POST-COVID DIFFERENTIATED INSTRUCTION: A CASE STUDY OF PRE-K-12 TEACHERS' PERCEPTIONS IN THE GREATER TORONTO AREA

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ABSTRACT

Three years after the COVID-19 pandemic, school systems worldwide are still on the road to recovery. As students return to in-person learning, there is an increased awareness among educators to investigate the areas of student need where interventional strategies could be applied to bridge the learning loss and help further student academic achievement and emotional well-being. Focused adoption of differentiated instructional practices by teachers may be one of the many ways in which educators could make classroom learning more student-centered. This case study was an exploratory investigation into teachers' desired and actual use of differentiated instruction within the Greater Toronto Area (GTA). The study was conducted to gain a perspective on the areas of particular growth for differentiated instruction in the post-COVID educational environment. The findings from this study may help educational planners, school leaders, and teachers develop relevant professional development programs that could incrementally help to reverse some of the detrimental impacts of the pandemic on student learning.

THE CASE FOR POST-COVID DIFFERENTIATED INSTRUCTION IN K-12 SCHOOLS IN THE GTA

Toronto is the largest city in Canada. It is also one of the most multicultural cities in the world. It draws its diversity from a significant immigrant population. The social fabric of the city and the surrounding Greater Toronto Area (GTA) is a blend of people with over 250 ethnicities (Ryan, 2019). Geographically, the GTA includes the regions of Durham, Peel, Halton, York, and Toronto. It is located in the province of Ontario. The latest census report for 2021 put the population figure for the GTA as 6,712,341(Statistics Canada, 2023). This is 18% of the total population of Canada. Approximately 55% of the residents of the GTA are visible minorities.

Given this demographic complexity, PreK-12 school leaders within the GTA have a challenging mission to serve a very diverse and continuously changing student population. The choices for preK-12 school education in the GTA are distributed across the public and private school sectors. There are four well-established historical public-funded school systems in Ontario. These four government-funded public education systems include the English Public Schools, the English Catholic Schools, the French-language Public Schools, and the French-language Catholic Schools (Peel District School Board, 2023). Students in these schools receive free education up to grade 12, though parents might have to spend on supplies and other amenities for their children.

Private schools within the province function independently of public funding. Students who attend these schools have to pay a tuition fee. All schools within the province of Ontario are governed by the directives of the Ministry of Education, Ontario.

The Ministry of Education, Ontario, provides guidance and organizational scaffolding for schools, principals, and teachers regarding the curriculum structure, which includes four aspects: program planning, curriculum context, curriculum expectations and teacher supports, and assessment and evaluation. Acknowledging the diversity of its student population, the Ontario curriculum is

structured to be relevant for individual students so that they can identify with the curriculum both in its content and context. Teachers are required to plan their units of study to reflect a variety of teaching approaches and strategies to address the curriculum expectations and meet the needs and abilities of students in their classes (Ministry of Education, Ontario, 2023). The Ministry of Education, in its directive on considerations for program planning, explicitly states that Ontario schools must aim to improve academic outcomes for their students through the promotion of inclusive education that fosters learning environments that are positive, equitable, non-discriminatory, and respectful towards students and all members of the school community (Ministry of Education, Ontario, 2023).

For the purposes of student assessment and evaluation, schools must follow the guidelines and procedures articulated in the Ministry policy document *Growing Success-Assessments, Evaluation and Reporting in Ontario Schools* (2010). This document is based on the central premise that the purpose of evaluation is to improve student learning. The objective is to ensure that practices and procedures for assessment, evaluation, and reporting of student learning in Ontario schools are consistently fair, transparent, and equitable for all students. The recommended procedures and strategies enumerated in that policy document mandate a dedicated commitment by teachers and school officials to support students through equitable learning opportunities, careful planning of curriculum expectations, and learning goals that align with students' learning styles, preferences, interests, and experiences. In addition, the document requires teachers to provide ongoing multiple evaluation opportunities for students to demonstrate their full range of learning, offering students feedback that is continuous, descriptive, and timely, and developing within students the ability to self-assess their own learning and individually plan their educational progress trajectory.

This focus on inclusive and equitable education is also consistent with the UN Plan on *Education for Sustainable Development, 2030,* where educational institutions are encouraged to further the goal of quality education (SDG #4) through the adoption of a pedagogy that is transformative, holistic, equitable and inclusive (UNESCO, 2020).

The emphasis in both the Ontario Ministry Policy and the UN Education for Sustainable Development, 2030 official documents is on equitable, inclusive learning that is student-centered as well as differentiated and nuanced to meet the needs of individual students to further their personal academic and emotional success in becoming contributing members of their respective societies. Teachers and their educational leaders have a pivotal role in fulfilling this task. This challenge mandates dedication, commitment, creativity, empathy, and strong professional skills on the part of teachers to make their teaching-learning experiences meaningful and valuable to individual students. The punctuated equilibrium brought on by the COVID-19 pandemic in 2020 made an already difficult task even more demanding for teachers and school leaders.

The pandemic forced schools to close, and most education throughout the world had to move to virtual online experiences. This widened the gaps between equity and differentiated learning for students in many school systems. Students, their families, and school personnel found themselves navigating unchartered territory to improve learning experiences. Also, government directives and policies on virtual learning in Ontario were still evolving throughout the crisis in response to the environmental requirements and advisories from the Ministry of Public Health. In most situations, parents had to take on the responsibility of their children's learning. These online educational experiences brought to the fore existing deficits in student skills and motivation regarding their inability to adapt to this new form of learning (Bennett, 2021; Butcher & Burke, 2021). Teachers found themselves in the deep end of the pool, experimenting with different technological learning packages that were hurriedly put together to meet the learning needs of students in the midst of the global pandemic lockdown.

Though the learning loss was clear and present during this unique historical period, Ministry instructions on 'guaranteed student grades' saw an unexplained rise in student grades even though teachers complained that curriculum expectations were not adequately met (Gallagher-Mackay & Brown, 2021). The catastrophe and educational chaos associated with the pandemic also brought with it mental health concerns among children; the implications of which have not yet been completely mapped or understood (Bennett, 2022; Rose, 2021; Science et al., 2021). Three years later, education systems in Canada and globally are still on the road to recovery. The present research was undertaken in the context of this situation.

This research is a case study of the self-reported perceptions of PreK-12 teachers within the GTA regarding their desired and actual practices of differentiated instruction in their 2023 teaching-learning contexts. The findings of this study also further a comprehensive understanding of differentiated instruction as currently practiced by PreK-12 teachers within the GTA. The findings of this research may help to unravel areas of teaching strength and areas for specific growth so that teachers can be supported in their instructional and curriculum improvement efforts through dedicated professional development and astute planning.

LITERATURE REVIEW

The Differentiated Instruction Paradigm

Tomlinson (2001) defined differentiation thus: "In a differentiated classroom, the teacher proactively plans and carries out varied approaches to content, process, and product in anticipation of and response to student difference in readiness, interest and learning needs (p.7)." According to Tomlinson, differentiation does not mean individualized instruction, nor is it a chaotic response to perceived student needs; rather, it is disciplined, purposeful, and orderly. It is student-centered and organic. The teacher in a differentiated classroom knows how to adjust the metaphorical instructional sails they employ to direct the learning approaches for greater effectiveness in keeping with the students' learning needs, styles, and experiences.

Differentiated instruction is, therefore, rooted in constructivism (Eller et al., 2019; Hersi & Bal, 2021; Sprenger,2011; Tileston,2011). Polka et al. (2016) posited that the contemporary instruction paradigm, as understood and practiced by educators, vacillates between two diametrically opposite magnetic poles: one pole representing the teacher-centered approach at one end of the continuum and the other pole representing the learner-centered approach at the opposite end of the continuum. In addition, there are nine primary teaching-learning categories of professional decision-making behaviors that have been enumerated and researched by instructional specialists during the past 60 years. Those nine key instructional behavioral decision-making categories were initially researched by Heathers (1967) and subsequently validated as key instructional categories in several research studies conducted or promoted by instructional researchers: Danielson, 2002; Darling-Hammond, 1997; Eggen & Kauchak, 2001; Foote, Vermette & Battaglia, 2001; Marzano, Pickering & Pollock, 2001; Ornstein & Levine, 2008; Slavin, 2006; Sternberg & Williams, 2002; Tomlinson, 2009; Tomlinson, 2014; Tomlinson, Brimijoin & Narvaez 2008; Tomlinson & Imbeau, 2011.

Accordingly, the nine key teaching-learning behaviors that are within the professional decision-making purview of teachers are 1) teacher objectives; 2) teacher planning and preparation; 3) teacher communication and messages; 4) teacher behaviors; 5) student objectives; 6) student planning and preparation; 7) classroom expectations of students; 8) student communication and messages; and 9) student evaluations. Figure 1, developed by Polka (2002), presents a visual of the teaching-learning polarity diagram with the nine associated teaching-learning decision-making

behaviors identified and their respective polarized instructional actions articulated for teacher professional reflection and analysis.

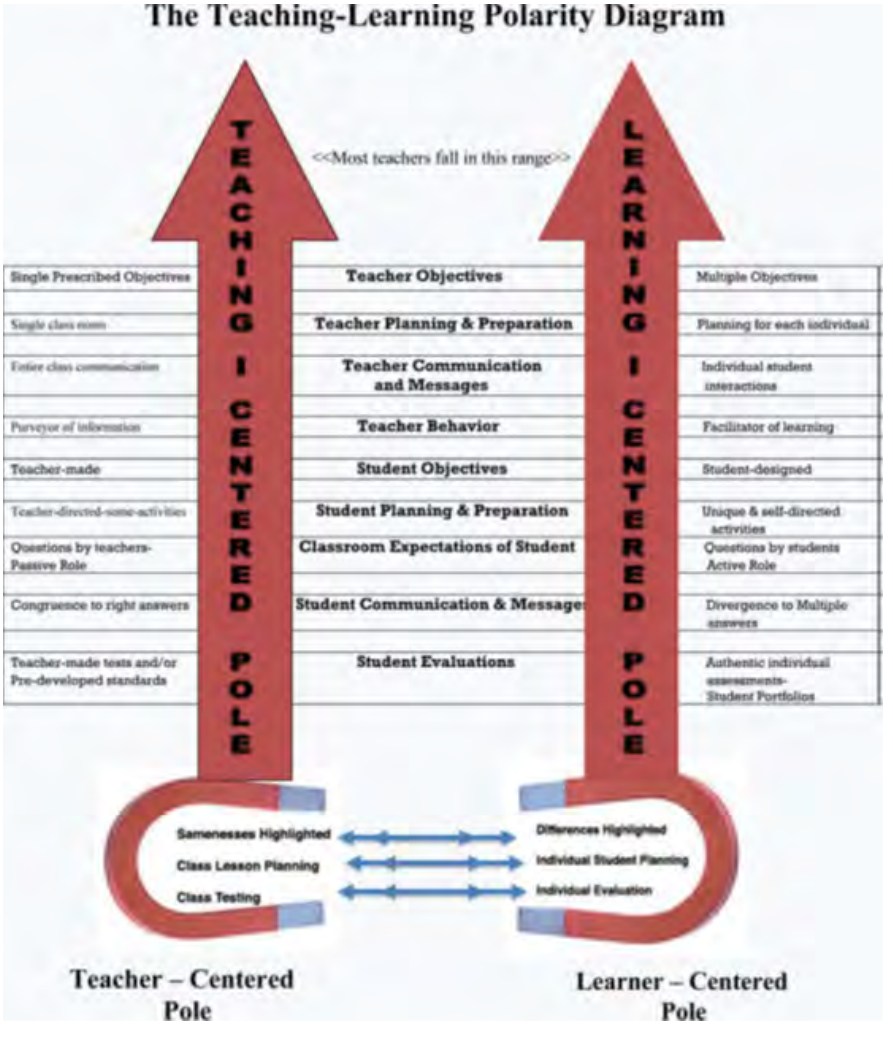
The Benefits of Differentiated Instruction

Differentiated instructional practices support students according to their competence and their learning needs (Nusser & Gehrer, 2020; Valiandes, 2015; Westwood, 2018). Employing such constructivist instructional practices builds a learning environment that is both equitable and inclusive. In the particular context of PreK-12 education within the GTA, there are many challenges for teachers and students given the types of schools, viz. public and private, the classroom sizes, student diversity in terms of ability, learner needs, readiness and motivation, family support, social status, and ethnicity. However, employing student-centered teaching-learning approaches, strategies, and techniques enhances student motivation and reduces or at least identifies some of the barriers to learning experienced by students, which, subsequently, maybe more specifically and more appropriately addressed (Ainscow, 2005; Wong et al., 2023).

In addition, differentiated instruction builds on teacher efficacy and promotes a value-focused professional mindset that has the potential to transition education from a 'pedagogy of poverty' to a 'pedagogy of plenty' (Tomlinson, 2023). The emphasis on developing a culture of care within the classroom coupled with a tenacity for excellence and equity promulgates teaching-learning environments that maximize student thriving and growth opportunities and contribute to more appropriate teacher professional decision-making and instructional problem-solving.

In the aftermath of the pandemic, a renewed dedicated focus on integrating differentiated instruction practices within school classrooms may provide the much-needed impetus for bridging the learning gaps that impacted PreK-12 education in the GTA during and after COVID-19.

Figure 1: *The Teaching-learning Polarity Diagram (Polka, 2002)*



RESEARCH QUESTIONS

This study aimed to examine the discrepancy that might exist between the current use of differentiated instructional approaches, strategies, and techniques by practicing teachers and the degree to which teachers desire to use them in a post-COVID world. The present research is a case study with data obtained from practicing teaching professionals within the Greater Toronto Area (GTA) in the fall of 2023. The research questions that guided the academic exploration for this study were the following:

1. Along the continuum from the smallest to the greatest differences, how do desired and actual differentiated instruction practices align based on self-reported responses of teaching professionals within the GTA?
2. Is there a significant difference between GTA teaching professionals' self-reported desired and actual differentiated instruction classroom practices?

METHOD

Research Design

A cross-sectional survey design with a quantitative approach was employed to explore the teachers' self-reported perceptions of their desired and actual use of differentiated instruction approaches, strategies, and techniques in their respective teaching-learning practices. Data were collected electronically through the use of Qualtrics software. The survey was uploaded onto the Qualtrics site and disseminated via an anonymous link.

Sampling Procedures

The intended population for the survey consisted of teaching professionals in the GTA. The survey was distributed through the snowball method, where the researchers reached out to their friends and acquaintances who were practicing teachers within the GTA, and they, in turn, passed on the survey link to other practicing teachers within their professional networks. The survey was completely anonymous; there was no information solicited that could distinctively identify the participants. Participation in the survey was voluntary. The data collection was done through a voluntary convenience sampling process. This research project and survey tool were reviewed and approved by the Institutional Review Board of Niagara University (Protocol#2023-071)

The survey was kept open for a period of six weeks on Qualtrics. The initial responses gathered for the survey were 71. Of these 71 responses, 27 were found to be partially completed; these were excluded from the data analysis, leaving 44 usable surveys for the purpose of this study. The survey response rate for usable surveys was 61.97%.

Participants

The practicing teaching professionals who completed the survey questionnaire were employed in various Public, Private, and Catholic PreK-12 schools within the GTA. Since the survey instrument was only available in English, teachers from the French schools in the GTA were not included in the survey. Table 1 presents a basic demographic overview of the participants.

Table 1
Descriptive statistics for demographic variables

Variable	Coding	Distribution
Teaching role	Teacher	37 (84.09%)
	Paraprofessional	07 (15.91%)
Teaching experience (in years)	1 to 4	09 (20.45%)
	5 to 10	07 (15.91%)
	11 to 15	07 (15.91%)
	16 to 21	06 (13.64 %)
	More than 21	15 (34.09%)
Present Teaching Level	PreK to Grade 3	13 (29.54%)
	Grades 4 to 6	04 (9.09%)
	Grades 7 to 8	06 (13.64%)
	Grades 9 to 12	20 (45.45%)
Type of school	Public	20 (45.45%)
	Private	03 (6.82%)
	Catholic	21 (47.73%)
Location of school	Urban	20 (45.45%)
	Suburban	20 (45.45%)
	Rural	04 (9.09%)

Instrument

This research study used an existing discrepancy survey instrument, Desired and Current Use of Constructivist Activities and Techniques, developed by Polka (2010), who approved of its use for this case study. This survey tool has been previously used in multiple case studies in different states in the U.S. viz., New York and Georgia (Polka et al., 2016), Indiana (Peace et al., 2017), Idaho (Eller et al., 2019) and Maryland (Hersi & Bal, 2021). The survey has three sections: a demographic component, twenty-five statements on differentiated instruction use that consists of both "desired" and "actual" frequencies, and two open-response questions.

Demographic Questions

The demographic component included data on a participant's teaching role, total years of teaching experience, present teaching level, subjects taught, type of school, location of the school, student population within the school building, and the current average number of classes being taught by each teacher participant.

Survey Statements on Differentiated Instruction

The instrument contained 25 statements with both the "desired" and "actual" frequency of use pertaining to differentiated instruction practices. Participants had to rate each statement twice: once for their "desired" differentiated instruction practice and second for their "actual" differentiated instruction practice. Thus, there were 50 individual responses to the survey statements

per participant. Each statement was rated on a five-point Likert scale ranging from *5-Always to 1-Never.*

Open Response Questions

The two open-response questions included in the survey gave participants an opportunity to offer suggestions on what could be done to increase the use of differentiated instruction for student-centered learning within their classrooms. However, this research article is only focused on interpreting the quantitative results, including demographic information and the Likert-scale survey results based on participants' self-reported perceptions about their desired and actual differentiated instruction practices. The qualitative analysis of the open-ended questions is not included in this article.

Reliability and Validity of the Survey

Though the reliability of the survey instrument has been tested through the calculation of the Cronbach alpha statistic for reliability in earlier studies (Polka et al., 2016), the researchers calculated the statistic again with the data for this study. The 25 statements for desired practice showed a reliability statistic of α=0.91, and the 25 statements for actual practice had a reliability statistic of α =0.89. This indicates an excellent level of internal consistency within the survey statements (Cohen et al.,2018; Taber, 2017).

The construct validity of the survey statements was established through a meta-analysis of the nine instructional decision-making behavior categories indicative of differentiated instruction drawn from contemporary research studies and scholarly work (Polka et al., 2016).

Data Analysis

The data for this study were analyzed quantitatively. For Research Question 1, the researchers calculated the mean differences for the scores between the desired and actual differentiated instruction practices on each statement as reported by the teachers who responded to the survey. The statements were then grouped into four quartiles ranging from statements with the least difference between desired and actual practice of differentiated instruction and those with the greatest difference.

For Research Question 2, the data were analyzed using the paired t-Test. In the first instance the t-statistics was used to compare the overall mean scores between desired and actual practices of differentiated instruction for the whole sample and then in the second instance the t-statistics was used to compare the teachers' responses for desired and actual practice for each statement. The level of significance was set at 0.05.

RESULTS

The findings of the study to each research question are presented in this section.

RQ 1: Along the continuum from the smallest to the greatest differences, how do desired and actual differentiated instruction practices align based on self-reported responses of teaching professionals within the GTA?

The mean differences between the desired and actual differentiated instruction practices for each of the 25 statements were sorted from the least to the greatest differences and divided into quartiles to answer this research question. Quartile 1 included seven survey statements. These have been listed in Table 2. The mean differences for these statements ranged from 0.159 to 0.455. This was the cluster with the least differences between desired and actual differentiated instruction practices, indicative of the greatest degree of congruency between the desired and actual practices of the teachers who completed the survey (See Table 2).

Table 2

Quartile 1: Survey Statements with the Greatest Degree of Congruency

Survey Statement Number	Survey Statement	Mean Difference between "Desired" and " Actual" practice
14	The personal problems or learning exceptionalities of students are accepted with consideration, understanding, and empathy.	0.159
20	The teacher communicates individually with students or in small groups, as opposed to "total" class discussion.	0.364
11	The students and teacher respect the diverse opinions of others and come to agreements in a collegial fashion.	0.409
15	Information is presented in a manner that promotes authentic inquiry and students are encouraged to consider questions for which a "right" answer may not exist.	0.432
24	Students are offered instructional assistance and guidance individually rather than in a large group setting.	0.432
02	Classroom objectives focus on cultivating and facilitating social skills, cooperation, idea exchange, and shared problem-solving, as opposed to memorizing.	0.455
25	The teacher varies the type and degree of difficulty of questions to assure that each student understands.	0.455

Quartile 2 included eight survey statements. These have been listed in Table 3. The mean differences for these statements ranged from 0.477 to 0.545. This was the cluster with a moderate degree of differences between desired and actual differentiated instruction practices, indicative of a high degree of congruency between the desired and actual practices of the teachers who completed the survey (See Table 3).

Quartile 3 included six survey statements. These have been listed in Table 4. The mean differences for these statements ranged from 0.568 to 0.614. This was the cluster with a high degree of mean differences between desired and actual differentiated instruction practices, indicative of a moderate degree of congruency between the desired and actual practices of the teachers who completed the survey (See Table 4).

Table 3

Quartile 2: Survey Statements with a High Degree of Congruency

Survey Statement Number	Survey Statement	Mean Difference between "Desired" and " Actual" practice
16	Formal evaluation and marking are based on authentic assessment principles.	0.477
19	Pretests and other similar diagnostic instruments are used to determine the parts of a unit that individual students need	0.477
12	The time that students have to complete or master a given concept or skill varies based on individual differences.	0.5
17	Diagnostic elements, such as a student's exceptionality, learning style, reading level, and math ability, are used to plan individual student activities.	0.523
01	The teacher practices the use of open-ended questioning rather than focusing on the "right" answer syndrome.	0.545
03	Cooperative learning experiences are used so that students often receive instructional assistance from one another.	0.545
10	Knowledge of each student, including life outside of school, is used to plan instructional activities.	0.545
21	Different instructional techniques are used with different students	0.545

Table 4

Quartile 3: Survey Statements with a Moderate Degree of Congruency

Survey Statement Number	Survey Statement	Mean Difference between "Desired" and " Actual" practice
09	Student evaluations are based on individual learning growth instead of a fixed standard all are expected to learn.	0.568
23	A variety of diverse learning assignments are designed to meet individual student interests and needs	0.568
13	Divergent ideas are encouraged by the teacher in evaluating student work, as opposed to expecting convergence in exams and other evaluations.	0.591
06	Students are evaluated individually and move on to another task once they have mastered the objectives on a unit.	0.591
04	Sufficient time is allocated for students to think, play with ideas, manipulate objects, and experiment in learning without pressure to get "the right answer" at the "right time."	0.614
22	Students play an active role of contributing to the direction or content of the lessons in their learning experiences.	0.614

Quartile 4 included four survey statements. These have been listed in Table 5. The mean differences for these statements ranged from 0.659 to 0.818. This was the cluster with the highest mean differences between desired and actual differentiated instruction practices, indicative of the least degree of congruency between the desired and actual practices of the teachers who completed the survey (See Table 5).

Table 5

Quartile 4: Survey Statements with the Least Degree of Congruency

Survey Statement Number	Survey Statement	Mean Difference between "Desired" and " Actual" practice
08	The teacher's role is that of a facilitator of learning or resource "guide on the side."	0.659
05	Different students, when working on a unit of instruction, use different materials, resources, and equipment.	0.659
07	Students conduct a major part of their learning on a self-directed basis.	0.795
18	Lesson planning is done for individual students rather than for the entire class	0.818

RQ 2: Is there a significant difference between GTA teaching professionals' self-reported desired and actual differentiated instruction classroom practices?

To answer this research question, the researchers used two approaches: the first was to compare the overall mean scores of the teacher responses on their desired and actual practices of differentiated instruction, and the second was to compare the teacher responses for each of the survey statements. A paired t-test was used in each case, with the significance level set at 0.05. Before conducting the paired t-test, the researchers checked that the assumptions under which the test could be used were satisfied for the sample: The sample for this study was selected from the population through snowball sampling; the data were parametric and normally distributed. The paired t-tests were done using the SPSS statistical software (Version 29.0).

Table 6 shows the results for the overall survey responses of the GTA teachers on their desired and actual differentiated instruction practices. At the 0.05 level, the paired t-test for the overall mean scores of the desired and actual practices was statistically significant with $p<0.001$. As revealed by the computation of Cohen's d, the effect size was 0.4826, which pointed to a moderate effect size. The correlation coefficient for the desired and actual practices was 0.436, which was indicative of a positive moderate correlation. The results indicated a significant difference between the overall self-reported mean scores of the desired and actual differentiated instruction practices of the GTA teachers (see Table 6).

Table 6

Paired t-test Results for the Overall Mean Scores of the Desired and Actual Differentiated Instruction Practices

						95% CI for the Difference			
Response Focus	*Mean*	*SD*	*SEM*	*P*	*Correlation*	*LL*	*UL*	*d*	*t*
Desired-Actual	0.53455	0.48264	0.07276	<0.001	0.436	0.3878	0.6813	0.4826	7.347

The researchers also conducted paired sample t-tests for each statement to compare scores for the desired and actual practices as reported by the sample of GTA teachers. Effect size and correlation coefficient were also calculated for each statement. Table 7 presents a consolidated picture of the results for each of the 25 survey statements.

Table 7

Paired t-test results for Each Statement on the Desired and Actual Differentiated Instruction Practices

						95% CI for the Difference			
Statement #	*Mean*	*SD*	*SEM*	*p*	*Correlation*	*LL*	*UL*	*d*	*t*
1	.54545	.76111	.11474	<.001	0.456	.31406	.77685	.7611	4.754
2	.45455	.62708	.09454	<.001	0.569	.26389	.64520	.6271	4.808
3	.54545	.58883	.08877	<.001	0.676	.36643	.72448	.58883	6.145
4	.61364	.89484	.13490	<.001	0.405	.34158	.88569	.89484	4.549
5	.65909	.91355	.13772	<.001	0.526	.38135	.93683	.91355	4.786
6	.59091	.92304	.13915	<.001	0.602	.31028	.87154	.92304	4.246
7	.79545	.90424	.13632	<.001	0.467	.52054	1.07037	.90424	5.835
8	.65909	.77589	.11697	<.001	0.484	.42320	.89498	.77589	5.635
9	.56818	1.02066	.15387	<.001	0.573	.25787	.87849	1.02066	3.693
10	.54545	.84783	.12782	<.001	0.624	.28769	.80322	.84783	4.268
11	.40909	.62201	.09377	<.001	0.638	.21998	.59820	.62201	4.363
12	.50000	.69884	.10535	<.001	0.527	.28753	.71247	.69884	4.746
13	.59091	.72555	.10938	<.001	0.585	.37032	.81150	.72555	5.402
14	.15909	.56828	.08567	.070	0.472	-.0136	.33186	.56828	1.857
15	.43182	.58658	.08843	<.001	0.750	.25348	.61016	.58658	4.883
16	.47727	.66433	.10015	<.001	0.540	.27530	.67925	.66433	4.766
17	.52273	.90190	.13597	<.001	0.456	.24852	.79693	.90190	3.845
18	.81818	1.01781	.15344	<.001	0.623	.50874	1.12762	1.01781	5.332
19	.47727	.66433	.10015	<.001	0.673	.27530	.67925	.66433	4.766
20	.36364	.53226	.08024	<.001	0.795	.20182	.52546	.53226	4.532
21	.54545	.79107	.11926	<.001	0.543	.30495	.78596	.79107	4.574
22	.61364	.81315	.12259	<.001	0.610	.36642	.86086	.81315	5.006
23	.56818	.75937	.11448	<.001	0.416	.33731	.79905	.75937	4.963
24	.43182	.81833	.12337	.001	0.475	.18302	.68061	.81833	3.500
25	.45455	.76111	.11474	<.001	0.573	.22315	.68594	.76111	3.961

The analysis of the data showed that for all statements except statement 14, the paired t-test results were significant at an alpha level of 0.05. The fact that the difference between the desired and actual differentiated instruction practices for statement 14 was not statistically significant means that there is an appreciable level of congruency between teachers' desired and actual practice for the classroom behavior described by statement 14. All 25 statements on the survey showed a moderate to high positive correlation between the statements for desired and actual differentiated instruction practices. The effect size was greater than 0.9 for statements 4, 5, 6, 7, 9, 17 (See Table 7).

DISCUSSION AND IMPLICATIONS

This study was an exploration of two research questions:

1. Along the continuum from the smallest to the greatest differences, how do differentiated instruction practices align based on self-reported responses of teaching professionals within the GTA on their desired and actual classroom practices?
2. Is there a significant difference between GTA teaching professionals' self-reported desired and actual differentiated instruction classroom practices?

The mean differences between desired and actual practices for the sample data were ranked from the least to the greatest. The range of the differences was from 0.159 to 0.818. The corresponding survey statements were then grouped into four quartiles from the least to the greatest differences, which were indicative of statements with the highest congruency to those with the lowest congruency between the teachers' desired and actual practices for differentiated instruction. Quartile 1 included seven statements, these could be viewed as areas of strength for teachers within the GTA in terms of differentiated instructional practices. These statements indicated a classroom climate where there was empathy, respect, appreciation for diverse opinions, authentic inquiry, and classroom instruction that was meted out to students in small groups rather than the teaching approach with a whole class focus- a one-size-fits-all strategy. The findings are evidence that teachers in the GTA sample value a culture of care for their students. Student well-being and happiness are important aspects of education; love and connection impact education in a positive way (Noddings, 2003; Truijilo, 2019)

Quartile 2 included eight statements; these were statements 16, 19, 12, 17, 13, 10, 21. These reflected differentiated instruction practices that centered on student assessment and evaluation. These statements had mean differences ranging from 0.477 to 0.545. They pointed to teacher efforts to structure assessment outcomes and evaluation practices that were grounded in the principles of authenticity, equity, inclusiveness, and the knowledge of individual differences. These are in keeping with the Ministry of Education, Ontario directives in *Growing Success* (2010), and the UN ESD 2030 vision for quality education that is inclusive and equitable (UNESCO, 2020). A high congruency between desired and actual practices for teachers in this area is a positive for PreK-12 education in the GTA.

Quartile 3 included six statements; these were statements 9, 23, 13, 6, 4, 22. The mean differences for this cluster ranged from 0.568 to 0.614. This group of statements showed moderate congruency between desired and actual practices. These statements reflected customized evaluations for individual students, diversity in learning assignments to meet students' needs and interests, flexibility with time for students to experiment as they learn, and student-directed learning. This is an area where more progress could be made regarding adapting instruction and evaluation practices. It is an area that educational planners might want to reflect upon to create professional development sessions as well as organizational modifications in terms of timetables and schedules to help teachers find more support in these practices. It might look like there is a close connection or even an overlap between the expectations of teacher behavior for the statements in Quartile 2 and Quartile 3. The difference is that the statements in Quartile 3 go beyond structured accommodations to support students to an expectation from teachers for diversity in the range and complexity of assessment practices and instruction so individual students feel more supported in their learning pathways. This is always a work-in-progress given the changing socio-cultural and economic dynamics. It is also something that schools could reflect on as a community to develop solutions that would be specific to the needs of their particular student population.

The statements in Quartile 4 reflected the highest discrepancy between desired and actual practices. There were four statements in this quartile. They were statements 8, 5, 7, 18. This is an area of growth for teachers in the GTA. The focus of these statements is on the teacher's role as a facilitator of learning, with students doing a major part of their learning on a self-directed basis, planning for individual students, and the availability of a range of different learning resources for students. Provisioning for a multiplicity of diverse learning resources might be beyond the scope of individual teachers. Resource allocation is the responsibility of the government and school boards since it is dependent on funding, which teachers have little or no influence over. Further research might be needed at the policy level to see how these differentiated resources could be made available to teachers in schools (Hersi & Bal, 2021).

The second research question examined whether there was a significant difference in the desired and actual differentiated instruction practices reported by teachers in the GTA sample. The researchers investigated this using a paired t-test for all the overall mean differences of the sample for all the survey statements and then for each pair of desired and actual statements on the survey.

The overall mean differences were found to be statistically significant. The mean differences were also found to be statistically significant for 24 of the 25 survey statements. The only statement that was not statistically significant for the discrepancy between desired and actual practice was statement 14. This statement, when compared to the results of earlier studies in Georgia, New York, Indiana, and Idaho, was found to be statistically significant, but it had the smallest mean difference between desired and actual practices.

This statement is about a teacher’s empathy, consideration, and understanding of students' personal problems. It reinforces that teaching is universally a profession that calls for professionals with resilient socio-emotional skills who can transform learning environments into safe, welcoming spaces where students feel valued, cared for, and respected. The fact that the GTA teachers have achieved a very close congruency in their desired and actual practice of this behavior is a beacon of hope for PreK-12 education and students within the GTA.

LIMITATIONS OF THIS STUDY

This study is a reflection of the responses of the teachers who voluntarily participated in answering the survey. Since the data collection method used was snowball sampling, the researchers cannot be sure of how wide the geographical network of teachers who participated in the survey is. This research study has been built on the responses of 44 teachers within the GTA who completed the survey. Given the vast number of schools (which are more than a thousand) in the GTA, the responses of a small sample of 44 teachers might have limited scope for generalizability. This is precisely why this study has been referred to as a case study only. Also, since the survey was only available in English, teachers of French-speaking schools were not included in the survey. Also, for the purpose of this study, only the quantitative responses of the teachers were analyzed.

CONCLUSION

The results of this case study have revealed that the GTA teachers who responded to the differentiated instruction discrepancy survey, *Desired and Current Use of Constructivist Activities and Techniques*, Polka (2010), are working toward greater integration of constructivist classroom practices as they continue their efforts to strengthen education content, process, and products for positive outcomes and life-long learning for their students in a post-COVID world. The significant differences between desired and actual practices of differentiation, as reported by the teachers who participated in this recent case study, provide valuable instructional practice information to

educational planners in terms of developing relevant professional development programs that meet teachers at their point of need to become more student-centered and, consequently, to make more appropriate and effective instructional decisions for their students.

Student agency and planning of learning experiences for a student-directed focus on their own learning and progress has emerged as one of the areas of growth for further educational thought and planning. Schools may work on this area through teacher reflection in professional learning communities with their principals and administrators to design instructional interventional strategies that could be contextually feasible, meaningful, and beneficial for their own student community. Extending this research to include more teacher participants across different school boards, including the French language schools, will help build a more comprehensive picture of current differentiated instruction practices across the GTA.

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