

**The Effectiveness
of Differentiated Instruction
on
Student Engagement
and Achievement**

Oshawa Central Collegiate Institute

MISA Report

June 2009



Table of Contents

Introduction and Methodology	...	3
Key Findings	...	4
Essential Question and Background	...	5
Why Differentiated Instruction	...	6
Data Collection Methods and Analysis	...	7
Student and Teacher Reflections	...	9
Assessment Results	...	15
Anecdotal Responses	...	17
Summative Data	...	19
Reflections and Final Thoughts	...	22
Appendix A, B, and C	...	23

The Effectiveness of Differentiated Instruction on Student Engagement and Achievement

Completed by:

Durham District School Board
Patricia Lepine – Principal
155 Gibb Street, Oshawa ON, L1J 1Y4
905 723 4678

Jennifer Gauthier - English
Lisa McGregor - Math
Christopher Merry - Special Education
Christopher Seaman - Visual Arts
Jennette Walton - Science
Christina Westcott - Geography

Introduction

Oshawa Central C.I. initiated this project to examine the impact that using differentiated instructional strategies in the classroom would have on student success. One of the struggles Central has faced in the past has been low credit accumulation for grade nines and tens. This project aimed to work towards the school-wide goal of increasing credit attainment, including an intended target of 90% credit attainment rate, and an overall increase in level of achievement. The target groups were grade 9 and 10 students in the academic and applied stream selected from math, science, geography and visual arts classes who were studied over a three month timeframe in semester one.

Methodology

The action research was a two-phase project whereby teachers implemented a traditional lesson followed by a differentiated lesson (Appendix A). The effectiveness of differentiated instruction in the classroom was a qualitative and quantitative study based on student surveys (Appendix B), anecdotal reflections, and report card data. The student questionnaires measured engagement, interest, and projected success. Anecdotal reflections were completed by the subject teacher and an independent observer teacher (Appendix C) and examined student interest and participation, difficulty of implementation, classroom climate, the variety of resources, teaching and learning style, and a general understanding of student success based on both

lessons. Report card data was used to measure overall success in credit attainment for students involved in the project.

Key Findings

General

- Teachers stated the program had a positive impact on student attendance, engagement, and classroom behaviour
- Teachers measured an increase in student achievement and credit attainment after differentiated instructional strategies were initiated
- Teachers recognised the importance of collaborating with colleagues
- Teachers found a greater enjoyment using differentiated instructional strategies as students worked harder and teachers could act as facilitators rather than as instructors
- Teachers were able to assess students on an ongoing basis to check for understanding and readiness

Specific

- Student achievement on assessment immediately following a differentiated lesson showed a significant improvement from that following a traditional lesson
- 60-70% of students stated that they found the differentiated lesson considerably or extremely interesting
- Over 75% of students believed that they would achieve good or very good results on an assessment following the differentiated lesson
- A number of the classes involved in this project had a higher male to female ratio. At Central, teachers have observed that male students are more likely to disengage and have behavioural problems in a traditional classroom setting. Male students were observed to have a higher comfort level in taking risks in their learning in a differentiated instructional environment
- Students who were at risk for failing the course were able to achieve overall success by the end of the semester following the implementation of differentiated instructional strategies

Recommendations

- Teachers need to identify student learning profiles, interest, and readiness at the beginning of the semester and on a continuous basis in order to foster the implementation of successful differentiated instruction.
- Teachers should have designated time to collaborate with departmental colleagues to create curriculum-based lesson plans that include differentiated instructional strategies

- Schools should consider designing cross-curricular initiatives and assessment methods to help engage students and promote consistency and regularity
- More release time is needed for teachers to informally observe the delivery of differentiated instructional and assessment practices

Essential Question

What is the impact of implementing differentiated instructional strategies on student engagement, credit attainment, and level of achievement for select grade 9 and 10 classes?

Background

Oshawa Central's administrative data from 2007-2008 reflected that a large percentage of grade 9 and 10 students were not successful in the attainment of cognitive, demonstrative, behavioural, and affective performance targets. In multiple classrooms, students were observed as lacking key understandings, an inability to demonstrate their learning, and poor behaviour, as well as low self esteem, participation and overall engagement. Moreover, students were not successful in attaining credits as only 36.8 % of grade nine students received all eight credits. As a result of low achievement with regards to these targets, we decided to concentrate on process targets within our teaching repertoire and chose differentiated instruction to improve student achievement and engagement. Also, we wanted to examine if differentiated instruction would have a positive impact on the students and teachers in the classroom as well as the entire school.

Douglas B. Reeves argues that "Schools that fail to engage in decisive intervention...always claim not to have the resources or time to provide successful intervention strategies" (Learning Leader 87). Our vision was to take the time to implement a series of strategies under the differentiated instruction framework that would provide intervention for our failing or at-risk students. Teachers were given planning and preparation time and resources out of the classroom to collaborate with colleagues and design lessons to stimulate and engage students within the different curricula. Following the implementation of the traditional and differentiated lessons, the teachers again convened to analyse and evaluate the success of differentiation as an intervention strategy. Time was also devoted to teacher coaching and peer feedback for both formats of instruction.

Why Differentiated Instruction?

“Differentiated instruction is effective instruction that is responsive to the diverse learning needs and preferences of individual learners. It is a comprehensive framework...for how we understand and enact the teaching and learning in our classrooms...not just the instruction we differentiate” (Start Where They Are 1).

This year, the Durham District School Board has quickly turned its focus to differentiated instruction, including offering a series of four workshops to elementary and secondary teachers. We felt that the centre of differentiated instruction which concentrates on incorporating student interest, learning profile and readiness into teaching and learning could help meet the needs of our struggling students. Differentiated instruction recognises that students have different learning needs and students who are provided with opportunities to learn in ways that work best for them have an increased chance of success. As a framework, most teachers have used differentiated instruction in their teaching for years, but the results may not have been used to measure student achievement and engagement.

We believed that implementing differentiated instructional strategies in the classroom would help address the specific targets of understanding, demonstrating and meeting curriculum expectations, improving classroom behaviour, and increasing interest and participation.

Research

During the planning stages of our action research, we consulted *Start Where They Are*, K. Hume, *Integrating Differentiated Instruction and Understanding by Design*, C. Tomlinson and J. McTighe, *How to Differentiate in Mixed-Ability Classrooms*, C. Tomlinson, *The Learning Leader*, D. Reeves, and *The Action Research Guidebook*, R. Sagor.

Data Collection Methods and Analysis

The following timelines were followed in order to implement the differentiated instructional strategies in class as well as design and compare a traditional lesson to a differentiated lesson.

November 2008 to January 2009

The teachers involved joined the project after attending voluntary professional development sessions on differentiated instruction and assessment through the Durham District School Board. Four of the six teachers collected data and implemented both traditional and differentiated lessons in their classes. Those classes were grade nine applied geography, grade nine applied science, grade nine open visual arts and grade nine applied math. Three of the courses are compulsory credits and geography in particular can have a high failure rates as there is no locally developed option for students. Overall, the aim was to provide a comprehensive evaluation of differentiated instruction and assessment across a variety of disciplines.

The following charts summarize the demographics of the four classes involved in the project.

Figure 1

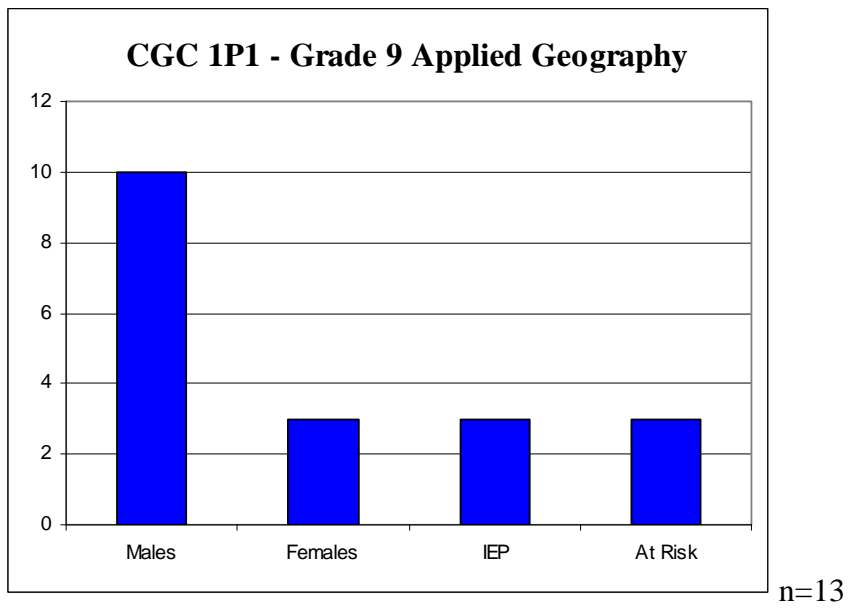


Figure 2

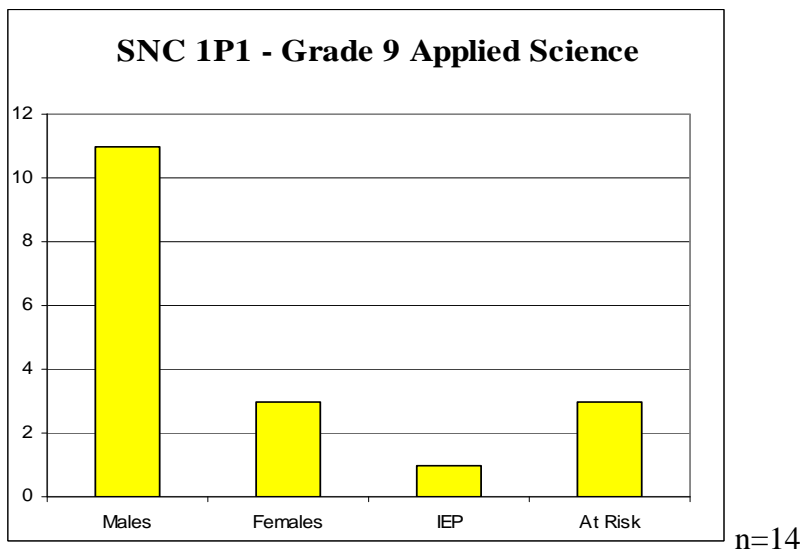


Figure 3

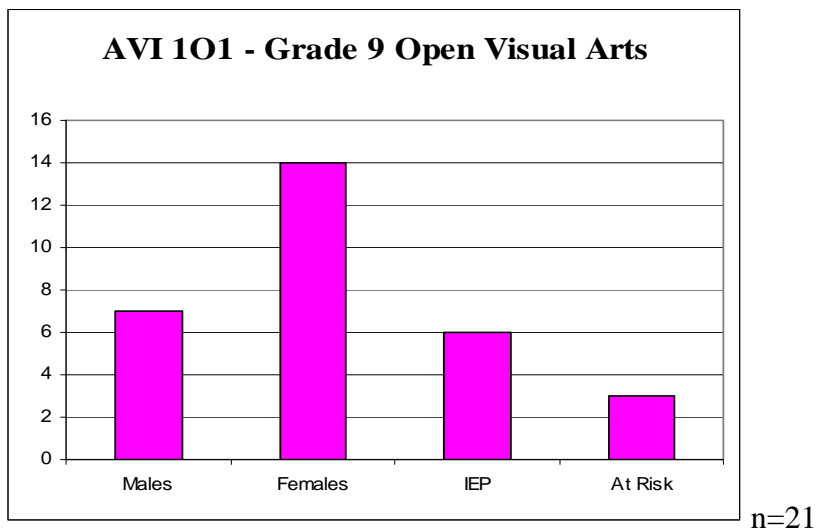
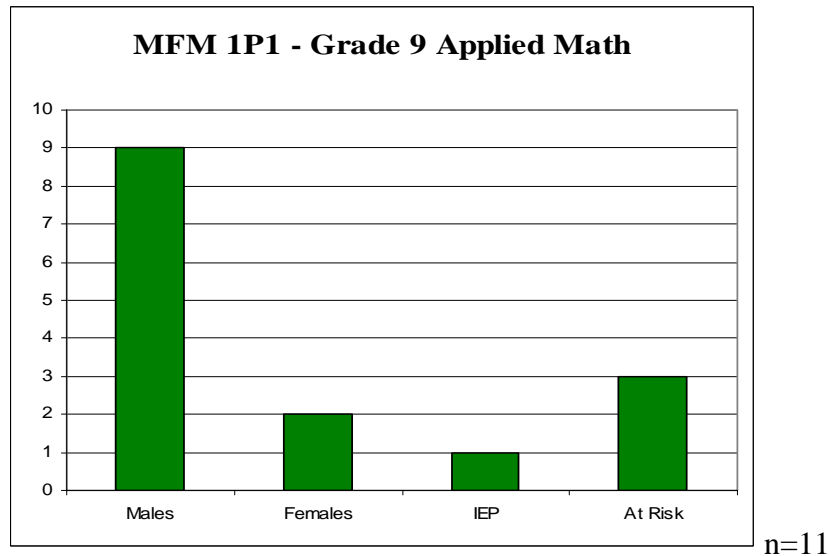


Figure 4



Student and Teacher Reflections

The main source of collecting data was derived from student questionnaires, classroom teacher anecdotal reflections, and lesson observation analysis completed by the academic resource liaison for the project. These were completed during and following the implementation of a traditional lesson and a differentiated lesson in all four classes. Based on the research consulted, the teachers prepared the student survey questions and created the lesson observation checklist to maintain consistency and credible “look-fors” across the disciplines. In two of the classes, students were given an assessment in the form of a quiz to collect data on student achievement for both lessons.

The following data summarises the student questionnaire results, assessment results, anecdotal reflections.

Student Reflections on the Traditional Lesson

All students who participated in the class were asked to fill out a survey. Most of the students felt that the traditional lesson was boring, involved too much writing or note taking, and the teacher talked too much.

Did you find today's lesson interesting?

Figure 5

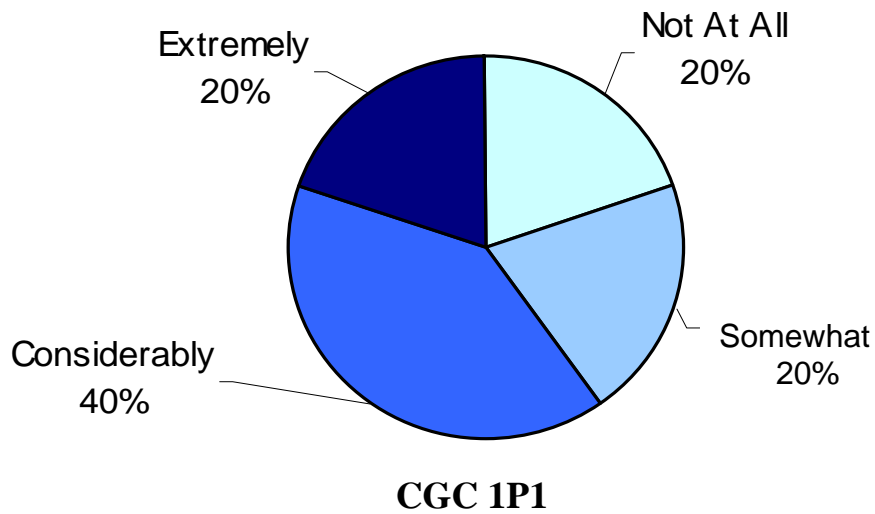


Figure 6

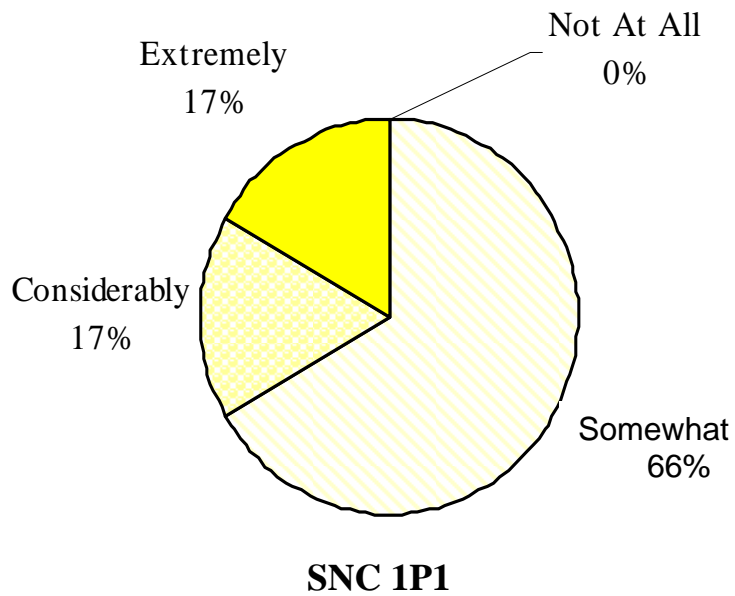


Figure 7

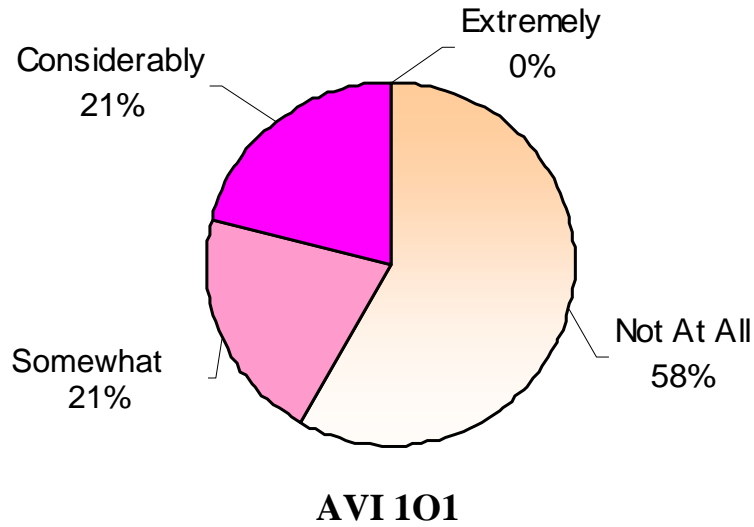
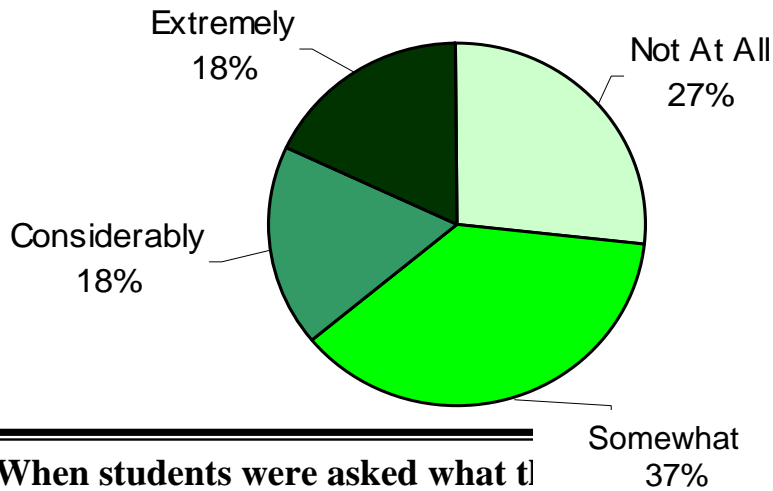


Figure 8



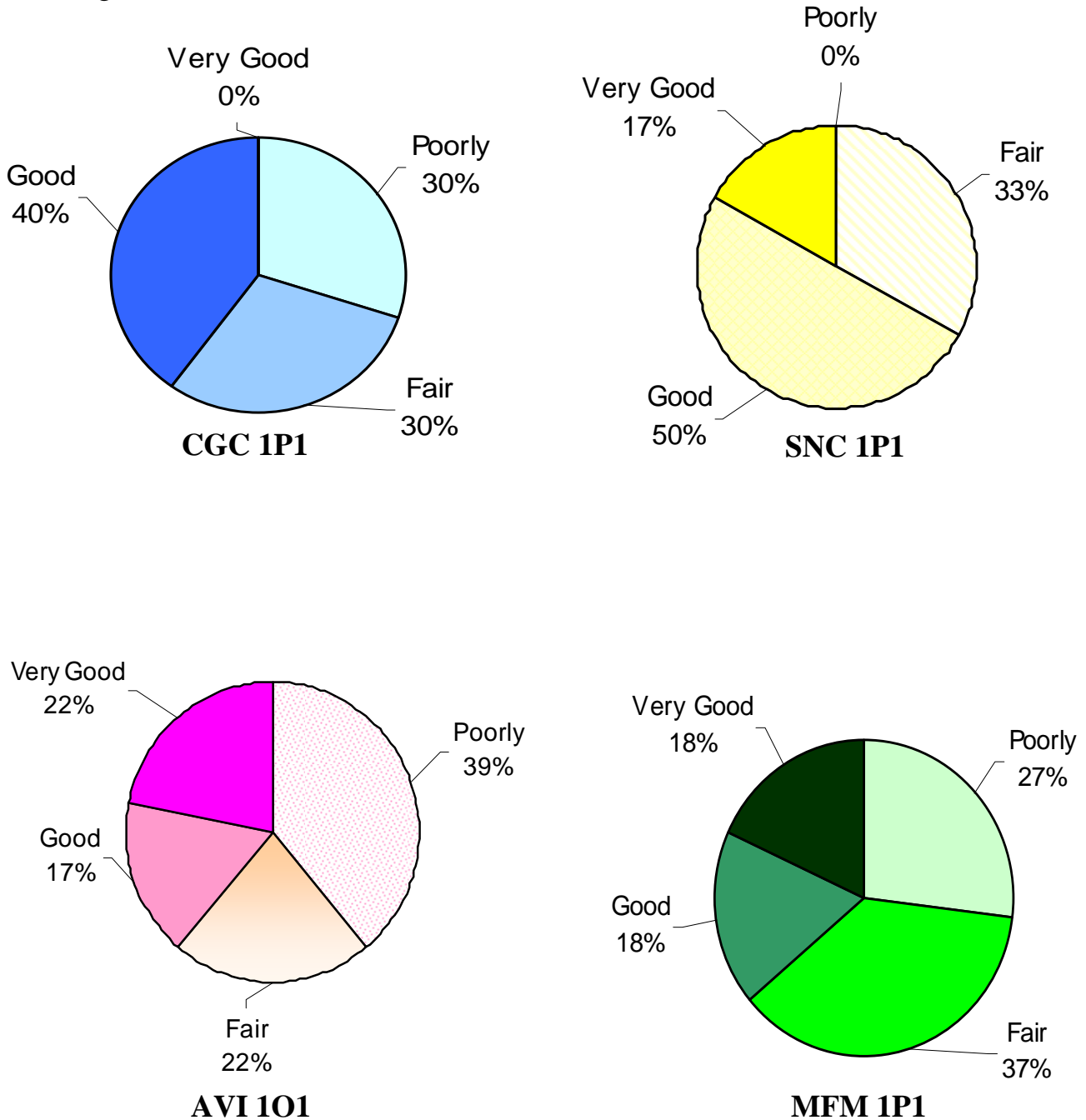
When students were asked what they thought about the traditional lesson, they responded about

- *“Finding some answers were confusing. Reading from the textbook is boring.”*
- *“I didn’t really like anything. There was too much writing.”*
- *“I found it pretty easy.”*
- *“I did not like the wrist cramp I got after taking so many notes.”*
- *“I liked that we got to watch a video for most of class and then just answer questions.”*
- *“It’s boring.”*
- *“If I wanted to learn about art history I would have taken a history class.”*
- *“I’d rather just work in the A.R. room.”*

Students were also asked to reflect on their ability to be successful if they were assessed following the traditional lesson. On average, 60% of the students responded that they would do **fair** or **poorly** on an evaluation. On average, only 14% of students believed they would do **very good** on an evaluation.

If you were assessed on your learning, how well would you do?

Figures 9-12



Student Reflections on the Differentiated Lesson

The same four classes participated in a differentiated instruction lesson taught by the classroom teacher. Students completed the same questionnaire as with the traditional lesson and responded on how interesting they found the class. An average of 60-70% of students stated that they found the class considerably or extremely interesting, while an average of 12% of students did not find the lesson interesting at all. The students were not asked to compare the differentiated lesson to the traditional lesson.

Did you find today's lesson interesting?

Figure 13

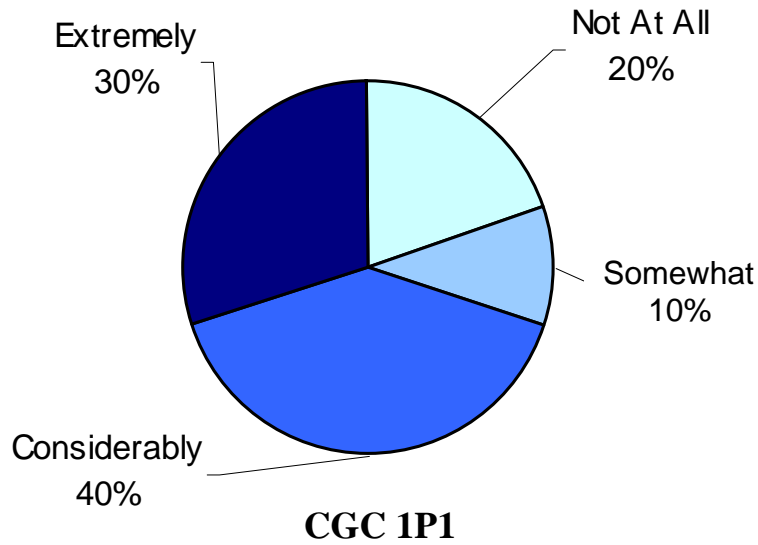


Figure 14

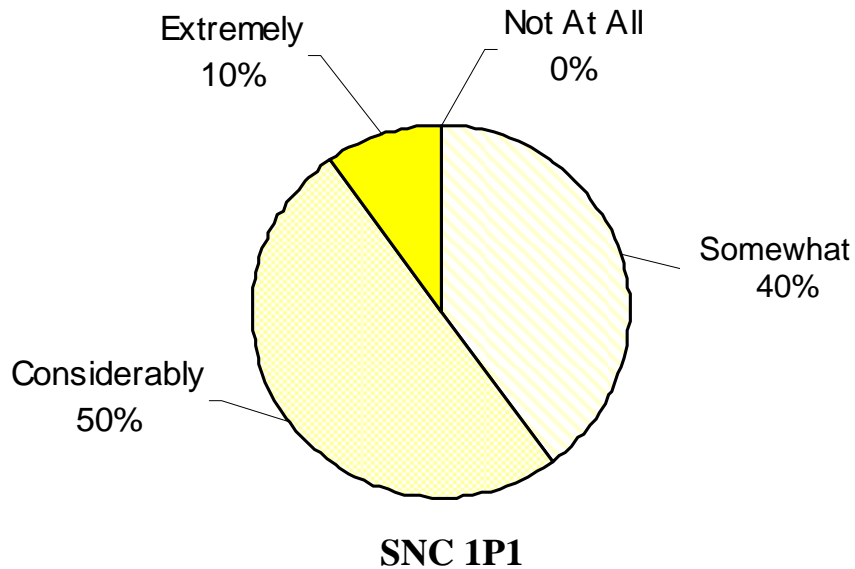


Figure 15

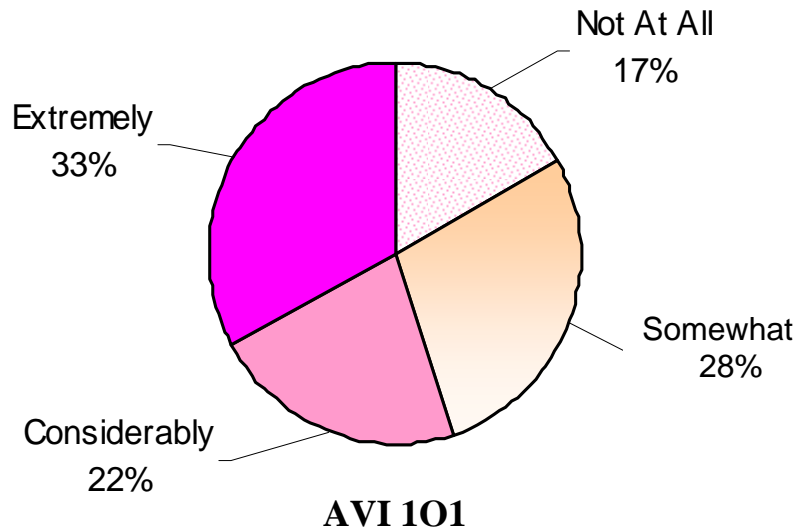
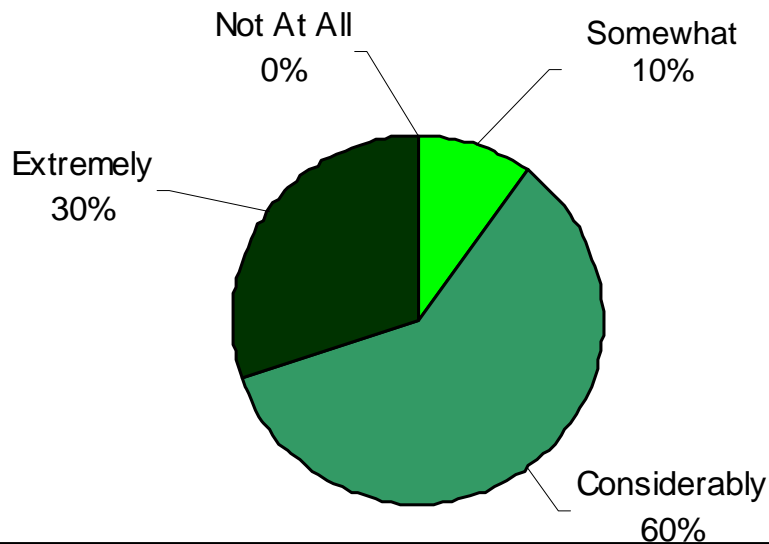


Figure 16



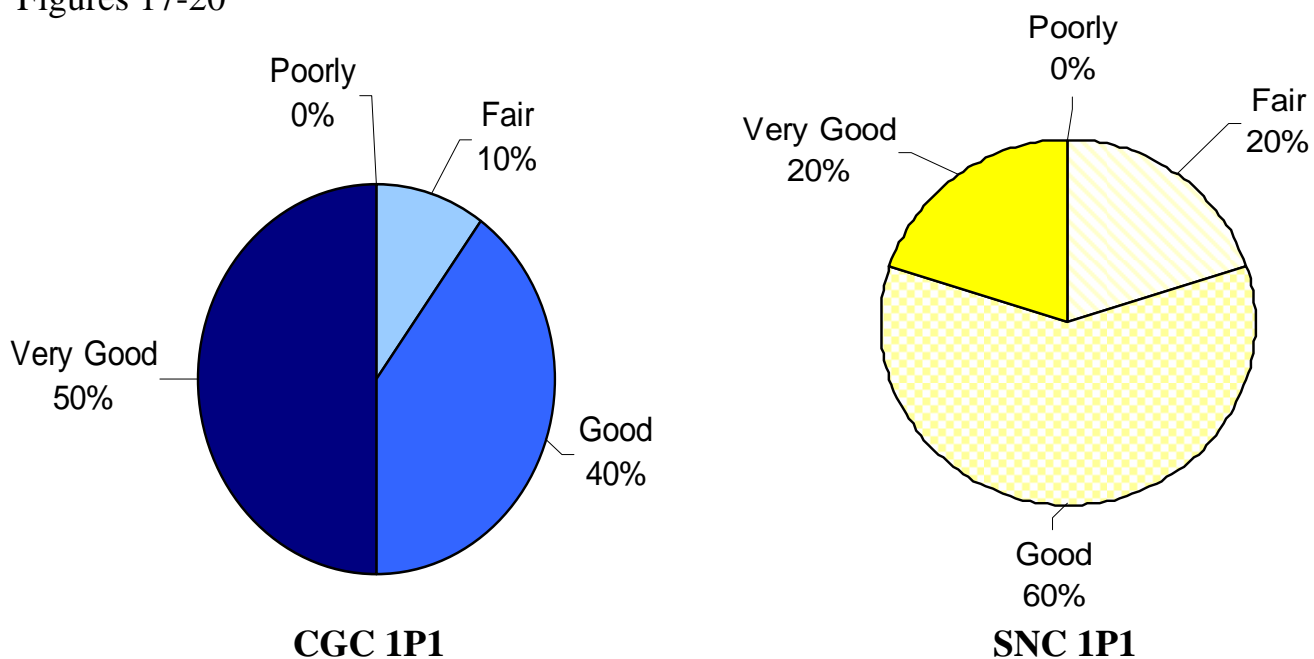
When students were a MFM 1P1 they liked or disliked about the differentiated lesson, they responded:

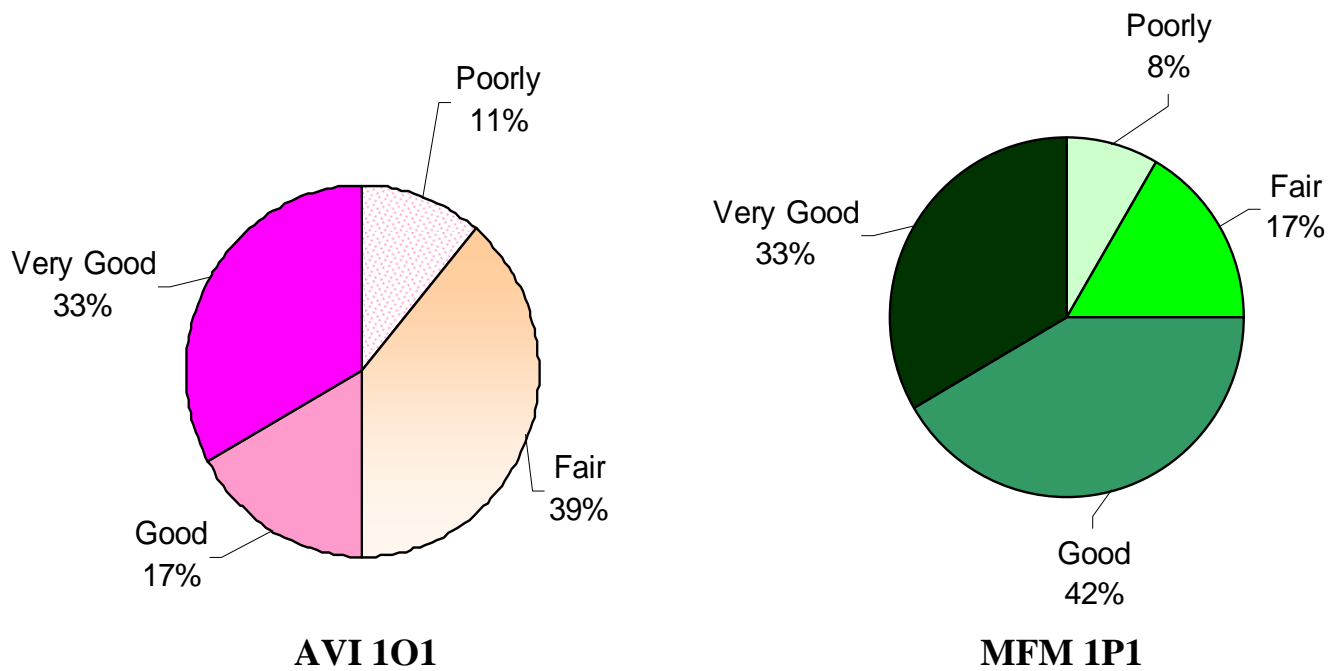
- *"I liked doing a hands-on building activity. It was fun!"*
- *"I liked poking holes and drawing instead of just writing notes."*
- *"Um, there was nothing not to like about class."*
- *"I didn't really like standing up in front of the class to present."*
- *"We just got to relax and draw."*
- *"Looking at the perimeter and area of the room actually helped understand what those terms mean."*
- *"I liked working in groups and being able to talk to my friends."*
- *"There was nothing I didn't like today. The activity was pretty cool."*

Students were once again asked to reflect on their ability to be successful if they were assessed following the differentiated lesson. It was clearly reflected that students felt that the chance of success was greatly increased with more than an average of 75% of students responding that they would achieve **good** or **very good** results on an assessment. Less than 5% of all students felt they would do **poorly**.

If you were assessed on your learning, how well would you do?

Figures 17-20

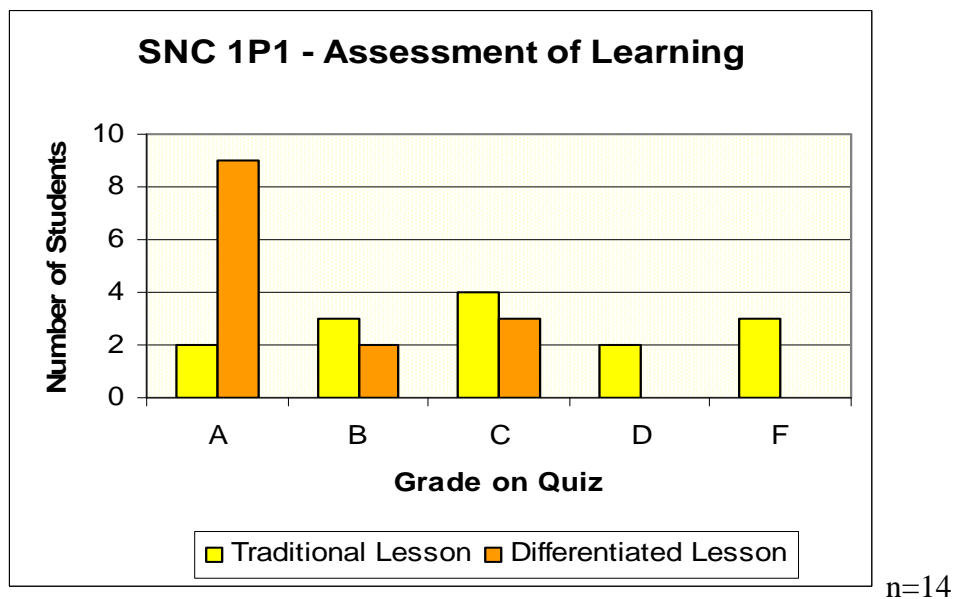




Assessment Results

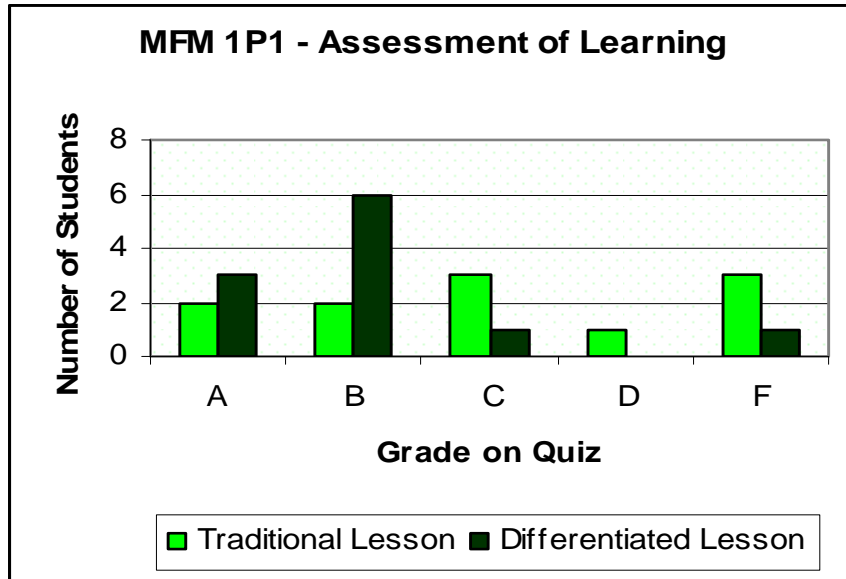
Following the traditional science lesson on celestial objects, students were given a quiz out of ten marks to demonstrate their understanding. After the same class completed a differentiated lesson on constellations, they were given a similar quiz out of ten marks.

Figure 21



Following the traditional math lesson on perimeter and area, students were given a quiz out of ten marks to demonstrate their understanding. After the same class completed a differentiated lesson on perimeter and area, they were given a similar quiz out of ten marks.

Figure 22



n=11

Anecdotal Responses from Classroom Teachers

The anecdotal information collected from classroom teachers reveals very positive feedback on the benefits of using differentiated instruction in the classroom. Overall, teachers felt that students were more likely to attend class, be engaged, hand in their assignments and contribute positively when differentiated strategies were used.

When classroom teachers were asked what the benefits of differentiated instruction were or how they found teaching the lesson, they responded:

- *“I found the lessons more fun and engaging for students and myself.”*
- *“It provided me the opportunity to observe the students’ creativity and teamwork skills.”*
- *“I personally observed that student attendance did improve once I started using DI lessons on a regular basis.”*
- *“Visual Arts is a more than suitable environment for the routine implementation of differentiated instruction in classroom teaching and evaluation.”*
- *“I noticed an improvement in behaviour when students were adequately challenged and engaged as they were when doing the DI lessons.”*
- *“It was pleasing to see the students excited about getting up and moving around the class.”*
- *“More students completed the tasks. More students experience enjoyment of their work. Those who were at risk because of attendance issues found the greater flexibility offered in this structure of the activity were able to catch up more easily.”*

When classroom teachers were asked what challenges they faced with using differentiated instruction, they responded:

- *“Attendance issues are problematic and it’s often difficult to implement larger DI projects that involve groups since many students are unreliable.”*
- *“The most intransigent students changed little, having been ‘hard wired’ in their evasive tactics and learned helplessness.”*
- *“My activity took a lot more prep work, time, and resources than a standard lesson.”*
- *“Since I only teach in this classroom once per day, I can’t set it up as I would like to meet the diverse needs of my individual learners.”*
- *“I would need more money to buy supplies to repeat these successful lessons in the future.”*
- *“DI must be employed in concert with other strategies where at risk students are concerned for them to successfully complete assigned tasks.”*

Anecdotal Responses from Academic Resource Liaison Observation

In observing the traditional lessons in these classes, the following commonalities were identified:

- lessons were all based around individual reading or video comprehension assignments
- students were expected to work quietly and independently
- there were several instances in which students had to be reminded to stay on task
- evidence of learning for each of the lessons were independent reading comprehension assignments
- students appeared to be unenthusiastic during class

In observing the DI lessons in these classes, the following commonalities were identified:

- students were given opportunities to interact with each other
- students' active participation appeared to be higher
- teachers rarely needed to remind students to focus on their work
- students seemed to take more of an interest in the learning opportunities presented
- students appeared to be enthusiastic about participating
- comprehension seemed to be greater based on participation and in-class discussion

Based on the observable evidence, it can be concluded that the students in the sample classes tended to be more focused during the differentiated instruction lessons. The students also seemed to take more of an interest in the learning opportunities presented during the differentiated instruction lessons, and, based on the results of the post-lesson assessments employed, absorbed more of the information presented through differentiated instruction. The opportunities for students to interact with each other appeared to increase the students' enthusiasm for the assignments, as well as their level of participation.

Summative Data on Credit Attainment and Student Attendance

At the end of first semester, the team gathered and tabulated numerical data for the classes participating in the project. Specific data included student averages, student absences, and student lates. Additionally, the administration collected the results of cumulative credit attainment for grade nines in semester one of this school year. Of the 75 students in grade nine, 82% were currently obtaining four credits. Of the 59 students involved in this study, 98% of students obtained the credit in the class where the teacher implemented differentiated instructional and assessment strategies on a regular and ongoing basis.

The following data identifies the students' final grades and attendance records from the respective four classes.

Figure 23

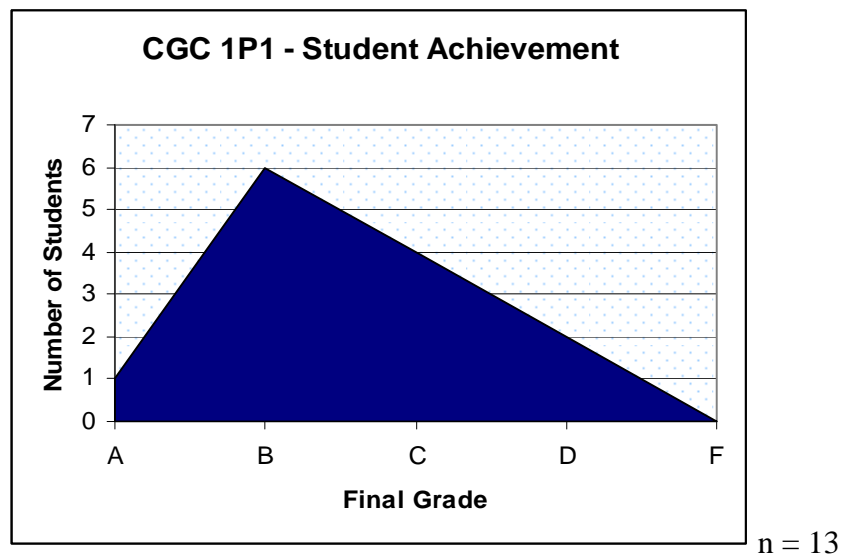


Figure 24

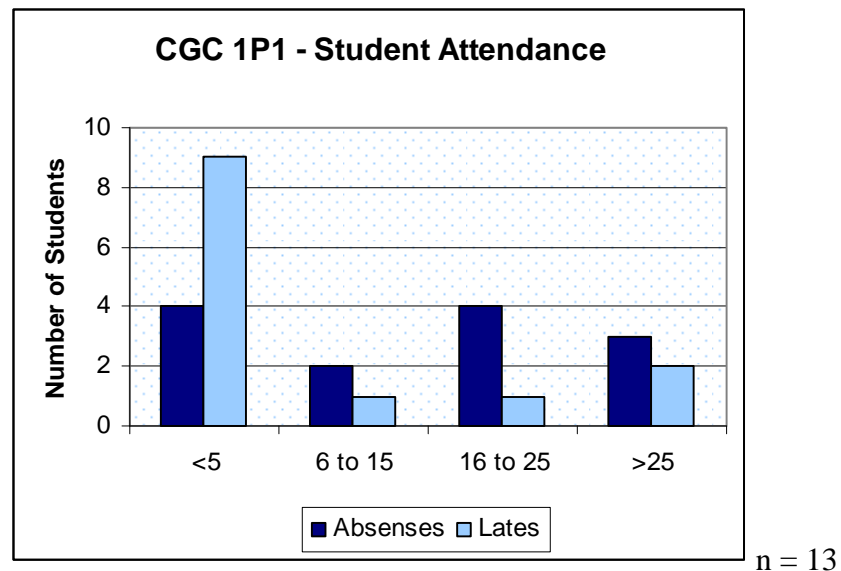
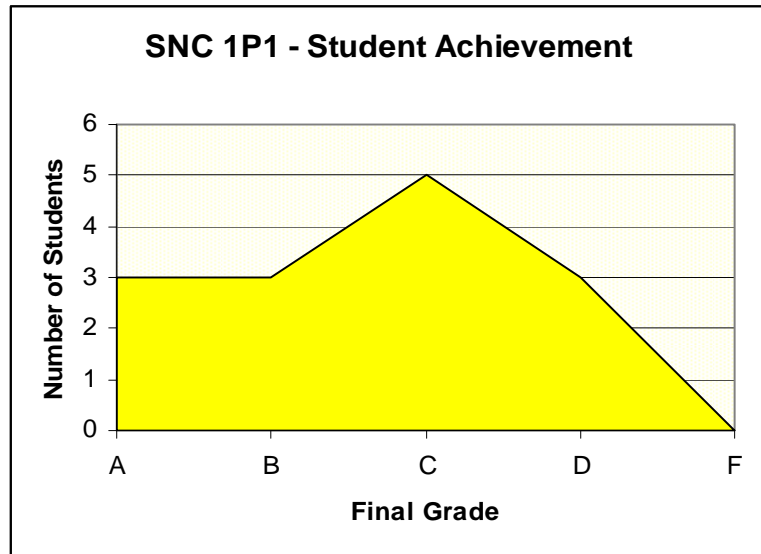
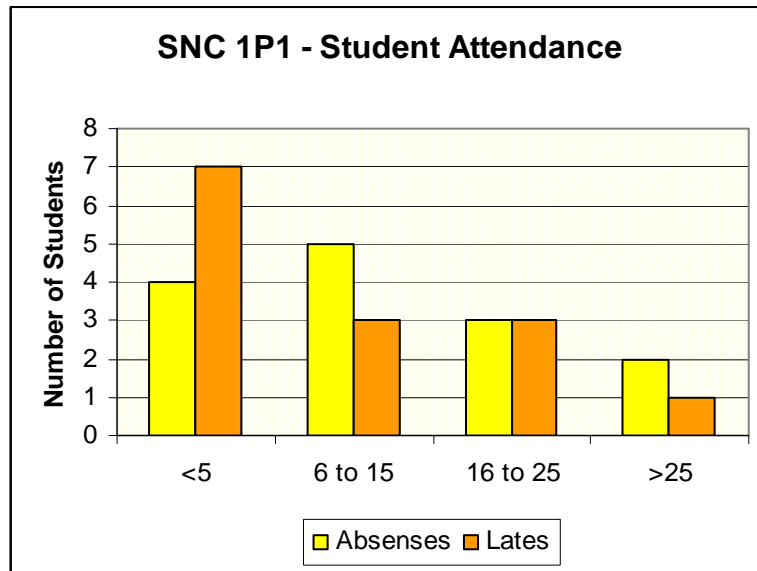


Figure 25



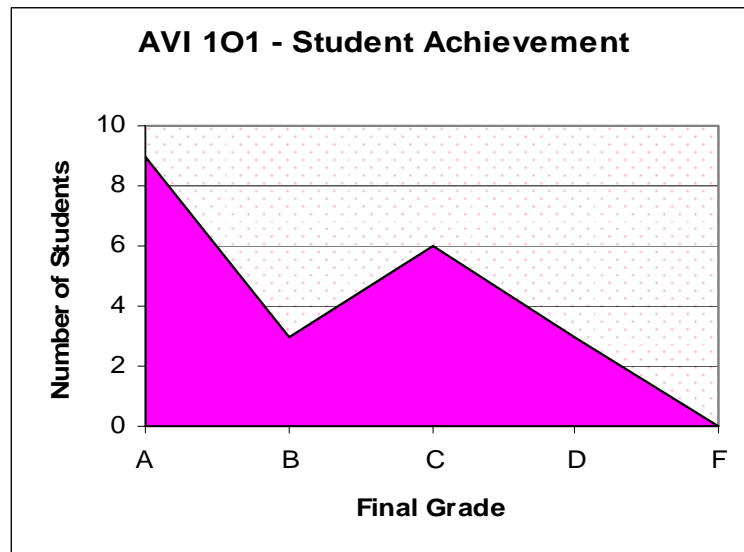
n=14

Figure 26



n = 14

Figure 27



n = 21

Figure 28

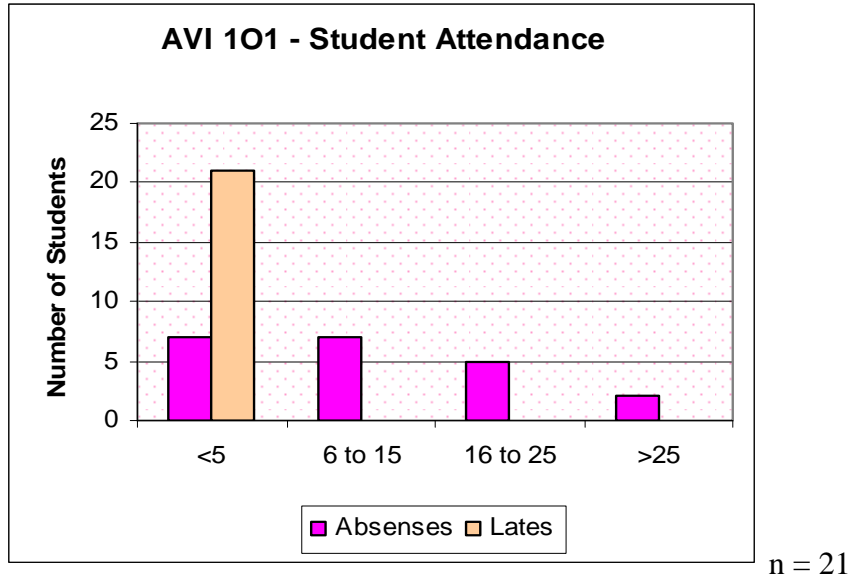


Figure 29

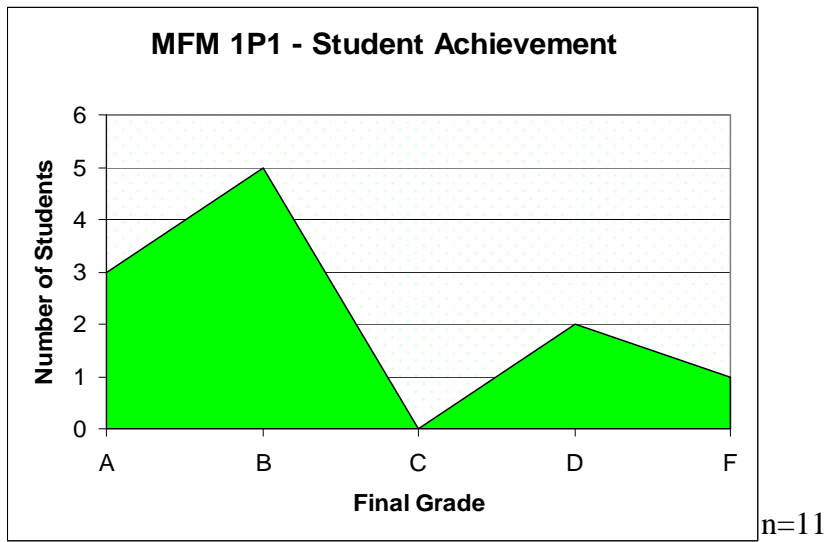
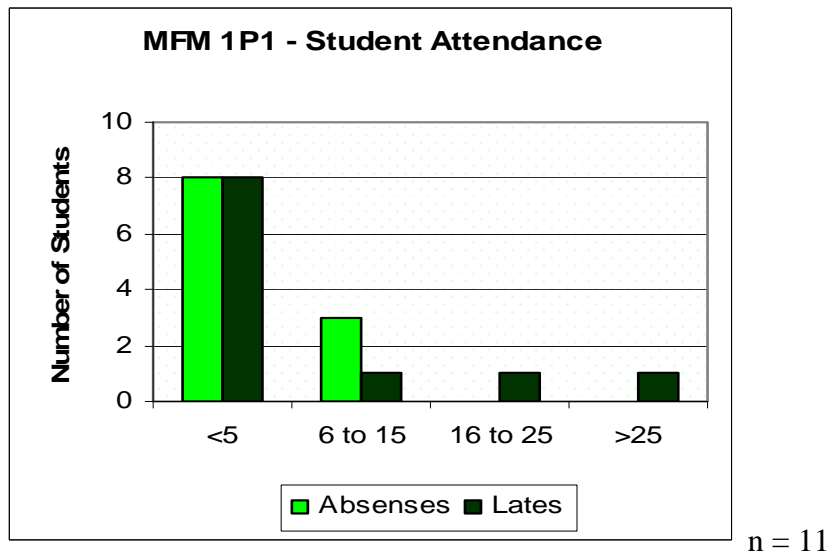


Figure 30



Reflections

The hard data found in the above charts and graphs indicate the following:

- ✚ 40-60% of students did not find the content of the traditional lesson interesting
- ✚ 60-70% of students found the content of the differentiated lesson either considerably or extremely interesting
- ✚ Approximately 60% of students believed they would only do fair or poorly on a content evaluation completed after the traditional lesson
- ✚ Less than 5% of students felt they would do poorly on a content evaluation following the differentiated lesson
- ✚ Based on the assessment following the traditional lesson, 36% of students achieved a grade of B or higher
- ✚ Based on the assessment following the differentiated lesson, 76% of students achieved a grade of B or higher.
- ✚ After the differentiated lesson, only 1 of 25 students failed the assessment
- ✚ The total number of credits earned in the four classes reveal a very successful semester for both students and teachers

Final Thoughts

The data collected, discussed, and analysed allowed us to set SMART goals, enrich our professional dialogues, develop strong collegial planning and build capacity to direct our students to reach their goals. For this to succeed, teachers need to move out of their comfort zone, collaborate with colleagues, reflect on the impact of their planning and continually plan for improvement. We feel that based on both the qualitative and quantitative data collected, the effort of differentiating instruction will lead to more engaging classrooms, improved student achievement, and increased student and teacher morale.

“[Differentiated instruction] demands continual attention to the strengths and needs of learners who not only change with the passage of each year but evolve during the school year as well. It requires the capacity to create flexible teaching-learning routines that enable academically diverse student populations to succeed with rich, challenging academic content and process, and to create learning environments that are both supportive and challenging for students for whom those conditions will differ.”

(Tomlinson and McTighe)

Appendix A

CGC 1P1 – Differentiated Lesson Plan

Title: You Can Build It!

Learning Goals: Students will be able to have practical examples to compare to the UN Human Development Index

Curriculum Expectations

- Compare Canadian and global trends in resource consumption and pollution
- Describe how regional disparities affect the economic sustainability of communities
- Compare Canada's quality of life with that of other countries

Materials: construction paper, rulers, scissors, glue, tape, pencils, compass, tin foil, monopoly money, handouts

Prior Knowledge: None. Lesson is the introduction to the unit on global connections

Minds On – Elicit and Engage

1. Students will each be given a Monopoly bill, of a variety of denominations.
2. Once class has begun students will be asked to make a brief list of items they would/could purchase with their amount of money.
3. Class discussion on how the students with the smaller amounts of money felt

Action – Explore and Explain

1. Students will be split into pre-arranged groups of 3. Each group will be given the instructions that they must build all items on their Task Artifact Sheet using the materials provided in their group's envelop
2. Students are to complete the task artifacts on the instruction sheet to the appropriate dimensions using the materials provided
3. Some groups will have to develop a plan to gain the necessary materials to complete the task artifacts. Trading between groups is allowed and can be timed or for the exchange of services, trading can also be done with the teacher's supply
4. Once the group feels they have successfully completed all task artifacts the teacher carefully measures all items, asks for corrections if necessary
5. If all task artifacts are correct the group will complete the Activity Debrief Sheet and Feedback Frenzy Sheet. Students will identify whether they are working at an A, B, or C level and teacher will work with C's to further explain concepts of Levels of Development

Consolidation – Elaborate, Evaluate, Extend

1. Students complete the Feedback Frenzy Sheet to give their group feedback
2. Time will be provided to discuss the activity as a class and students' frustrations
3. As a class students will share their placement of groups in the various Levels of Development and their UN Human Development Index rating, creating a visual profile for Levels of Development to be used as reference for further lessons

Next Steps

- Students will work with the Canadian International Development Agency: A Developing World map discussing data presented and current issues including global economic instability

Name: C. Westcott

School: Oshawa Central Collegiate Institute

Grade: 9

Phone: 905 723 4678

CGC 1P1 – Traditional Lesson Plan

Title: Identifying Natural Systems

Learning Goals:

1. Identify patterns and diversity in Canada's natural and human systems
2. Use terms and concepts associated with regions

Materials: pens, DDSB video: Over Canada, video handout (observation chart and analysis questions), classroom notes on natural systems to assist students if required

Prior Knowledge: Students will have studied the various natural systems (landforms, vegetation, climate, soil, ecozones) of Canada, thus enabling them to correctly identify images presented in the video using appropriate terminology.

Minds On – Elicit and Engage

1. Teacher directed introduction to the lesson and learning targets, and an overview of observation chart requirements.
2. Following the first province the video will be stopped for students to share their recorded information to ensure students understand the process required and that they are identifying images correctly.

Action – Explore and Explain

1. Students to view video province by province recording their observations in the chart on the variety of images presented.
2. Teacher is able to sit with students who may require assistance in remaining on task.
3. It may be necessary to stop the video periodically to ensure students have time to finish recording their observations before moving on to the next province.

Consolidation – Elaborate, Evaluate, Extend

1. Teacher reads over and assesses students' answers on chart for comprehension.
2. Students are to complete the analysis questions based on the video which asks them to determine if the video is an accurate representation of Canada and whether it should be used as tourism promotional material. Students are to consider what has been left out of the video and whether the video is representative of the Canada they see daily.

Next Steps

- Students will select 5 calendar images of different geographical areas across Canada from the supplies provided. They will identify the natural systems presented in the image and reasons supporting their decision as they identify a specific geographical location of each Canadian calendar image for this summative assignment.

Name: C. Westcott

School: Oshawa Central Collegiate Institute

Grade: 9

Phone: 905 723 4678

SNC 1P1 – Traditional Lesson Plan

Title: The Birth of Stars

Learning Goals: Students should understand that stars are born from nebulae and that stars have different colours and sizes based on composition and temperature

Curriculum Expectations

- Predict the qualitative and quantitative characteristics of visible celestial objects
- Investigate and predict the appearance and motion of visible celestial objects

Materials: textbook, overhead notes, overhead projector

Prior Knowledge: Understanding that the sun is a star and that there are billions of stars in the universe

Minds On – Elicit and Engage

1. Interactive lecture discussing the billions of stars in the universe and how each one could be a sun just like ours with a solar system and planets

Action – Explore and Explain

1. CLOZE passage worksheet – notes of the birth of stars
2. Independent reading on stars in textbook
3. Answer questions from the textbook based on chapter reading

Consolidation – Elaborate, Evaluate, Extend

1. Submit questions to teacher
2. Quiz – focusing on fast recall from the textbook

Next Steps

- Learn about star clusters, galaxies and constellations

SNC 1P1 – Differentiated Lesson Plan

Title: Stars and Constellations

Learning Goals: Students should be able to research a chosen constellation, create a star map, and present their findings to the class.

Curriculum Expectations

- Outline models and theories for describing the nature of the sun and stars and their origin, evolution and fate
- Demonstrate the skills required to plan and conduct an inquiry into the characteristics of visible celestial objects

Materials: constellation books/resources, constellation maps, pins, whiteboard, Bristol board, black markers, overhead projector

Prior Knowledge: Basic understanding that groups of stars form clusters and galaxies

Minds On – Elicit and Engage

1. Explorative full class discussion: what is a constellation and name some examples of constellations

Action – Explore and Explain

1. Teacher models full demonstration of constellation task
2. Students choose to work individually or with a partner
3. Students choose a constellation from the packages provided (there are several options and multiples of each)
4. Students research their chosen constellation, answer a series of questions, and create a star map that can be projected on the overhead projector using pinholes and Bristol board

Consolidation – Elaborate, Evaluate, Extend

1. Students present their research and star map to the class
2. Students complete a quiz that allows them choice in answering questions relative to the information learned on their specific task in class

AVI 101 – Traditional Lesson Plan

Title: Analysis of the Human Form in Painting and Sculpture through the Ages

Learning Goals: Understanding changing representation of the human form throughout Western art history

Materials: pens, question sheets, art textbook

Prior Knowledge: Students will have read about paintings/sculptures in their art textbooks, thus exposing them to different styles of art and different forms of creative expressions

Minds On – Elicit and Engage

1. Students review key sections for art textbook to familiarize/recall identification of art works and representation versus abstraction in the human form
2. Teacher directed introduction to lesson and learning targets through mini-lecture and reading of questions aloud to check for comprehension

Action – Explore and Explain

1. Students complete assigned questions individually seeking assistance from peer tutors/teacher as needed. Teacher re-teaches needed skills in terms of classroom work habits and reinforces positive work habits among students

Consolidation – Elaborate, Evaluate, Extend

1. Teacher reads over and assesses students' answers to check for comprehension and completion of tasks
2. Peer tutors will assist teacher in these actions

Next Steps

- Teacher will re-teach missing components to reinforce comprehension and overall learning prior to beginning figure drawing activity
- Students will follow up this introductory activity by figure drawing in class, leading to a summative project

AVI 101 – Differentiated Lesson Plan

Title: Figure Drawing for Grade Nine

Learning Goals: Using the elements and principles of design through figure drawing to create meaningful works of art

Materials: art paper, pencils, charcoal, conte, markers, paint, PowerPoint handout, reference computer generated animation images

Prior Knowledge: Students have studied examples of figurative art in a historical context. They have complete drills in step by step drawing of figures, animals, machines, and settings to develop skills in observational drawing (use of line, shape, form).

Minds On – Elicit and Engage

1. Students will review exercises completed through their drills and discuss as a class the techniques used in completing these exercises
2. Students will view PowerPoint presentation on figure drawing (topics – portraiture, full figure drawing) in a step-by-step process. Presentation will be viewed in segments throughout unit to reinforce skills and techniques
3. Teacher will provide students with examples of the work of illustrators and designers in form, books and comics and discuss the techniques used in relation to the elements of design.

Action – Explore and Explain

1. Students are introduced to models for drawing to reinforce skills. As drawing are completed, verbal formative feedback will be provided and assistance offered
2. Once a variety of pencil drawings have been completed in portraiture and full figures using “toon-style” figures and mannequins, students will share their rough work with peers in small groups of 2-4. Students will self and peer evaluate.
3. On a large piece of art paper, students will choose one image they feel best represents their work in this stage of development and redo it, incorporating the techniques they have learned through teacher, self, and peer evaluation

Consolidation – Elaborate, Evaluate, Extend

1. Once students have completed the drawing, they will present and discuss final image with teacher for feedback and suggestions.

BONUS: Students who finish the primary assignment can extend their learning by choosing any basic pose used in the lesson and rework it using an original character or existing character of their choice.

Next Steps

- Students will use skills developed in this lesson to create art for their ISP

MFM 1P1 – Traditional Lesson Plan

Title: Calculating Area and Perimeter

Learning Goals: Students should be able to identify area and perimeter of a polygon.

Curriculum Expectations

- Solve problems involving the measurement of two dimensional shapes

Materials: pencil, calculator, formula sheet, paper, textbook

Prior Knowledge: Basic understanding of perimeter and area

Minds On – Elicit and Engage

1. Whole class discussion – What is perimeter? What is area? How can we identify both in the classroom?

Action – Explore and Explain

1. Place sample questions on the board and complete demonstration of answering questions. Complete additional solutions with student input.
2. Students will complete specific questions from textbook

Consolidation – Elaborate, Evaluate, Extend

1. Class takes up answers by writing solutions to assigned questions on board
2. Students are given quiz to take home and complete for homework. Teacher will collect and assess at the beginning of next class.

Next Steps

- Students will move on to surface area and volume once mastery of area and perimeter is demonstrated

MFM 1P1 – Differentiated Lesson Plan

Title: Calculating Area and Perimeter

Learning Goals: Students should be able to identify area and perimeter of a polygon.

Curriculum Expectations

- Solve problems involving the measurement of two dimensional shapes

Materials: tiles, pencil, paper, sketch pad, calculator, tangrams

Prior Knowledge: Basic understanding of perimeter and area and how to calculate

Minds On – Elicit and Engage

1. Students will stand around the perimeter of the classroom and discuss as a whole group what types of jobs would require the calculation of perimeter and why
2. Students will touch any part of the area of the room and discuss what types of jobs would require the calculation of area (i.e. carpenter, framer, architect)

Action – Explore and Explain

1. Teacher modelled lesson on how to calculate area and perimeter using formulas
2. Students come to the front of the room and choose an envelope with a question in it that they will solve individually or with a partner.
3. Students spend some time working on solving the questions they chose. Some questions require pencil and paper, the use of tiles, and some require drawing.
4. As the student(s) finishes the first envelope, they return it to the front of the class without the solution and choose another envelope. They should complete 3 in total.

Consolidation – Elaborate, Evaluate, Extend

1. Students will present their solutions in a small group (3-4) and create a quiz question to submit for the upcoming quiz.

Next Steps

- Students will review formulas and complete four practice questions
- Students will complete a quiz on area and perimeter

Appendix C

MISA Project: Lesson Observation

Observer: _____
Instructor: _____
Date: _____
Course: _____



*Check all that apply

Classroom Environment

- Graphic organizers and other learning tools are posted around the classroom
 - Flexibility in classroom design
 - Students appear to feel safe and welcome
 - Posted daily agenda
 - Posters, pictures, newspapers and students work is displayed on the wall
 - Classroom has resources available for students to use based on subject
 - Students speak friendly/civil/appropriate language
- Students are seated in:
- Pairs
 - Groups
 - Singles

Comments:

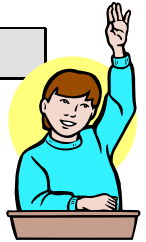
Role of Teacher

- Interacts with students by asking questions
 - Shows knowledge of students
 - Highly organized
 - Moves around the classroom
 - Is always present in classroom
 - Provides activities appropriated to learners' needs
 - Offers one to one instruction
 - Mixes lecture with small group discussions and/or independent participation
- Offers students a choice in choosing:
- Assignment
 - Learning Tool
 - Partner/Group
 - Independent



Comments:

Role of Student



- Work together/help each other
- Knows what to expect
- Make appropriate choices

Level of student participation:

- Highly engaged
- Engaged
- Somewhat engaged
- Limited engagement
- Not engaged

Demonstrates appropriate behaviour:

- Yes
- No
- Somewhat

Follows instruction:

- Yes
- No
- Somewhat

Comments:

Assessment

Pre-assessment

Self-assessment

Whole group
feedback

Formative feedback

Collects & marks
work

Summative quiz

Rubric

Checklist

Other

Comments:

Lesson Resources

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Textbook | <input type="checkbox"/> Video Clips | <input type="checkbox"/> Audio Clip | <input type="checkbox"/> Student Exemplars |
| <input type="checkbox"/> Newspaper | <input type="checkbox"/> Markers/Tools | <input type="checkbox"/> Stickers | <input type="checkbox"/> Using Posted Resources |
| <input type="checkbox"/> Overhead | <input type="checkbox"/> Sticky Notes | <input type="checkbox"/> Handouts | <input type="checkbox"/> Computer Technology |
| <input type="checkbox"/> Lecture | <input type="checkbox"/> Rubric | <input type="checkbox"/> Demonstrations | <input type="checkbox"/> Non-Standard Text |
| <input type="checkbox"/> Manipulatives | <input type="checkbox"/> Organizers | <input type="checkbox"/> Reference Materials | |

Comments:

Lesson Activities

- Lesson agenda
- Teacher centred
- Student centred
- Independent work
- Paired work
- Group work



Lesson appeals to:

- | | | | |
|---|---------------------------------------|---|--|
| <input type="checkbox"/> Verbal/Linguistic | <input type="checkbox"/> Math/Logical | <input type="checkbox"/> Visual/Spatial | <input type="checkbox"/> Intrapersonal |
| <input type="checkbox"/> Kinesthetic/Bodily | <input type="checkbox"/> Music/Rhythm | <input type="checkbox"/> Naturalist | <input type="checkbox"/> Interpersonal |

Minds On (Elicit & Engage)
Action (Explore & Explain)
Consolidation (Elaborate, Evaluate & Extend)