Eller, A., Polka, W. S. & Young, W. (2019). Planning for Increased Differentiation via Focused Teacher Reflections about Desired Constructivist Practices and Current Realities. *Educational Research: Theory and Practice, 30*(1), 7-18.

Planning for Increased Differentiation via Focused Teacher Reflections about Desired Constructivist Practices and Current Realities

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Abstract: *This article is designed to facilitate guided teacher reflections about teaching-learning practices so that more educators recognize and appreciate that they already employ many constructivist strategies, techniques, and activities on a frequent basis. And, that the most appropriate consultants to help them become even more constructivist teachers may be their colleagues who work at their school site.*

Key Words: Student-centered Approaches, Constructivism, Differentiation, Discrepancy Study

INTRODUCTION

There are numerous student-centered educators practicing constructivist approaches and employing differentiation strategies, techniques, and activities in various contemporary teaching-learning settings throughout the United States. However, many of them have not professionally reflected in a focused manner about those practices as being consistent with differentiation and constructivism nor have they reflected about their frequency of use of those activities and techniques. Furthermore, external factors exist that often restrict or significantly impede the application of the best teaching-learning practices for their students. There are national and state standards and accountability issues as well as school district assessments and evaluation expectations that deter teachers from being as student-centered in their teaching-learning settings as they would like. These issues and others have a tendency to pull teachers to a teacher-centered focus in lesson preparation, unit assessments, and student achievement evaluations.

The purpose of this article is to provide a pragmatic tool that enhances teacher reflections about their current state as well as their desired level of various instructional practices with student-centered differentiation instruction. This article provides teacher and instructional supervisors with the specific tools and procedures to help themselves and others become even more constructivist in their teaching and differentiate more of their learning activities for students.

OBJECTIVES

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The key objective of this article is to provide valuable information about the discrepancy survey titled: *Desired and Current Use of Constructivist Activities and Techniques.* While this survey instrument has been used in studies conducted in: Georgia (2007 and 2011); New York (2009, 2011 and 2016); Texas and Virginia (2010); Arkansas, Indiana, Mississippi, Missouri, Ohio, and Vermont (2016); and; South Dakota and Idaho (2017) (Polka et al, 2018), our discussion here focuses on the most recent study, Idaho. ,

CONSTRUCTIVIST CONCEPTUAL BACKGROUND

Teachers have long been encouraged to consider using appropriate models of instruction to meet the different needs of students (Johnson, Collins, Duperes & Johansen, 1991; Tomlinson, 2009a). Today educators are attracted to two diametrically opposed magnetic-like poles related to the teaching-learning process: one pole is the learner-centered approach and the opposite is the teacher-centered approach. See Figure 1, originally developed by the first author (2007). Most teaching practice occurs somewhere between both of these poles and/or vacillates between those magnet poles based on the nine behaviors initially articulated by Heathers (1967). The significance of these nine teaching-learning have been comprehensively reinforced in the literature: (Armstrong, Henson & Savage, 2005; Brooks & Brooks, 1993; 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, 2009a; Tomlinson, 2014; Tomlinson, Brimijoin & Narvaez 2008; Tomlinson & Imbeau, 2011).

The researchers here contend that using Figure 1 to encourage practicing educators to initially reflect about their respective desired teaching-learning behaviors compared to their actual teaching-learning behaviors is a key starting point to help them realize their current use of constructivist approaches and their desired level of use. An analysis of the discrepancy between desired practices and actual practices of various constructivist activities, strategies, and techniques provides an opportunity for professional to reflect about constructivist practices. Subsequently, they can individually and collectively assess which student-centered approaches are most congruent with their current practices as well as those practices that are most non-congruent.

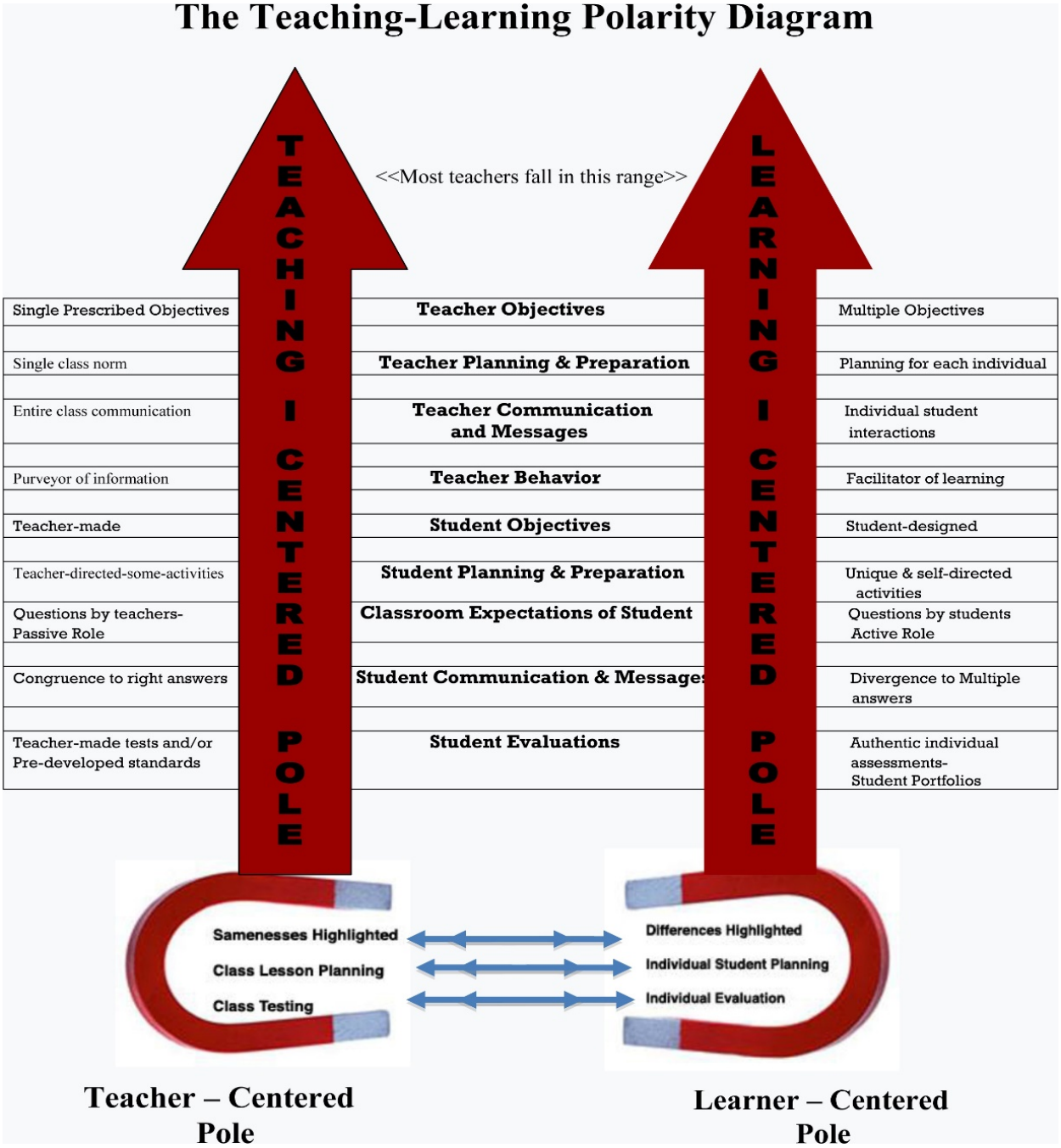
SURVEY INSTRUMENT

In 2007 a team of researchers at Georgia Southern University developed a quantitative survey instrument to determine the "desired" frequency of use of various instructional activities, techniques, and strategies. These activities, techniques, and strategies are associated with those constructivists approaches identified on the Learner-Centered Pole in Figure 1, as well as the "actual" use of those approaches in Georgia classrooms similar to other discrepancy survey models (Denig, 1994; Polka, 2007). The resultant survey instrument: *Desired and Current Use of Constructivist Activities and Techniques* consists of the following three parts:

- Part I. *Demographic data* – provides information about participants' educational experiences.

- Part II. *Frequency of Instructional Use and Desired State* – collects information about participants' desired frequency of use and their respective actual frequency of use of the various learner-centered approaches.
- Part III. *Personal Responses* – provides participants with the opportunity to respond to the following questions: 1) What do you feel needs to be done to make individualized instruction and customized learning or differentiation practices more common in today's classrooms? and 2) Please provide any additional comments you may wish regarding individualizing instruction and customizing learning in contemporary contexts.

Figure 1.



The construct validity of the Part II survey instrument statements is reflected in Table 1. Each of the 25 statements includes both a "desired" and an "actual" component. The statements are derived from the research and literature associated with constructivism, differentiation, individualized instruction and customized learning of the past 75 years. Survey participants were asked to respond to a total of 50 statements (25 "desired" teaching-learning behaviors and 25 "actual" teaching-learning experiences). Figure 1.

The researchers applied the Cronbach Alpha reliability test (Coladarci, Cobb, Minium, & Clarke, 2008) to survey instrument data collected from over 500 practicing teachers. The results were as follows: Questions 1-25 (*Desired*) R=.942; Questions 1-25 (*Actual)* R=.922. The results indicate a very high reliability for both the desired and the actual frequency of use statements associated with instructional activities, techniques, and strategies related to student-centered instruction.

Table 1

Construct Validity of Survey Statements

Instructional Behaviors	Related Survey Statements/References
Teacher Objectives	2. *Classroom objectives focus on cultivating and facilitating social skills, cooperation, idea exchange, and shared problem-solving, as opposed to memorizing.* Armstrong, D., Henson, K. & Savage, T. (2005); Blasé, J. and Kirby, P. (2000); Marzano, R.; Pickering, D. & Pollock, J. (2001); Picciano, A. G. (2009); Polka, W. (2002); Tomlinson, C. (2001a).
Teacher Planning & Preparation	*5. Different students, when working on a unit of instruction, use different materials, resources and equipment.* *10. Knowledge of each student including life outside of school is used to plan instructional activities.* *12. The time that students have to complete or master a given concept or skill varies based on individual differences.* *17. Diagnostic elements, such as I.Q., reading level and math ability are used to plan individual student activities.* *18. Lesson planning is done for individual students rather than for the entire class.* *21. Different instructional techniques are used with different students.* *23. A variety of diverse learning assignments are designed to meet individual student interests and needs.* *25. The teacher varies the type and degree of difficulty of their questions to assure that each student understands.* Beane, J., Toepfer, C., Alessi, S. (1986); Dufour, R. (2004); Ernest, J. M., Heckaman, K. A., Thompson, S. E., Hull, K. M., & Carter, S. W. (2011); Woolfolk, A. (2001);Youb, K. (2010).
Teacher Communication and Messages	*14. The personal problems or learning handicaps of students are accepted with consideration, understanding and empathy.* *20. The teacher communicates individually with students or in small groups, as opposed to "total" class discussions.*

	Eggen, P. & Kauchak, D. (2001); Foote, C., Vermette, P., & Battaglia, C. (2001); Harnack, R. (1968); Mazer, J. P., McKenna-Buchanan, T. P., Quinlan, M. M., & Titsworth, S. (2014); Voltz, D., Sims, M., & Nelson, B. (2010); Zarraonandia, T., Aedo, I., Diaz, P., & Montero, A. (2013).
Teacher Behaviors	*8. The teacher's role is that of facilitator of learning or resource partner, "guide on the side".* *11. The students and teacher respect the diverse opinions of others and come to agreement in a collegial fashion.* Darling-Hammond, L. (1997); Foote, C., Vermette, P., & Battaglia, C. (2001); Gillies, R. M. (2011); Marzano, R. (2003); Tomlinson, C. (2004); Werderich, D. E. (2010).
Student Objectives	*19. Pretests and other similar diagnostic instruments are used to determine the parts of a unit that individual students need.* Marzano, R. (2003); Polka, W. (2002); Tomlinson, C. (2014); Slavin, R. (2006); Newmann, J. W. (2013); Snowman, J. & Biehler, R. (2003).
Student Planning & Preparation	*22. Students play an active role of contributing to the direction or content of the lesson in their learning experiences.* *24. Students are offered instructional assistance and guidance individually rather than in a large group.* Dewey, J, (1996); Hodges, T. S., & Mc Tigue, E. M. (2014); Marzano, R. (2003). Polka, W. (2002); Tomlinson, C. (2009b); Slavin, R. (2006).
Classroom Expectations of Students	*3. Cooperative learning experiences are used so that students often receive instructional assistance from one another.* *7. Students conduct a major part of their learning on a self-directed basis.* Danielson, C. (1996); Eggen, P. & Kauchak, D. (2001); Celikten, O., Ipekcioglu, S., Ertepinar, H., & Geban, O. (2012); Tsay, M., & Brady, M. (2010); Tomlinson, C. (2009b); Voltz, D., Sims, M., & Nelson, B. (2010).
Student Communication and Messages	*1. The teacher practices the use of open-ended questioning rather than focusing on the "right" answer syndrome.* *4. 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."* *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.* Harnack, R. (1968); Lohfink, G. (2013); Marzano, R. (2003); Polka, W. (2002). Tomlinson, C., Brimijoin, K., & Narvaez, L. (2008); Snowman, J. & Biehler, R. (2003).
Student Evaluation	*6. Students are evaluated individually and move on to another task once they have mastered the objectives of a unit.* *9. Student evaluations are based on the individual learning growth instead of fixed standards all are expected to learn.* *13. Divergent ideas are encouraged by the teacher in evaluating student work, as opposed to expecting convergence in exams and other evaluations.* *16. Formal evaluations and marking are based on authentic assessment principles.*

	Doll, R. (1972); Koh, K. H., Tan, C., & Ng, P. T. (2012); Ornstein, A. & Levine, D. (2008); Sternberg, R. & Williams, W. (2002); Tomlinson, C. (2001b); Dennis, L. R., Rueter, J. A., & Simpson, C. G. (2013).

QUANTITATIVE RESEARCH DESIGN

The illustrate each of the four quartiles associated with the site-based guide as well as those survey statements that appropriately fit into each quartile based on the original sample's identified degree of congruency between desired use and actual use of those instructional practices (See Tables 2-5).

The two survey statements identified in Table 2 represent those constructivist approaches and differentiation strategies, techniques, and activities that have the greatest congruency between desired and actual practices of sample teachers who completed the survey instrument. There is high probability that some, if not most, teachers at any school site already employ, to some degree, these various differentiation strategies, techniques, and techniques in their instructional programs. All teachers in a site-based context should collaboratively reflect about their specific practices in this quadrant and interact with each other and "pull" each other even more toward the "Student-Centered Learning Pole".

Table 2

Difference between desired and actual 0.50 or less

Teaching-Learning Behavior	Survey Number	Survey Statement	Mean: Desired	Mean: Actual	Diff.
Teacher planning and preparation	25	The teacher varies the type and degree of difficulty of their questions to assure that each student understands and can contribute.	4.83	4.33	0.50
Teacher communication and messages	14	The personal problems or learning handicaps of students are accepted with consideration, understanding, and empathy.	4.92	4.50	0.42

The ten survey statements identified in Table 3 represent those constructivist approaches and differentiation strategies, techniques, and activities that have a high degree of congruency between desired and actual practices of sample teachers who completed the survey instrument. There is good probability that many of teachers at any school site already employ these various differentiation strategies. Teachers in this context should collaboratively reflect about specific successful practices associated with the statements of this quadrant and some should serve as mentors to support others in experimenting with various strategies, techniques, and activities associated with this quadrant to "pull" more Learning Community Members toward the "Student-Centered Learning Pole".

Table 3
Difference between desired and actual of 0.75-0.99

Teaching-Learning Behavior	Survey Number	Survey Statement	Mean: Desired	Mean: Actual	Diff.
Classroom expectations of students	3	Cooperative learning experiences are used so that students often receive instructional assistance from one another.	4.25	3.33	0.92
Teacher Objectives	5	Different students, when working on a unit of instruction, use different materials, resources, and equipment.	4.42	3.50	0.92
Teacher communication and messages	20	The teacher typically communicates individually with students or in small groups, as opposed to whole-class discussions.	4.25	3.33	0.92
Teacher behaviors	11	The students and teacher respect the diverse opinions of others and come to agreements in a collegial fashion.	4.82	3.91	0.91
Student communication and messages	15	Information is presented in a matter that promotes authentic inquiry, and students are encouraged to consider questions for which a "right" answer may not exist.	4.18	3.36	0.82
Student communication and messages	1	The teacher practices the use of open-ended questioning rather than focusing on the "right" answer syndrome.	4.33	3.58	0.75
Teacher planning and preparation	17	Diagnostic elements, such as IQ, reading level, and math ability, are used to plan individual student activities.	4.67	4.00	0.67
Teacher behaviors	21	Different instructional techniques are used with different students.	4.58	3.92	0.66
Student planning and preparation	24	Students are offered instructional assistance and guidance individually, rather than in a large group setting.	4.67	4.08	0.59
Student evaluations	16	Formal evaluations and grading/marking are based on authentic assessment principles.	4.45	3.91	0.54

The eight survey statements identified in Table 4 represent those constructivist approaches and differentiation strategies, techniques, and activities that have a moderate degree of congruency between desired and actual practices of sample teachers who completed the survey instrument. There is good probability that some teachers at any school site already employ, to a moderate degree, some of the various differentiation strategies, techniques, and techniques associated with this quadrant in their programs. Teachers in this context who feel comfortable using these practices should collaboratively reflect about the identified practices associated with these statements and a few of them who have the most experience with these practices could be highlighted and

encouraged to serve as models for others to "attract" more Learning Community Members toward the "Student-Centered Learning Pole".

Table 4
Difference between desired and actual of 1.00 to 1.25

Teaching-Learning Behavior	Survey Number	Survey Statement	Mean: Desired	Mean: Actual	Diff.
Teacher planning and preparation	18	Lesson planning is done for individual students rather than for the entire class.	4.17	2.92	1.25
Student evaluations	13	Divergent ideas are encouraged by the teacher in evaluating student work, as opposed to expecting convergence in exams and other evaluations.	4.36	3.18	1.18
Student communication and messages	4	Sufficient time is allocated for students to think, play with ideas, manipulate objects, and experiment in learning without the pressure to get "the right answer at the right time."	4.42	3.25	1.17
Teacher Objectives	2	Classroom objectives focus on cultivating and facilitating social skills, cooperation, idea exchange, and shared problem-solving, as opposed to memorizing.	4.83	3.67	1.16
Teacher Objectives	10	Knowledge of each student—including life outside of school—is used to plan instructional activities.	4.33	3.17	1.16
Teacher planning and preparation	23	A variety of diverse learning assignments are designed to meet individual student interests and needs.	4.27	3.18	1.09
Student evaluations	9	Student evaluations are based on individual learning growth instead of fixed standards all are expected to learn.	4.50	3.50	1.00
Student planning and preparation	22	Students plan an active role in contributing to the direction of content of the lessons that form their learning experiences.	4.27	3.27	1.00

The five survey statements identified in Table 5 represent those constructivist approaches and differentiation strategies, techniques, and activities that have the lowest degree of congruency between desired and actual practices of sample teachers who completed the survey instrument. There is good probability that some, if not a majority, of the teachers at any school site are not very familiar with employing these various differentiation strategies, techniques, and techniques in their instructional programs. Teachers in this context should collaboratively reflect about the value of the practices associated with the statements of this quadrant and a few could serve as models to provide concrete evidence that the statements can be realized in contemporary teaching-

learning situations so as to illustrate the professional "attractiveness" of the "Student- Center Learning Pole".

Table 5

Difference between desired and actual of greater than 1.25

Teaching-Learning Behavior	Survey Number	Survey Statement	Mean: Desired	Mean: Actual	Diff.
Student evaluations	6	Students are evaluated individually and move on to another task once they have mastered the objectives of a unit.	4.50	3.00	1.50
Teacher Objectives	12	The time that students have to complete or master a given concept or skill varies based on individual differences.	4.75	3.25	1.50
Classroom expectations of students	7	Students conduct a major part of their learning on a self-directed basis.	4.08	2.75	1.33
Teacher communication and messages	8	Your role as a teacher is that of a facilitator of learning or resource partner, the "guide on the side" rather than the "sage on the stage."	4.75	3.42	1.33
Student objectives	19	Pretests and other similar diagnostic instruments are used to determine the parts of a unit that individual students need.	4.33	3.00	1.33

THE IDAHO STUDY

The "Idaho Study" focused on K-6 grade teachers in "Rural and Small-Town Idaho." This context is defined as Serving populations of fewer than 5,000 people. These small districts in Idaho contain approximately 1/3 of the state's population and are often separated by vast distances. Why rural Idaho? Bryant, contends that rural areas are "often ignored by research and government when instituting new policies, procedures, and funding formulas" (2010).A total of 23 districts (34 elementary schools) participated in this study. A Qualtrics survey was sent to 289 teachers and after a data collection window of 60 days had passed the research team received 140 responses representing 48% of the potential teachers.

RECOMMENDED SITE-BASED PROCEDURES TO PROMOTE GREATER DIFFERENTIATION OF INSTRUCTION

The researchers contend that the most effective and teacher "user-friendly" manner to promote more student-centered learning or differentiation at any level of the instructional spectrum is to employ a focused reflective "baby steps" approach based on site-based teacher reflections and the discrepancy quartiles identified above. Educational leaders should introduce the key elements of the student-centered approach using Figure 1 to illustrate the differences between that

approach and the teacher-centered approach. Teachers should be given time to reflect about where they would like their current practices to be located on the continuum between the two instructional poles displayed in Figure 1 and where they think they currently are located according to their behaviors in the nine teaching –learning components as identified in Figure1.

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