



Collaboration between content and language teachers in HS science



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Research Question

How do and science and language teachers in high school collaborate to ensure that instruction meets the language needs of all students?

Literature Review

The literature review is based on a reading of:

- *Collaboration and Co-Teaching* by Honigsfeld and Dove (2010)
- 12 articles retrieved from the ERIC database that focus on collaboration in MS and HS across different content areas but with a focus on science.

Researchers experimented with AI tools to complete the MLRC note-taking form.

Methodology

- Interviews with grade 9 and 10 science teachers
 - Qualitative analysis of transcribed interviews
 - Interview questions
- Classroom observations
 - Quantitative analysis of 10 markers of collaboration based on observer ratings
 - Co-teaching observation form

Findings - Interviews with Science Teachers

1. Integrating Language Learners with Mainstream Peers in Co-Taught Science Classes

- Science teachers agree that integrating language learners with mainstream peers is the best approach. Most teachers see only positive impacts.

2. Factors Affecting the Academic and Language development of Language Learners

- Science teachers see the main factors as: availability of scaffolds & supports, the complexity of language used in instruction or resources, social factors, amount of additional support time, language proficiency, and student groupings

3. Role of Content and Language Teachers in PLT Planning Meetings

- Science teachers responsible for science content.
- Language teachers responsible for scaffolding & supports (in co-taught class) and front-loading or follow-up support (outside co-taught class).
- Both teachers responsible for creating well-structured, clear, concise assessments (in co-taught class).
- One response mentioned focusing on student needs as opposed to different roles

Findings - Interviews with Science Teachers

4. Role of Content and Language Teachers during Co-Taught Classes

- Most responses related to language teachers assisting during instruction (e.g. walking around, explaining concepts answering questions, one teach-one assist)
- Some responses related to language teachers providing scaffolding or supports
- One response mentioned focusing on student needs as opposed to different roles

5. Barriers to Effective Co-Planning and Co-Teaching

- Lack of scheduled co-planning time
- Size of PLT - large PLTs make it difficult to reach consensus and are less efficient with time
- Communication - didn't realize it was co-taught class until mid semester
- Lack of knowledge - of the issues language learners face and how to overcome

6. "Collaboration between content and language teachers impacts the learning experience for all students."

- Science teachers agree with this statement and see only positive impacts on all students

Findings - Interviews with Science Teachers

7. Additional Support or Resources Required to Make Collaboration More Effective

- Scheduled co-planning time for grade 10 biology (and more for grade 9)
- PD opportunities in scaffolding and supports, and in co-teaching models
- PD opportunities in which content and language teachers can work together

8. Self assessment of skills, tools, and strategies needed to support language learners on a score from 1 to 5 (1 = not at all, 5 = fully equipped)

- Broad spread of scores: 2, 2 or 3, 3, and 4

Findings - Classroom Observations

High Frequency (mean score greater than 2.5)

- ELL seating maximizes learning & collaboration while reducing anxiety.
- Students participate actively throughout the lesson.
- Teachers take steps to ensure students understand instructions.
- Grouping structures are utilized to enhance language development, content understanding, and engagement

Medium Frequency (mean score greater than 2 and less than or equal to 2.5)

- Instructional leadership role is shared.
- Both teachers are actively involved in the lesson.
- Language supports are used during the lesson.
- Students relate to both teachers as instructional leaders.

Lower Frequency (mean score greater than 1.5 and less than or equal to 2)

- The lesson appears to be co-planned.

Conclusions

Collaborative teaching between content and language teachers in high school science has a positive impact on all students and is highly valued by both groups of educators. However, the following areas have been identified for growth:

- Clearly communicating expectations for collaboration and defining teacher roles (school leadership).
- Scheduling regular co-planning time, ideally beyond Professional Learning Teams (school leadership)
- Increasing the involvement of language teachers in the planning process to ensure the inclusion of scaffolding techniques and instructional supports, and to agree on appropriate co-teaching models (co-teaching teams)
- Providing professional development focused on the effective use of scaffolding strategies and support tools in science instruction (school leadership)

Reflections About Research

Researchers relied on content teachers for interview data collection. With more time, interviews with language teachers and students could have been included to provide additional perspectives. While one might expect insights to emerge only at the end of the research process, each stage proved to be insightful in its own way, offering valuable revelations about how to implement concrete changes to improve practice. Overall, researchers found this action research project to be a highly effective and meaningful form of professional development—broad in scope during the initial literature review, objective in its data-driven focus, yet narrow and targeted in its application to a specific local context.

Looking Forward

1. Conduct further action research to evaluate the effectiveness of the supports currently provided for language learners.
2. Disseminate findings by publishing the research and sharing insights with educators at other international schools.