THE INNOVATIVE MATHEMATICS TEACHING THROUGH (IRS)² MODEL
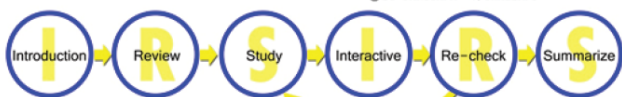
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INTRODUCTION

Applying multimedia teaching, teachers need to have the strategies in using it to promote students' learning capabilities, stimulate their enthusiasm and enhance instructional materials and means. This study made use of HiTeach Software, the interactive teaching software from HANDBOOK Information Technology Group. To perform the interactive class effectively, I implemented the lesson plan with HiTeach to facilitate the classroom engagement for the topic polynomial factorization for 8th-9th grade students. The software also advantages the teachers with 'Buzz-in' function in which students can compete for the quizzes or game and 'Pick-Out' function where the teachers can randomly pick students to participate in the classroom. The polynomial factorization topic was served as the teaching model that HiTeach plays a role in helping teachers develop the module using (IRS)2 model. This model is briefly described as Introduction (I) – Review (R) – Study (S) – Interactive (I) – Re-check (R) – Summarize (S).

(I R S)² MODEL
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Introduction → Review → Study → Interactive → Re-check → Summarize

Keywords : IRS model, IRS activities, Interactive teaching, E-teaching

The instructional perspectives focused on the strategies that teachers used to exploit the model with facilitation of e-learning tool, how to foster cognitive, social and physical participation. The students' work and statistics recorded show their progress and participation level. This statistics also help teachers to design the next class, keeping the series of activities and content aligned. The observed classroom is an evidence to discuss for further studies.

Topic	Factorization of Trinomial by Using Perfect Squares Method	Subject	MATHEMATICS
Description of Smarter Mode	The factorization of polynomial (especially the trinomial in this chapter) is one of the difficult topics in Mathematics for secondary students. They've studied about the factorization in 8th grade before. For this year, they'll study another way to factor the trinomial by making them as the perfect squares. I created (IRS)2 MODEL with 6 steps on teaching as shown in the flowchart below, combined with the technology in Smarter Classroom as interactive whiteboard, HiTeach2 software and clickers. Try to use "IRS", "Pick Out" and "Buzz-in" function always to interact with students in the interactive and re-check steps to check students' understanding before proceeding to the next step. If the results are still not satisfactory, teacher can repeat to study step again.		
Model Structure (Flowchart)	(I R S)² MODEL © BY PARTTANA W./THAILAND Introduction → Review → Study → Interactive → Re-check → Summarize		

Model Description with photos. (Add steps if necessary)	Steps		Description	Photos
	Step 1: I	Introduction (~5 mins)	- Welcome students to Smarter classroom , provide clickers for one each. Teachers explain about how to use it again. - Each one use clicker to check whether who absent or not	
	Step 2: R	Review (~15 mins)	- Review about the prerequisite knowledge about the specific form of factorization as perfect squares and difference of squares - Point the students to decide which trinomial is / is not perfect squares - Use IRS function to check their understanding and also use "pick-out" to random checking some students by showing how to answer the question in front of the class - Repeat with more questions if needed. But if all students are approved , then proceed to the next step.	

Topic	Factorization of Trinomial by Using Perfect Squares Method	Subject	MATHEMATICS

Model Description with photos. (Add steps if necessary)	Steps		Description	Photos
	Step 3: S	Study (~10 mins)	- Explain about the kind of trinomial that should be factored by using perfect squares method - Give example and point the students to observe what should be done first on factorization in the new approach - Teacher and students solve another problem together as example	
	Step 4: I	Interactive (~10 mins)	- Use IRS function to check their understanding with several multiple choices questions - Teacher may use "buzz-in" or "pick-out" in some question to avoid tedious class. - Students should do the test faster when they do the repetitive similar questions.Timer function is the best solution ,give them 10 sec to find the answer.	
	Step 5: R	Re-check (~10 mins)	- Use "pick-out" to random checking some students by showing how to factor the given trinomial in front of the class - Use "buzz in" to make the competition among the students who want to re-check their understanding in front of classroom - If there're some students who mis-concept or mis-understanding , then get backward to study step again.	
	Step 6: S	Summarize (~5 mins)	- Teacher and students summarize for what we've studied today together - Show the report from the tool to students - Give some exercise (no need too many problems, just 2-3 are enough) - Finish the class, each student returns the clicker to its location. Motivate students to get ready for the next class.	

EFFECTIVENESS ANALYSIS

- Students are excited with the new innovation in Smarter Classroom that they have never used before. Thus, they would be quite enthusiastic about how to apply the methods in the classrooms. It's very helpful to encourage the students to participate more in the class.
- Teacher can teach less ; but providing more guidance to the students. Students can also gain knowledge through the observation processes.
- All students participate in class even the shy students. Teacher can easily check IRS function for each of the questions.
- Result in happiness for students in the classrooms. Students have fun with "Buzz-in" function, it's like the competition! And with "Pick-out" function, students pay more attention and await for the next randomly picked competitors. Mathematics can altogether be really fun; no more boring lessons through which the students can engage.
- Expeditiously report on each question with IRS function can help the teacher to determine the perception of students before proceeding to the next topic (or more questions)

EXTRA ADVANTAGES

- Make the class to be an active learning class
- When students see self-report (scores , percentage of correct answers) from HiTeach Report (HiTeach tool), it can motivate students to correct themselves to do better in the next class.

Winners of 2016 Innovative Smarter Lecture Award
(non-Chinese speaking teachers)

Outstanding
- Wanwisa Chansantaraporn (Thailand_TBL)
- Ghadeer Al Khateeb (Jordan_IRS)
- Madlena Kocheva (Bulgaria_TBL)

Superb
- Gergana Georgieva (Bulgaria_TBL)
- Nataliya Parvanova (Bulgaria_TBL)
- Amara Makprang (Thailand_IRS)
- Parttana Wiriyathamjaroen (Thailand_IRS)

Excellent
- Viktoriya Georgieva (Bulgaria_IRS)
- Viara Goranova (Bulgaria_TBL)
- Tadsaneeporn Klinkaew (Thailand_IRS)

- Total applicant: 257 (IRS TMSC: 143, TBL TMSC: 97, 1-to-1 TMSC: 17)
- Wanwisa got the Outstanding Prize again with TBL TMSC!
- More participants from Thailand in 2016 compared with 2015 (1-94)
- All Thailand participants are awarded! Congratulations *****

NOTE :

This innovative got the "Superb Award" (non-Chinese speaking teacher) in Innovative Smarter Lecture Award 2016 from Taiwan Technology Leadership and Instructional Technology development Association, REPUBLIC OF TAIWAN