Does linking Science homework to feedback in lesson starters improve completion rates by increasing perceived value?

Carolyn Neylon

Hartland International School

Introduction

This project developed from a question I was asked about a homework platform I had purchased for the science department – is it effective? Realising I actually didn't know, I decided to research effective but manageable homework strategies in science, explore student motivations for completing their homework, and building from that, collect data on the most effective use of the platform.

Research Questions

- What makes homework effective?
- Which homework tasks are most and least effective in science?
- What motivates students to complete homework and see the value in it?

Literature review

After reviewing a range of studies, These themes emerged:

- Effective homework has a clear purpose, is closely aligned to in class learning, gives timely feedback, is achievable independently and has a small element of autonomy
- More effective science tasks include elements of retrieval and spaced learning and is linked to class learning
- Students are more motivated when homework is linked to classwork, is achievable, and has high teacher expectations

Research Action

1.Literature review
- What makes homework effective?
- What does effective homework look like in science?

2. Student voice survey
- Do students perceive value in homework?
- What motivates them to complete their homework?
- Which kinds of homework have the most value for them?

3. Decide on how to best use the Carousel homework platform based on this

I decided to set weekly flashcards and self-marked retrieval quizzes as homework, which I then checked and flagged certain answers for whole class feedback as a starter. This is an inbuilt feature of the platform, but probably the most underused feature. Research suggested it should actually be one of the most powerful ways of using it.

4.Baseline data collection
- Weekly quizzes were set, but no rewards, sanctions or feedback was given
- What % of students complete homework through intrinsic motivation alone?

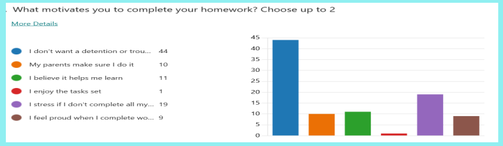
5.Feedback impact data collection
- Feedback was given as part of a starter activity, with links to learning highlighted, as well as discussion of good answers, misconceptions and misunderstanding and accuracy of language use
- Does the % completion rate increase as a result?
- Student voice survey 2 – do students value homework more highly?

Methodology

I collected data from a Year 10 combined science biology class. They were chosen as GCSE learning time is generally very pressured in science, and increasing homework effectiveness for them could have a positive impact on final outcomes.
They completed their student voice survey using Microsoft forms, and were asked a range of ratings scale and open ended questions about science homework.
I used the Carousel learning platform to set their weekly quizzes and generate the associated feedback activity. The analysis tool on the platform allowed me to monitor completion rates

Results

The initial results that interested me the most were that students were initially motivated to complete homework to avoid getting into trouble (blue bar) rather than seeing it as a learning tool (green bar)
Baseline data showed homework completion rates to be 51% (ST DEV 4). Completion rates after feedback was introduced were similar, but very little data was collected (see conclusions)



Analysis

Data collection for this project was not completed in the timeframe, and needs to continue into next academic year

Conclusion

This project is unfinished at the moment.
The timing of data collection collided with 3 weeks of Ramadan hours, when homework completion declined massively to around 20%, followed by the Eid holidays and then GL revision homework which took priority.
However, I will continue collecting data as I believe that the homework model I am trying does align with the vast majority of the research findings

Reflections

You can write about:
- I will complete this project in term 1 of next academic year
- I found that checking the quality of students self marking was valuable, and a good way of reinforcing language accuracy when giving feedback
- I was surprised at how few students see homework as a learning tool, and more a task to do in order to avoid a detention and resolve to change that
- Findings will be shared with the department and our homework policy adjusted to reflect positives coming out of this project

References

Cooper, H. (2006). *The Battle Over Homework: Common Ground for Administrators, Teachers, and Parents*(3rd ed.). Corwin Press

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Springer

Education Endowment Foundation (2021). *Homework: Teaching and Learning Toolkit* https://educationendowmentfoundation.org.uk/ Accessed 21.1.25

Rosenshine, B. (2012). *Principles of Instruction: Research-Based Strategies That All Teachers Should Know*American Educator, 36(1), 12–19.