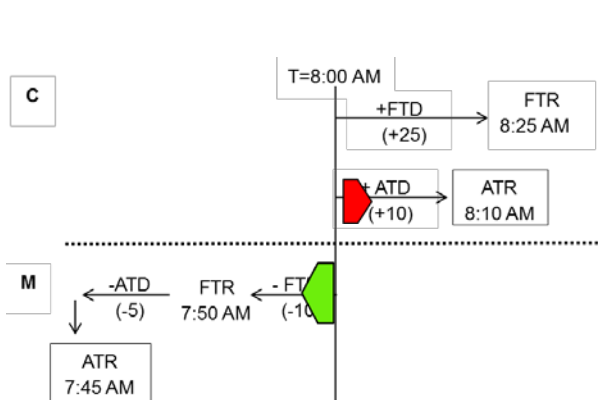


Figure 13. KCP 9: Charlie is 10 min late while Mike is 15 min early.

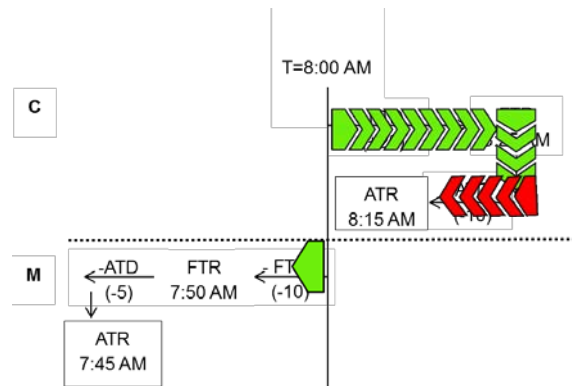


Figure 7. KCP 4: Charlie is 15 min late while Mike is 15 min early.

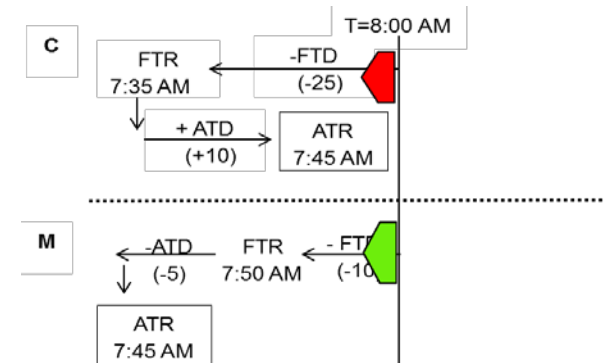
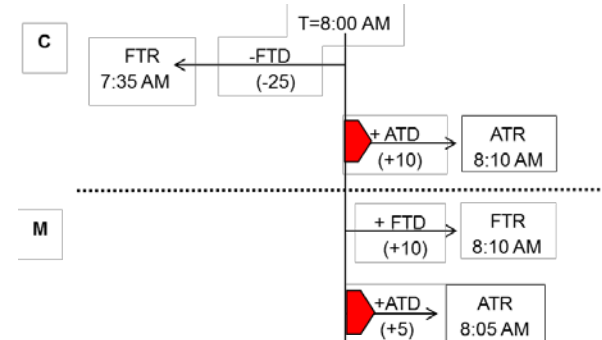
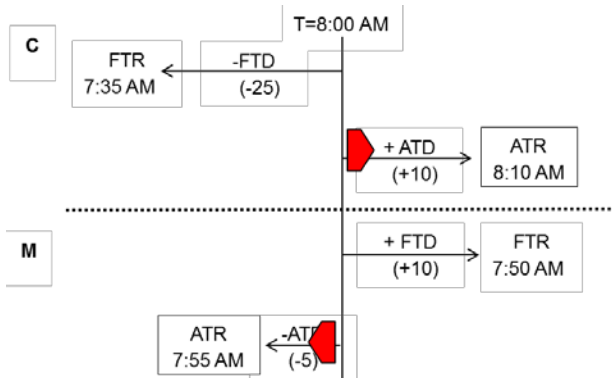
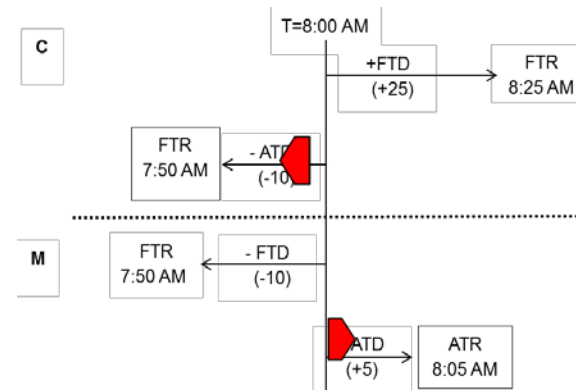
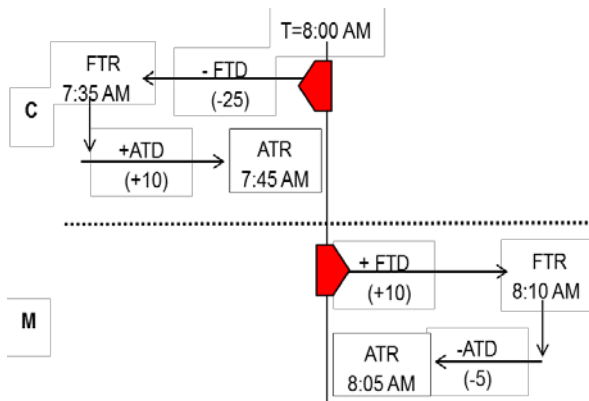


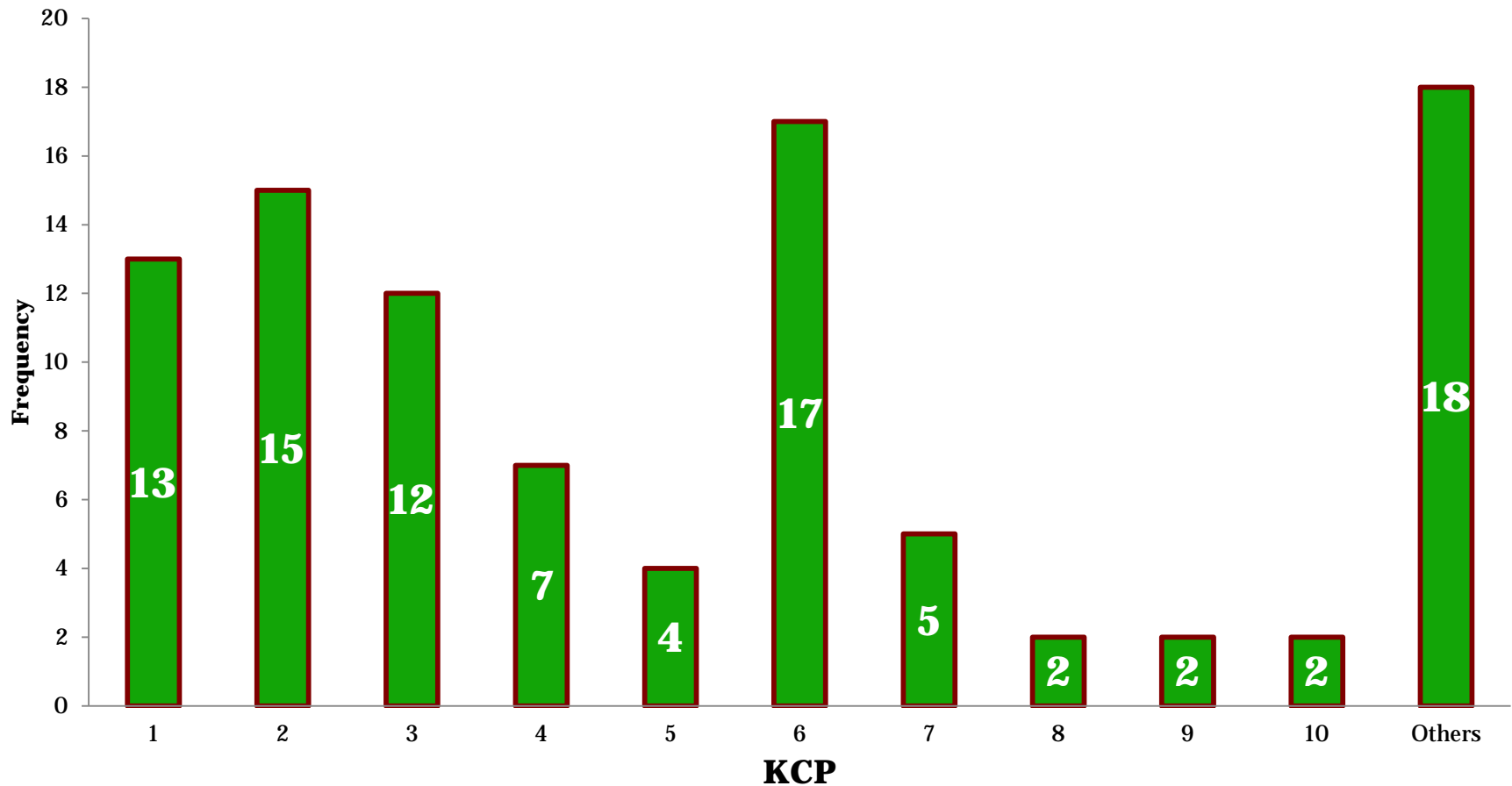
Figure 14. KCP 10: Charlie and Mike are both 15 min early.

**Partially Successful KCPs**

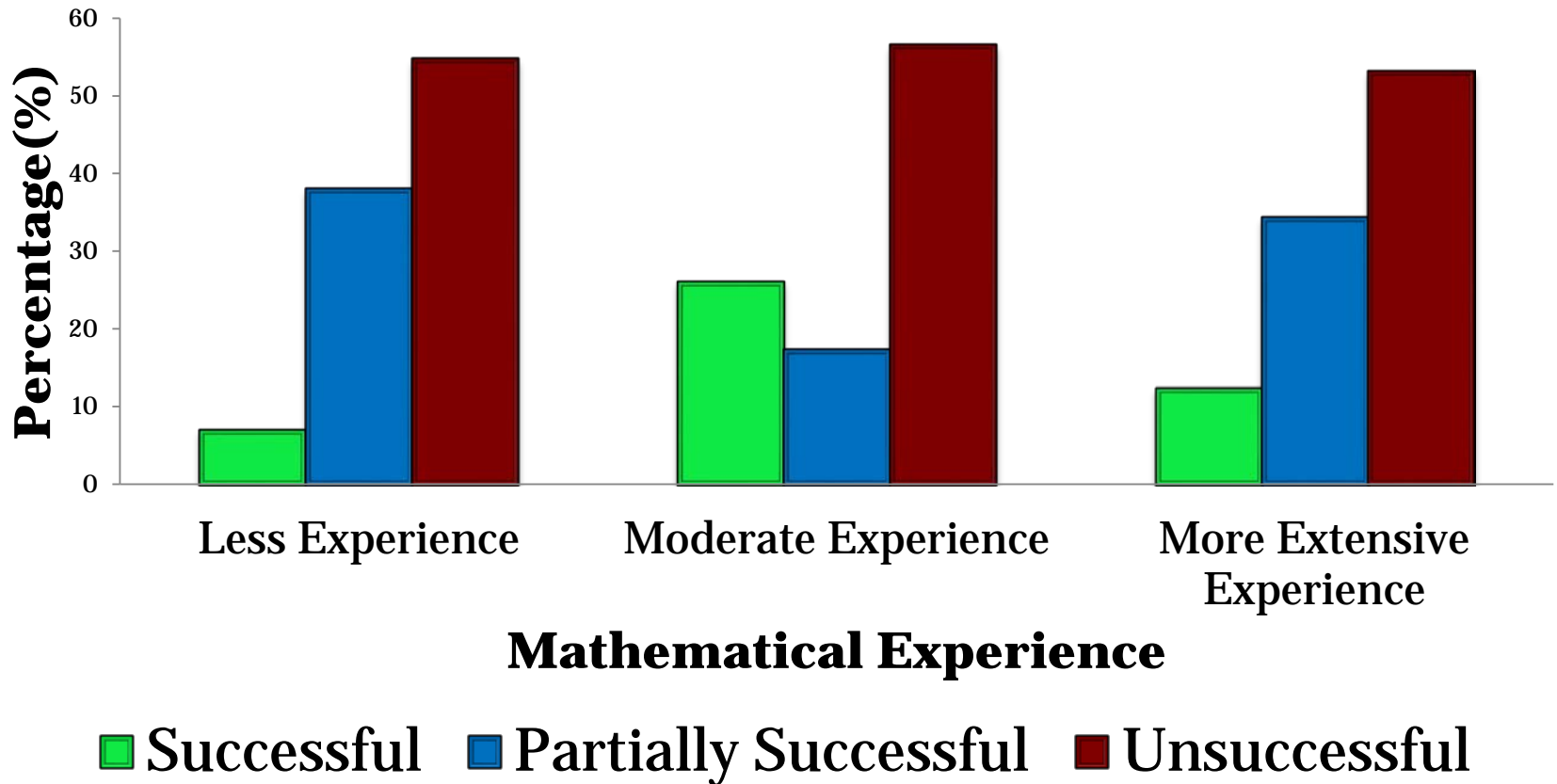


**Unsuccessful KCPs**

## Distribution of students to the KCPs



[Back to THE PROBLEMS](#)



**Distribution of students grouped according to Mathematical experience to levels of problem solving success**



**Exposure to mathematics subjects,  
scarcely contribute in improving  
their problem-solving success.**

**$t_{\text{computed}}=0.29^{\text{ns}}$     table value=1.98     $r=0.03$**

# Correlation between Average Mathematics Grade and level of Problem-solving Success

**Success in problem-solving is weakly associated to average grade.**

**$t_c = 2.29^*$**

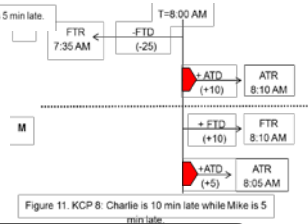
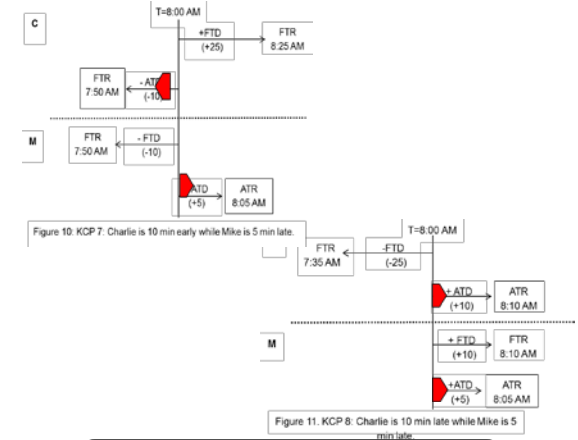
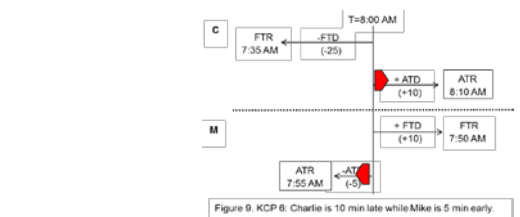
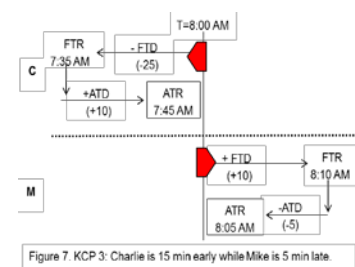
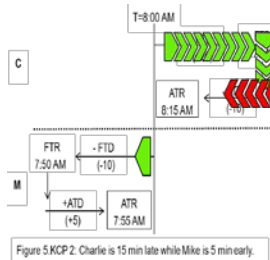
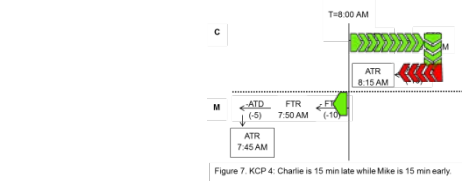
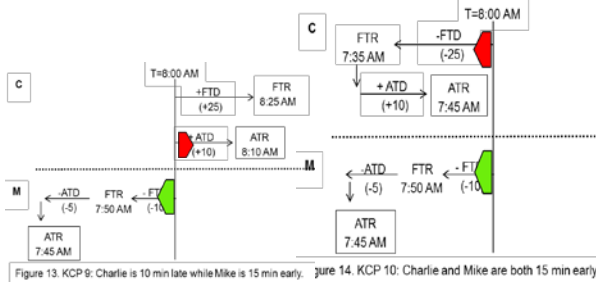
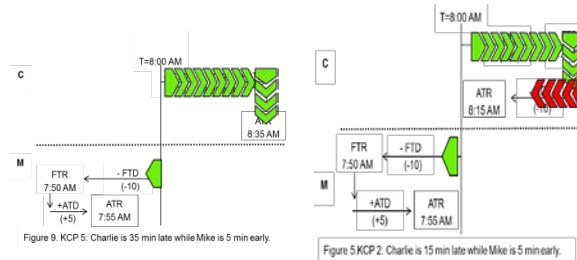
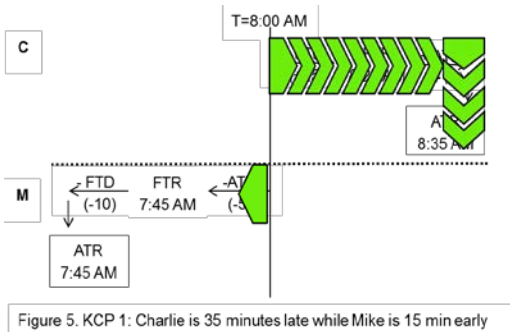
**table value = 1.98**

**$r = -0.22$**

# Conclusions

- Students exhibit different construction patterns in problem-solving even when confronted with the same problem situation.
- The average mathematics grade of a student is not a factor that differentiates students with successful construction patterns from those that are not.
- The dismal performance of students in problem-solving is henceforth attributed to the quality of mathematics education they have received.

# Recommendations



**Successful KCP**

**Partially  
Successful KCPs**

**Unsuccessful  
KCPs**

# Recommendations

