

Science Teachers' Understanding and Use of Instructional Strategies Within the 4 x 4
Block Schedule

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Abstract

The primary purpose of this researcher was to investigate how science teachers engage students under the 4 x 4 block schedule and how the teachers' understanding of how they use instructional strategies influenced their lessons. As an inquiry-based approach has been adopted by the National Science Standards, research has suggested that block scheduling provides more time for teachers to incorporate varied strategies such as inquiry-based and cooperative learning teaching which have philosophical roots in a social constructivist philosophy. This research investigated the questions: What instructional strategies do science teachers use to engage students on the 4 x 4 block schedule? How do science teachers understand their use of instructional strategies?

The methodology was qualitative in nature and involved a multiple case study of three high school science teachers at a large rural county high school. Data sources included pre-observation interviews, classroom observations, post-observation interviews, and the collection of documents and artifacts such as lesson plans, student hand-outs, worksheets, laboratory exercises, homework and other document(s) the teacher used to prepare for or implement a lesson.

The evidence observed in this study, suggests that the strategies used by these three science teachers remain mostly didactic in nature. Although the teachers reported in the interview phase of this research that they use a wide variety of strategies, what was

observed within the 4 x 4 block structure was the use of different didactic strategies, not different holistic strategies. Although the teachers were aware of more holistic strategies such as inquiry-based and cooperative learning, they were not adopted nor adapted within the lesson. The three teachers used strategies that were consistent with their scientific realist views concerning the nature of science. These scientific realist philosophies are antithetical to a social constructivist approach to teaching and learning, which is what the National Research Council suggests science teachers adopt.

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TABLE OF CONTENTS

ABSTRACT

INTRODUCTION	1
Rationale for the Study	3
The connection between teaching strategies and time	3
National Standards	4
Accountability	5
Limitations	6
Conceptual Framework	7
Summary	8
Research Questions	9
LITERATURE REVIEW	10
The Constructivist Landscape	11
Tenets of constructivism	11
The development of the constructivist epistemology	14
Cognitive constructivist epistemology	16
Cognitive constructivist pedagogy	16
Radical constructivist epistemology	18
Radical constructivist pedagogy	19
Social constructivist epistemology	21
Social constructivist pedagogy	23
Connecting radical and social constructivism	23
Constructivist cautions	26
Summary of constructivism	27
Implications for the study	28
Block Scheduling	29
Block scheduling and academic achievement	34
Block scheduling and perception	35
Summary of block scheduling	37
Implications for the study	39
Science Education	40
National science standards and epistemology	40
Conceptual change theory	41
Inquiry-based learning	43
The nature of science	44
Science and beliefs about learning	47
Teaching strategies in science education	50
Summary of science education	54
Implications for the study	55

Teacher Beliefs	57
Factors that influence the beliefs of teachers	57
Teachers' beliefs about learning	60
Implications for the study	62
Chapter 2 summary	63
METHODOLOGY	65
Purpose of the Study	65
Overview of the Research	66
What the research will show	66
Why the research is important	66
How the research will be conducted	68
What the analysis of the data will show	68
Research Design	69
Qualitative methods	69
Open-ended interviews	70
Types of interview questions: Pre-observation	71
Types of interview questions: Post-observation	72
Participant observation	73
Field notes and observation records	74
Document collection	75
The Setting	75
Defining the multiple case study	76
Data Collection and Analysis	77
Data collecting	80
Conflicting data	83
Data analysis	83
Coding	84
Themes	86
Summary	87
Role of the Researcher	87
Informed Consent Procedures	88
Projected Time Frame	89
RESULTS	91
Introduction	91
Case Studies	92
Carl	93
Introduction	93
Teaching and Learning Strategies in Block Scheduling	93
Day one	93
Day two	94

	Day three	96
	Day four	97
	Day five	98
	Teacher Beliefs About Teaching and Learning	99
	Visualizing and imprinting	100
	Interactions	101
	Independent learning and the Eureka effect	102
	Searching computer banks	104
	Influences on Teaching and Learning	106
	Block scheduling	106
	Military experience	109
	End-Of-Course SOL exams	109
	Summary of Carl	111
Rob		112
	Introduction	112
	Teaching and Learning Strategies in Block Scheduling	113
	Day one	113
	Day two	116
	Day three	116
	Day four	117
	Day five	117
	Teacher Beliefs About Teaching and Learning	118
	Independent learning	118
	Controlled input-output	119
	Interactions	120
	Influences on Teaching and Learning	122
	Textbook	122
	End-Of-Course SOL exam	124
	Level of course	125
	Block scheduling	126
	Summary of Rob	129
Greg		130
	Introduction	130
	Teaching and Learning Strategies in Block Scheduling	131
	Day one	132
	Day two	133
	Day three	133
	Day four	133
	Teacher Beliefs About Teaching and Learning	134
	Collaborative learning	134
	Making connections	135
	Open structure	136
	Influences on Teaching and Learning	137
	Experiences as a student	137
	Military background	138
	End-Of-Course SOL exam	138

Block scheduling	138
Summary of Greg	139
ANALYSIS	141
Introduction	141
Connection With the Literature	141
Beliefs about teaching and learning	141
Constructivism in science education	142
Science vs science education	144
Block scheduling and science education	145
Observed teaching and learning strategies	146
SOL and End-Of-Course exams	147
The academic level of the students	150
The textbook	150
CONCLUSIONS	158
Synthesis of findings	158
Implications	151
Recommendations	154
Teacher education programs	154
Experienced teachers	155
REFERENCES	162
Appendix A	175
Appendix B	178
Appendix C	182
Appendix D	184
Appendix E	187
Appendix F	189
Appendix G	191
Appendix H	194
Appendix I	197
TABLES	
Table 1 The four tenets of constructivism	14
Table 2 Relational delineation of philosophical tenets	17
Table 3 Applications of key radical constructivist principles	21
Table 4 Traditional school day and alternative school day schedules	31
Table 5 Frequency of instructional strategies used by teachers	54
Table 6 Quantitative and qualitative criteria for assessing research	78
Table 7 Research questions in relation to interview questions	79
Table 8 Research questions in relation to observations	80
Table 9 Types of codes used during the interview and observation phase	81

FIGURES

Figure 1 The conceptual framework connecting teaching strategies,
belief structures, and block scheduling

8