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# **COLLABOR-OLGY: IMPROVING LITERACY AND ENGAGEMENT IN JUNIOR HIGH LANGUAGE ARTS**

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*This mixed methods study investigates differences in student achievement in a grade nine English classroom when comparing Direct Instruction, a Collaborative Learning Model and a Computer Supported Collaborative Learning Model (CSCL). Quantitative data indicated a statistically significant difference in student achievement between Direct Instruction and each of the collaborative learning models. Qualitative data were analyzed into three thematic categories: Engagement, Student Learning, and Efficacy. A student preference for CSCL emerged.*

Keywords: Collaboration; Improving engagement; Computer-supported collaboration; Engagement; English language learning

## **CONTEXT**

The new tenets of 21<sup>st</sup> century learning are changing classrooms. Students, already engaged with a wide variety of technologies, challenge educators to innovate in the classroom. Alberta has undergone a shift in education towards creating student centred curricula. Integrating technology within the new policy framework represents the initial shift of this curriculum implementation.

“Responding effectively to students’ literacy needs demands innovative solutions, and clear direction and a commitment to collaboration.” (Alberta Education, 2010, p.6) Recent research has

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emphasized the benefits of Computer Supported Collaborative Learning (CSCL) environments, which support collaborative tasks, and lead to increased levels of engagement. (Stahl, 2012; Stahl, Lao & Hesse, 2013; Vesisenaho, Valtonen, Kukkonen, Havu-Nuutinen, Hartikainen, & Karkkainen, 2010). Together, these ideas point to the need for innovative change at the classroom level.

Within Alberta, charter schools have been considered programs of choice, “brought in under specific conditions, defining choice according to each charter granted by the province.” (The Association of Alberta Charter Schools, [TAAPCS], 2011) In a shifting provincial paradigm, however, these programs may look for ways to adapt. The context for this study was a charter school that champions Direct Instruction (DI) and a loosely defined “traditional” philosophy. The new ministerial mandate for student-centred learning poses a challenge for this school. The DI model centres on covering content and on individual accountability as measured by students’ progress and behaviour (Koziuff, LaNunziata, Cowardin & Bessellieu, 2001). Within this study, comparing methods of instruction attempts to explore one part of the 21<sup>st</sup> Century initiative of collaboration and its effect on student achievement. Several factors converge to motivate the current study: a provincial mandate that includes “Engaged Thinker” and promotes literacy; a program of choice; and integrating technology in the classroom.

This study aims to compare three teaching interventions: the DI teaching method, a Student Collaborative Model and a CSCL model. The DI model centers on covering content efficiently through teacher-directed tasks, guided practice and measured achievement results (Koziuff, LaNunziata, Cowardin, & Bessellieu, 2001). In contrast to DI, collaborative learning emphasizes process and conceptual development. The collaborative models share common characteristics: small group discussion to improve conceptual understanding through elaboration, negotiating meaning through integrating various points of view, and co-creating knowledge through

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controversy and synthesis of information (Van Boxtel, Van der Linden, & Kanselaar, 2000; Blooma, Kurian, Chua, Goh, & Lien, 2013). The CSCL model generally refers to networked environments where students use computers to work collaboratively (Stahl, Lao & Hesse 2013; Vesisenaho, et al., 2010). CSCL models continue to evolve alongside new research. This study attempted to explore one part of the 21<sup>st</sup> Century learning—collaboration—and its effect on student achievement and on student engagement within a local and specific context.

### **METHOD AND DATA COLLECTION**

This study is limited to an urban setting in Alberta, within a Charter school that has a small junior high of approximately 165 students. The sample for this study was formed from 48 grade nine students; it is a sample of convenience. The ratio of boys to girls is 29:19 or approximately 60% males. Thirty-six of the students are first generation Canadian and twelve students were not born in Canada.

This study used a mixed methods approach. The quantitative research question for this study was:

1. Will there be a difference in student achievement when comparing Direct Instruction (DI), a Computer Supported Collaborative Learning (CSCL) model and a Collaborative Learning model?

Qualitative research questions were:

2. Will Collaborative Learning have an effect on students' perception of their own learning?
3. Will Computer Supported Collaborative Learning encourage critical thinking and problem solving between peers?
4. Will Computer Supported Collaborative Learning affect student interactions?

5. Will the use of laptops foster collaboration in the classroom?

The duration of each unit of study was three weeks. The DI unit used a set of stories, and the two collaborative units used a novel of comparable difficulty to the story set. Interpretive learning tasks for each of the units included comprehension questions, a picture analysis and short personal written responses. In the Collaborative learning models, student discussions generated new questions or topics within specific student groups as part of the collaborative process. For the Collaborative models, students formed triads of mixed gender; these were chosen by students. New triads were established for each model. The CSCL model used the web-based program, *Socrative*, as the computer support. Quantitative data were collected from a set of posttests administered at the end of each unit of study. The first test was a Summative Unit test and the other, a standardized reading test. Summative Unit Tests used the same format and length; test items were analyzed according to a table of specifications using Bloom's taxonomy. Excerpts from released Alberta Provincial Achievement Tests (PAT) were used for the standardized tests: these were narrative passages of comparable length, question format and difficulty.

Quantitative data were analyzed applying a Single-Sample Analysis of Variance (ANOVA). Qualitative data were collected through student responses to two open-ended questions: What did you like about [intervention]? What did you dislike about [intervention]? One month after the study, students were asked another set of open-ended questions: What were the advantages of [intervention]? What were the disadvantages of [intervention]? Data were collected and analyzed using the constant-comparative method (Glaser & Strauss, 1967). Data were categorized according to emergent themes.

## **KEY FINDINGS**

### **Quantitative results**

The data from the two testing instruments remained consistent. The ANOVA for the Unit tests showed a mean difference of 10.75 between DI and a Collaborative Model of Learning ( $p < 0.001$ ). Between DI and a CSCL model ( $p < 0.0016$ ) the data indicate a difference of 7.23. When comparing a Collaborative Learning model and CSCL model, no statistically significant mean difference 3.518 ( $p < 0.137$ ) appeared. Posttest scores for CSCL and Collaborative Learning were statistically significantly higher ( $p < 0.003$ ) than DI. The second ANOVA for the standardized PAT reading excerpts was consistent with the Unit tests: between DI and a Collaborative Model of Learning ( $p < 0.001$ ) there was a mean difference of 9.95. The data show a difference of 8.10 ( $p < 0.008$ ) between Direct Instruction and a CSCL model. The data show no statistically significant mean difference of 1.85 ( $p < 0.543$ ) between CSCL and a Collaborative Learning model.

1. Quantitative data indicated a statistically significant difference in student achievement between DI and a Collaborative Model of Learning. There was an increase in achievement under the Collaborative Model of Learning.
2. Quantitative data indicated a statistically significant difference between DI and CSCL. There was an increase in student achievement under the CSCL model.
3. Quantitative data did not indicate a statistical difference between a Collaborative Model and CSCL.

These results responded to the first research question demonstrating that the method of instruction did make a difference in student achievement.

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### **Qualitative results**

Qualitative themes brought forward the voices of the learners as they considered and reflected upon the learning process. Regarding DI, students spoke about the efficiency of this method: “The instructions, methods and expectations are very clear and easy to understand,” and, “DI makes the process more clear and simplistic.” The student perspective suggests a desire to find the right answer and focus on learning the right information for the task. While students appreciated the directness of DI, some suggested DI contributed to student distractedness, “it (DI) is as boring as a board.” Students also recognized that DI “doesn’t make use of some of the resources we have available.” With respect to Collaborative Learning model, co-creating emerged as one of the benefits: “We put our minds together and came up with a consensus and a sophisticated answer,” and, “at the end you saw how your point of view was different.” The Collaborative Learning model also helped students reflect on their learning process, and the group triads facilitated “expressing opinion to people you usually don’t work with.”

Support emerged for each of the interventions, but comments revealed a preference for the CSCL model. Students appreciated comparing personal results through the software program, noting “[Socratic] brings in excitement,” and it “allowed for more interpretation of the text.” One student stated, “We all had a good time.” Depth of learning was demonstrated through comments that contrasted perspectives as “useful because you get a collective idea of others’ thoughts enhancing your knowledge.”

In summary, the key findings of this qualitative data were:

1. The DI model was less engaging, but was appreciated for the clarity of instruction.
2. Students were aware of sources outside the classroom (on-line) which provide relevant and timely information or resources.
3. The CSCL model consistently provided positive engagement.

4. The computer support within the CSCL model facilitated discussion and enabled deeper understanding.
5. The Collaborative model which saw student-led discussion, debate, elaboration and reflection, resulting in high levels of student engagement.
6. The depth of understanding and reflective learning were noted in both CSCL and the Collaborative models.
7. For CSCL and Collaborative models, students commented on the benefits of learning from a variety of perspectives within small groups as well as from discussion.

These results are consistent with previous research around collaborative learning models. Some studies have explored positive effects of CSCL and small peer group interactions (Tsui, 2011; Williams, 2009; Vesisenaho et al., 2010). Stahl and Hesse discuss increased levels of student engagement using CSCL (pp. 268 – 269), urging the use of appropriate interventions. Studies also indicate that collaborative models use student-centered learning environments and foster high levels of engagement. (Istance & Kools, 2013; Gomez, Wu, & Passerini, 2010) Research also supports the conclusion that knowledge is co-created through a collaborative process within a learner-supported environment (Saab, Van Joolingen & Van Hout-Wolters, 2012; Friesen, 2009; Blooma et al., 2013). This study supports research around collaborative models.

### **CONCLUDING THOUGHTS**

Returning to the central questions of this study, the data brought forward some important ideas. From this data, student perception of learning was enriched through both collaborative models. Both collaborative-based interventions facilitated knowledge creation between learners, fostered an interactive, engaging learning environment and encouraged higher level critical thinking skills.

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These conclusions are supported in current research that recognizes an urgent need for effective interventions using online platforms (Stahl & Hesse, 2006; Vesisenaho et al., 2013; Blooma et al., 2013). The study has implications within its context. There is a level of comfort—predictability- in using DI pedagogy. DI may be the tried and true pedagogy in this context, but the collaborative learning models, implemented deliberately, encourage higher levels of engagement and also impact student achievement as demonstrated in this study.

Collaboration encourages reflection and critical thinking; it supports deeper learning. The CSCL model supports a process where students engage in thoughtful debate, elaboration and controversy to negotiate meaning. This process defines the difference between DI and collaborative learning. As part of 21<sup>st</sup> Century learning, collaborative learning models, particularly CSCL models, foster learning and engagement and do make a positive difference in student achievement.

There are implications for other classrooms that may use DI as the default method of instruction. DI provides an efficient method for content-based instruction, but a more effective impact can be noticed with a deliberate pedagogical choice and design. Using CSCL tasks to challenge, extend and enhance traditional ways of thinking and learning can engage the learners more effectively in their learning process. Using technology to support collaboration meets the learners in their natural space. As learners engage through the technology and the collaborative process, learners create a richer knowledge and learn to appreciate diversity.

Collaborative learning poses challenges: setting up that supportive environment demands a re-thinking of the lesson design, one that moves away from prescriptive efficiency and builds on student interest along with an opportunity to explore those interests. This study showed that digital literacy can be applied through a collaborative learning intervention within the context of a school that is based on a DI model. It showed that different collaborative models will improve student

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engagement and contribute to improved student achievement. Collaboration invigorates learning, for teachers and for students.

## REFERENCES

Alberta Education. (2010). *Literacy first: A plan for action*. Edmonton, AB: Alberta Education.

Retrieved from: <https://education.alberta.ca/media/4970645/literacyfirst.pdf>

Blooma, M., Kurian, J., Chua, A., Goh, D. & Lien, N. (2013). Social question answering: Analyzing knowledge, cognitive processes and social dimensions of micro-collaborations. *Computers and Education*, 69, 109–120.

Friesen, S. (2009). Teaching effectiveness: A framework and rubric. *WDYLIST Research Series Report 2*, 43-58.

Gomez, E., Wu, D., & Passerini, K. (2010). Computer-supported team-based learning: The impact of motivation, enjoyment and team contributions on learning outcomes. *Computers and Education*, 55, 378 – 390.

Glaser, B. & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine Pub. Co.

Istance, D., & Kools, M. (2013). OECD Work on technology and education: Innovative learning environments as an integrating framework. *European Journal of Education*, 48(4), 43-57.

Koziuff, M., LaNunziata, L., Cowardin, J., & Bessellieu, F. (2001). Direct instruction: Its contributions to high school achievement. *The High School Journal*. 84(2), 54-73.

Saab, N., Van Joolingen, W., & Van Hout-Wolters, B. (2012). Support of the collaborative inquiry learning process: Influence of support on task and team regulation. *Metacognition Learning*, 7, 7 – 23.

Stahl, G. & Hesse, F. (2006). Social practices of computer-supported collaborative learning.

*International Journal of Computer-Supported Collaborative Learning*, 1, 409 – 412 DOI:  
10.1007/s11412-006-9004-y

Stahl, G. (2012). Cognizing mediating: Unpacking the entanglement of artifacts with

collective minds. *Computer-Supported Collaborative Learning*, 7, 187 – 191. DOI:  
10.1007/s11412-012-9148-x.

Stahl, G., Lao, N. & Hesse, F. (2013). Collaborative learning at CSCL 2013. *International*

*Journal of Computer-Supported Collaborative Learning*, 8, 267 – 269.

DOI: 10.1007/s11412-013-9179-y

Tsui, M. (2011). Development of peer-assisted learning strategy in computer-supported

collaborative learning environments for elementary school students. *British Journal of  
Educational Technology*, 42(2), 214-232.

The Association of Alberta Public Charter Schools. (2011). *What is a charter school?*

Retrieved from: <http://www.taapcs.ca/about.html>

Van Boxtel, C., Van der Linden, J., Kanselaar, G. (2000) Collaborative learning tasks and the

elaboration of conceptual knowledge. *Learning and Instruction* 10, 311- 330.

Vesisenaho, M., Valtonen, T., Kukkonen, J., Havu-Nuutinen, S., Hartikainen, A., & Karkkainen,

S. (2010). Blended learning with everyday technologies to activate students' collaborative  
learning. *Science Education International*, 21(4), 272-283.

Williams, S.M. (2009). The impact of collaborative, scaffolded learning in K-12 schools:

A meta-analysis. *The Meteri Group. Commissioned by Cisco Systems*. Retrieved from:

[http://www.cisco.com/web/about/citizenship/socio-economic/docs/Metiri\\_Classroom\\_Collaboration\\_Research.pdf](http://www.cisco.com/web/about/citizenship/socio-economic/docs/Metiri_Classroom_Collaboration_Research.pdf)