Integrating 6th Grade Geometry Standards into a Waldorf Methods Charter School

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Abstract

Many Waldorf methods charter schools are opening up in California today. They are publicly funded schools bringing Waldorf methods into public education. In today's political climate all public schools must pass the state's bar of academic success measured by their Adequate Yearly Progress (AYP). Because these scores are based largely on standardized tests there is a need to integrate California's academic content standards into Waldorf methods charter schools. The purpose of this review of the literature is to examine Waldorf methods within the charter school setting without compromising the Waldorf philosophy. The literature highlights a need to clearly define which Waldorf methods are being used in charter schools as well as a political debate regarding the appropriateness of Waldorf education in public schools. The outcome of this review is the development of a template that will guide teachers in a Waldorf methods school through the process of standards integration.

Introduction

The walls are colorful and students' watercolor paintings are displayed with simplicity as most of the wall space is unadorned. The wooden furniture, books, baskets and manipulatives made from natural materials bring a warm feeling into the room. The students' work is completed with beautiful illustrations and careful handwriting. Each student plays both the recorder and violin by fourth grade, sings daily, recites poetry, learns epic legends, myths, and history from the beginning of time to the present day, performs in a play annually, gardens in the school garden weekly, learns to knit and crochet, and gains a rigorous academic education in a public school—a Waldorf methods charter school to be precise.

Once the students are in sixth grade they have studied a variety of subjects that form the basis of their education. Teachers using Waldorf methods connect to students' previous knowledge to teach the state content standards. In fifth grade the students study the ancient civilizations that gave birth to geometry, which provides a valuable springboard into sixth grade geometry.

Statement of the Problem

In California today there are twenty Waldorf methods charter schools: twelve years ago there were none. Waldorf education began in 1919 in Stuttgart, Germany yet began to enter the California public sector just over a decade ago. Because children in public schools in California are assessed on the state standards by the administration of the State Testing and Reporting (STAR) program it is now essential for Waldorf methods teachers to integrate

these standards with Waldorf methods. This integration is necessary for these schools to be successful and to survive in the public sector (California Department of Education, 2006).

Each Waldorf methods school is individually designed to include specific aspects of Waldorf education. This individuality leads to a freedom of application of the methods to best suit the community in which the school is set. However, this individuality creates ambiguity in: how the methods are applied, the extent to which standards are being integrated, and an uncertainty of how Waldorf methods can be used in public education.

Purpose Statement

The purpose of this literature review is to identify aspects of a standards integration template that is helpful to teachers and administrators working in Waldorf methods public schools or other public schools interested in integrating Waldorf methods. The intent of the template is twofold; it will demonstrate how to integrate California's academic content standards into a Waldorf methods school, that uses Waldorf standards as a foundation, by using 6th grade geometry standards as an example and it will integrate standards using a developmentally appropriate approach in accordance with Waldorf methods.

Assumption

It is my assumption that it is possible to use Waldorf methods to teach the 6th grade geometry standards in Waldorf methods charter schools. However, teachers need to carefully design their lessons while holding the integrity of Steiner's implications for developmentally based methods.

Theoretical Rationale

The first Waldorf School began in Stuttgart, Germany at the Waldorf-Astoria Cigarette Factory. Emil Molt had been following Rudolf Steiner's ideas for some years, especially his concern with social renewal (Oppenheimer, 1999 & Howard, 1993). Molt, along with a few others, asked Steiner to begin a school since it was a logical extension of Steiner's desire to change society (Howard, 1983). Steiner agreed and began the first Waldorf School in 1919.

Steiner spent his life as an academic studying a variety of subjects including science, literature, and philosophy. Philosophy was his key interest as he focused on the nature of human knowledge and its future possibilities (Howard, 1983). From his initial theory he identified the human spirit as the reason for the ability to learn (Howard, 1983). His drive was to create "a new impulse in education that would enable children from diverse backgrounds to develop the capacities necessary to cope with the demands and challenges of a post-industrial world" (Easton, 1995, p.2). As societies became more advanced, humans would need support to become "fully human" (Easton, 1995, p.2).

The goal of education, as Steiner defined, is to educate the whole child: head, heart, and hands, in freedom where "freedom is the ability to think and act independently, on the basis of a mature judgment" (Howard, 1983, p.3). According to Steiner's theory of child development, students are encouraged to think for themselves while being immersed in developmentally appropriate curriculum (Stockmeyer, 1998).

Waldorf methods were developed by Steiner based on his theory of child development. The curriculum is chosen to specifically meet children at their developmental level. Each subject is taught in a way that actively engages students—through oral stories,

artistic representation, poetry, music drama and movement. The goal of the teacher is to teach the whole child. Waldorf teachers are trained in Steiner's theories and receive a certificate that qualifies them to teach in a private Waldorf school.

A charter school in California is a public school typically started by a group of parents, teachers or community members who petition their school district. Although charter schools may hold their own educational philosophies and curricular guidelines they must adhere to the state standards and requirements (Charter Association, 2005). They are held accountable to their sponsor, usually their school district, for student performance and progress toward proficiency as measured by the STAR (Charter Association, 2005). Charter schools may choose how to teach not what to teach (Eastin & Larson, 2006). One of the goals of charter schools is to create alternative approaches to education that will be models and provide healthy competition in public education by allowing space for new teaching strategies that inspire student achievement and by being less burdened by state and federal regulations (Charter Association, 2005).

In 1992 the charter school movement began opening up an avenue for Waldorf education to move into the public schools. Prior to this, a few schools in California had integrated methods under different titles such as a magnet school, which is supported by the local district, such as the John Morris Magnet School in Sacramento (Waldorf Answers, 2006). In 2006 there are twenty Waldorf Methods public schools in California (Waldorf Answers, 2006). As they are opening and prospering it is important to document how these schools are integrating Waldorf and California academic content standards. If these schools demonstrate their effectiveness this documentation will provide a pathway for Waldorf methods to be used in other public schools as well as serve as a template for those interested

in beginning a methods school. Additionally, they will demonstrate how Waldorf methods can be used to teach standards using a developmentally appropriate teaching approach.

A Waldorf methods charter school (methods school hereafter) is a school that integrates some aspects of Steiner's educational philosophy and curricular guidelines while leaving out other aspects. At this point in time some methods schools are integrating state standards and therefore adjusting their curriculum to meet state and federal requirements. Typically a methods school organizes its daily schedule in a similar manner beginning the day with a two-hour main lesson block, during which the class studies one subject in depth each morning for three to four weeks. There are specific blocks, or units of study, recommended for each grade level that specifically relate to the children's developmental age as defined by Steiner. The curriculum is taught through story in the lower grades. Students make artistic representations of their lessons in books that are their own created texts. Teachers start with a group of children, typically in first grade, and continue with them for several years sometimes continuing through eighth grade. Teachers must hold both a state teaching credential and have a working understanding of Waldorf methods. Some schools require a Waldorf teacher training certificate while others do not.

Methods schools are not Waldorf schools. They do not use Steiner's theory of anthroposophy, which private Waldorf school teachers use as an underlining philosophy (Oppenheimer, 1999). Anthroposophy arose out of Steiner's view of the evolution of human consciousness (Oppenheimer, 1999). Since this study is based on various religious and spiritual beliefs it is left out of public schools using Waldorf methods.

Background and Need

When charter schools were first established they were granted the right to teach the academic content standards in the order and grades that fit with each school's philosophy. This allowed for more curricular freedom between first and eighth grade as long as the students met the standards by the end of eighth grade. With the emergence of the No Child Left Behind Act (NCLB) in 2001, and new California state legislation created to comply with the act, California created an accountability report card which measures schools' success on their Adequate Yearly Progress (AYP) score (US Department of Education, 2004). Schools were threatened to be closed if they received a low AYP score for more than two consecutive years (US Department of Education, 2004). Each school is given an AYP that is calculated from the results of four measures, three of which are based on the STAR; the scores, participation rate, percent proficient and the graduation rate (US Department of Education, 2004). The STAR is intended to measure student achievement of the standards in each grade level. This requirement has lead to the need to teach standards in the expected grade. To fulfill this need the integration of the standards became essential in order for charter schools to remain successful.

In response to NCLB many methods schools began working on integrating both California and Waldorf standards into their curriculum in their own way. The goal of this paper is to provide a framework from which methods schools can more easily integrate both sets of standards by demonstrating how it can be done in a sixth grade geometry block.

Since there are currently twenty Waldorf methods charter schools, they are no longer isolated schools that need to begin this process alone. This type of school is becoming a trend with similar expectations imposed upon each school by their districts, the state, and the

federal government. By defining these expectations new schools can begin with a blueprint instead of repeating the same standards integration process that the established schools have already started.

Review of the Literature

Review of the Previous Research

The foundation of methods schools is Rudolf Steiner's theory on child development and his indications for curriculum based on this theory. From this theory indications for the curriculum emerges and the Waldorf standard expectations come forth. Finally, methods schools examine how California's standards fit into this equation.

When Rudolf Steiner was asked to begin a school at the Waldorf-Astoria Cigarette factory he did so by following his convictions. These were concerned with social renewal and the important role of education in this process (Howard, 1983). This first school was set up as a private school to serve mainly children of parents that worked at the factory. Since the first school Waldorf, its curriculum, education, and philosophy has spread to many other schools throughout the world especially in Europe and the United States in private and public sectors.

Steiner's Theory of Child Development

Steiner's theory of child development is based on his view of the human being and societal evolution (Easton, 1995; Howard, 1983). He views the child as a threefold being composed of body, emotions, and spirit and human development as an unfolding of the evolutionary process (Easton, 1997). An individual unfolds in a predictable manner that is

describable in rough stages. Steiner's theory has three stages containing two sub-stages within the first two stages. Each major stage unfolds in seven-year cycles from birth to age twenty-one (Easton, 1997). The first stage begins at birth and commences at seven years with a sub-stage occurring at three years. The second stage extends from seven years to puberty, about age fourteen, with a sub-stage occurring at nine years. Finally, the third stage that Steiner addresses begins with the onset of puberty until the age of twenty-one. After puberty the child is considered to have the physical and cognitive development of an adult, although it occurs over time not all at once with the onset of puberty (Howard, 1983).

Throughout the first stage of development, the imitative stage, children learn through imitation and action (Easton, 1997). They study the adults in their environment and attempt to imitate their actions. Children are supported in their development by participating in the activities of the adults around them.

During the secondary imitative stage, which begins at about three years of age, children recognize themselves as being a unique entity, hence becoming ego consciousness. Children begin using the word "I," which cannot be imitated, demonstrating the beginning of self-identification (Howard, 1983). The focus during the secondary imitative stage is on children establishing a sense of self-identity. In this stage learning occurs through fantasizing about an idea and then expressing it imaginatively.

The second stage of development, the affective stage, begins at the age of seven and commences at puberty. The sub-stage begins at the age of nine. Children during this stage are often referred to as school age children. Children's thinking is pictorial, uncritical, and unspecialized while learning occurs now through pictorial representation (Easton, 1995; Howard, 1983; Oppenheimer, 1999). Children view the world as changing images that are

directly related to themselves as they feel and think as one with the world. The outside world is limited to their unique experiences and their inner world is full of fantasy and imagination (Howard, 1983). At the age of nine this inner world and imagination slowly begins slipping away as children start relating to the outside world with new eyes. This experience requires an adjustment for children in order for them to reestablish their view of the outside world and feelings towards it (Howard, 1983). This process is referred to as the nine-year change. Typically children during this time are filled with doubts and feel vulnerable as they experience their inner thoughts as distinct form the outside world (Howard, 1983). For the first time they feel separate from the world. Gradually, children adjust to the outside world before the third stage occurs.

With the onset of puberty children reach Steiner's third stage, the cognitive stage, whereby they are considered to have the physical and mental capacities of an adult (Howard, 1983). Adolescences become aware of their intellect and it dominates their way of thinking as they seek knowledge directly for the first time. They are intrinsically interested in knowledge, and with the proper prior education, pursue intellectual opportunities (Easton, 1995).

Waldorf Methods in Response to Developmental Theory

The methods and curriculum of Waldorf schools sprung out of Steiner's theory of child development. The indications for each grade directly correlate with children's stage of development. The curriculum is carefully chosen to support children's development while encouraging them to continue progressing to the next level.

Since pre-school children are in the imitative stage and learn through imitating the adult world, teachers provide ample opportunities for children to participate in appropriate activities (Easton, 1995). These activities range from cooking bread with the adults to playing with simple toys that allow children to imitate actions they observes the adults participating in around them. There is an emphasis on using toys composed of simple, plain, and natural materials such as colored silks, blocks, and dolls without many features. According to Oppenheimer (1999) this simplicity allows children's imagination to grow since much of the activity is occurring within children as they give their own pictures and characteristics to the toys.

School for the pre-school child, up to the age of seven, is structured yet allows room for play and imitation. Waldorf education stresses the importance of rhythm as it allows children to relax with the predictability of what is to occur in their day. Additionally, the daily, weekly and yearly rhythm attempts to mimic the natural human rhythm of "breathing" in and out with both inward and outward activities (Easton, 1995).

Once children reach school age, typically at seven years old, they enter Steiner's second developmental stage, the primary affective stage, and move to first grade where more formal curriculum is introduced (Easton, 1995; Howard, 1983). Since children now learn through pictorial representation, teachers present the curriculum in attempt to capture this (Easton, 1995 & Howard, 1983). New ideas are taught through stories. Each grade level has a focused set of stories that meet the developmental needs of the children. For instance, in first grade the students hear many fairytales. These fairytales address the various characters that the first graders feel within themselves. There is the princess who is innocent and usually acts for the good of everybody. Then there is the "bad guy" who intentionally acts to

the detriment of the good characters. Finally, the story ends happily leaving the child in peace. The first graders feel like good character as they try to make good choices. The first graders understand the bad guy as they are learning how to make good choices yet do not always do so. Finally, the end leaves the children in peace knowing that the world is good. These characters play out in their lives and help the first graders make choices. With stories the curriculum reaches children on an unconscious level.

Since, according to Steiner, school age children learn through pictorial representations they create artistic depictions of their lessons and experiences. These are made in their main lesson books-- the textbooks in a Waldorf school.

The school day is organized with rhythm being the focal point of the scheduling. This rhythm is concerned with the year, month, day, and lesson. The school year is organized into blocks, which are similar to units in that a topic is studied in depth for three to four weeks during main lesson time. The first two hours of the school day are scheduled for main lesson. During main lesson the new information of the day is introduced related to the block that is being studied. The teacher presents the new concepts to the class in a lively fashion through story-form in contrast to reading a scripted program or textbook. The class then has a chance to experience this information through hands on activities before making an artistic representation of it into their main lesson books the next day. This structure of the school year, month, and day is designed specifically to meet the school age children at their developmental level since it allows time for the new material and the artistic experience Steiner holds at the heart of learning during these years (Howard, 1983).

Additionally, the curriculum is taught from the whole to the part, from synthesis to analysis by first looking at the big picture and later examining the pieces. In fifth grade

students study ancient civilizations. While studying Mesopotamia they learn how the rich land in the Fertile Crescent allowed people to begin agriculture, domesticating animals, and building cities (Diggins, 2003). These things gave them more time for thinking, henceforth came some of the first geometric thought (Diggins, 2003). The first calendars were believed to have 360 days, which lead to the circle being divided into 360 degrees (Diggins, 2003). Finally, students look at, and work with, the division of circles into 360 degrees. Sixth grade geometry flows logically from this historical foundation as it builds and expands on these concepts.

Adolescence and curriculum

Because adolescents have the mental capacities of an adult, according to Steiner's developmental theory, the educational emphasis shifts from creative to cognitive as students are ready to expand their intellect while developing independent judgment (Easton, 1995; Howard, 1983). Teachers now directly teach more abstract concepts. These are intended to fulfill the adolescence's quest for learning while preparing them to become adults that are free to think independently (Easton, 1995; Howard, 1983).

Geometry in the Waldorf Curriculum

From Steiner's developmental theory the indications for curriculum at each grade have been established. Geometry is an integral part of Waldorf curriculum and has its roots in supporting the children's developing imagination and capacities to learn (York, 2004).

York (2004) discusses the goals of teaching math in a Waldorf school in his book Making Math Meaningful and elaborates on just how to make math meaningful. He suggests

making it developmentally appropriate by waiting until children are developmentally ready, working with questions that may take months to figure out, allowing time for depth of the material instead of covering a broad range of subjects, challenging the students to work through frustration, offering interesting material that may relate to the world or just fascinate the students, and by providing the historical context from which the concepts have come (York, 2004). Specifically, in regards to geometry, he stresses the importance of teaching children how to use their imagination to see the form, or geometric shapes, not just the numbers and equations that many public schools focus on today (York, 2004). It is this imagination , which is at the heart of Waldorf education, that teachers seek to integrate into each lesson.

The math curriculum for Waldorf schools was mainly developed by Steiner in the first five years after the first school opened and has changed very little (Jarman, 1998). According to Jarman (1998), who has taught mathematics in Waldorf schools for over forty years, the few changes that have occurred in the mathematics curriculum are mainly the depth and detail in which subjects are covered as well as their further integration into other subject matter. What has not changed is at what age each topic and subject is introduced (Jarman, 1998).

Sixth grade the Waldorf geometry standards include:

1. "Geometrical constructions: line and angle bisection, right angles, parallel lines, the construction of triangles,
2. Construction of regular polygons, using compasses, protractors or 'trial and error methods,
3. The beginning of exact deductive geometry, especially that of the angles of a triangle adding up to 180 degrees. Many numerical problems of angle geometry,
4. Further large scale geometrical drawing, including linear and circular envelops, and

5. Congruent triangles and simple applications to proofs" (Jarmin, 1998, p.218).

Similarly York (2004) defined the sixth grade geometry standards in a Waldorf school:

1. "circle & polygon terminology; angle measure; the three dimensions.
2. copying a line segment; copying an angle; bisecting a line segment; construction of a parallel line; division of a line into equal parts; construction of regular polygons (square, hexagon, etc.),
3. Equiangular spirals; the Archimedean spiral,
4. Rotation of circles; the limacon and the cardioid; the hierarchy of quadrilaterals; knot and interpenetrating polygons; the 24-division with all its diagonals; the King's Crown.
5. Areas of rectangles, squares, and right triangles" (p.9).

There is little variation between these two lists of standards and they will be compared as one when examining the integration of the Waldorf standards with the California academic content standards.

The California Department of Education (1997) specifies sixth grade geometry standards are as follows:

1.0 "Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems:
   - 1.1 Understand the concept of a constant such as p; know the formulas for the circumference and area of a circle.
   - 1.2 Know common estimates of p (3.14; 22/7) and use these values to estimate and calculate the circumference and the area of circles; compare with actual measurements.
   - 1.3 Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.

2.0 Students identify and describe the properties of two-dimensional figures:
   - 2.1 Identify angles as vertical, adjacent, complementary, or supplementary and provide descriptions of these terms.
   - 2.2 Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.
   - 2.3 Draw quadrilaterals and triangles from given information about them (e.g., a quadrilateral having equal sides but no right angles, a right isosceles

triangle)" (6th Grade Mathematics Standards, Section 3).

The intention of the state standards is to ensure accountability throughout public schools in California by requiring all children at a particular grade level to have instruction is specific areas (Dawson, 1999).

Bonnie River, an educator and administrator in a Waldorf methods charter school created a document outlining each state standard correlated to each grade as it fits within a methods school. For sixth grade geometry they are:

1. "Square measure of area, pictorially and arithmetically,
2. Geometric drawing with compass and ruler
3. Constructions of various polygons using different methods and materials,
4. Names and shapes of basic geometric polygons,
5. Computation of perimeters of polygons,
6. Computation of areas of parallelograms, triangles, squares and rectangles,
7. Development of pi, pictorially and arithmetically,
8. Computation and construction of area, circumference, radius, diameter, angles, arcs and chords of a circle,
9. Introduction to the use of a protractor,
10. Construction with the compass and straight edge of polygons, angles, perpendicular bi-sectors and parallel lines, and
11. Introduction to both concepts and diagrams of parallel lines, corresponding angles, interior angles of a triangle, quadrilaterals, right and oblique prisms" (River, 2005, p.75).

River's Waldorf methods standards blend the two sets by incorporating both yet are phrased uniquely.

By comparing the three perspectives on sixth grade geometry standards a clearer sense of the expectations begins to emerge. In table 1 the three sets of standards are organized according to the particular concept within geometry to which they refer. In comparing each row it becomes clear how the language differs yet the expectations remain similar. In some instances there are no correlating standards indicated by an empty box.

Overall, the language and the teaching approaches are the main difference whereas the standards are actually quite similar.

Table: Comparison of Standards

Concepts	**Waldorf Standards** (York, 2004, p.9 & Jarman, 1995, p.218)	**California Standards** (California State Board of Education, 1997, 6th grade geometry standards)	**Integrated Standards** (River, 2005, p.75)
Terminology	• Circle & polygon terminology;	• Students identify and describe the properties of two-dimensional figures (circles, polygons)	
Lines Angles	• Copying a line segment; copying an angle; bisecting a line segment; construction of a parallel line; division of a line into equal parts; angle measure;	•Identify angles as vertical, adjacent, complementary, or supplementary and provide descriptions of these terms.	•Introduction. to both concepts and diagrams of parallel lines, corresponding angles, interior angles of a triangle, quadrilaterals, right and oblique prisms, •Introduction to use of a protractor,
Problem Solving	•The beginning of exact deductive geometry, especially that of the angles of a triangle adding up to 180 degrees. Many numerical problems of angle geometry,	•Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.	•The student will practice everyday life problems and written exercises using the …geometric concepts,
Polygons	•Construction of regular polygons (square, hexagon, etc.), •Congruent triangles and simple applications to proofs" • The hierarchy of quadrilaterals; •Areas of rectangles, squares, and right triangles.	•Students identify and describe the properties of two-dimensional figures: •Draw quadrilaterals and triangles from given information about them (e.g., a quadrilateral having equal sides but no right angles, a right isosceles triangle)."	•Construction of various polygons using different methods and materials, •Names and shapes of basic polygon, •Computation of areas of parallelograms, triangles, squares and rectangles, •Square measure for area, pictorially and arithmetically,
Circles	•Rotation of circles; the limacon and the cardioid; knot and interpenetrating polygons; the 24-division with all its diagonals; the King's Crown.	•Understand the concept of a constant such as pi; know the formulas for the circumference and area of a circle. •Know common estimates of p (3.14; 22/7) and use these values to estimate and calculate the circumference and the area of circles; compare with actual measurements.	•Development of pi, pictorially and arithmetically,
Geometric Drawing	•Equiangular spirals; the Archimedean spiral,		•Geometric Drawing with compass and ruler, •Computation and construction of area, circumferences, radius, diameter, angles, arcs, and chords of a circle, •Construction with the compass and straight edge of polygons, angles, perpendicular bi-sectors and parallel lines,
3-D figures	• The three dimensions.	•Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.	•Introduction to… right and oblique prisms.

Given that the standards are similar, and the main difference between sixth grade geometry in method schools and typical public schools is the teaching approach, it becomes imperative to define which teaching methods are being used. By looking at the concept of polygons in sixth grade geometry one can examine the similarities and differences. The correlating state standard is "students identify and describe the properties of two-dimensional figures" (California State Board of Education, 1997, p.2) while the Waldorf methods standard is students "construct various polygons using different methods and materials" (River, 2005, p.75). Both directly relate to learning about polygons. The state standard describes the expected outcome, the student's ability to identify and describe polygons, while the Waldorf standard describes the expected activity, the construction of polygons. A simple lesson could be used in which the students construct polygons by carving them into wood. The lesson would begin by connecting to the students' prior knowledge about the ancient civilizations of the Fertile Crescent from where geometry began (Diggins, 2003). This is where the first polygons were classified along with precise measurement. Using a historical story, polygons would be discussed. Prior to, during, and following the activity the students would be introduced to the proper terminology to describe each polygon. After the activity they would use this terminology and their experience to identify which polygons their classmates constructed. Henceforth, with one Waldorf methods lesson both objectives would be reached.

Since sixth grade students are in the affective stage Steiner articulates how they learn through pictorial representation as lessons are presented in a whole to part approach (Easton, 1995; Howard, 1983). In the previous example the students learned from whole to part since they were able to construct polygons before classifying. Furthermore, the woodcarving

served as a pictorial representation for each of the polygons. Using Waldorf methods both standards were achieved.

There are some standards that do not align as easily. For instance, the standards for three-dimensional figures vary between Waldorf standards and state standards. Where the Waldorf standard briefly just mentions the three dimensions yet does not define any objectives the state standards clearly elaborate on the expectation of computation for finding the volume of both prisms and cylinders (California Department of Education, 1997). When teachers come to these discrepancies it becomes their task to decide how to incorporate the state standard using Waldorf methods. Teachers using Waldorf methods have autonomy to decide which lessons to present to their classes (Easton, 1995). It is with this flexibility in pedagogy that these teachers have choice in developing their curriculum. This could occur through a building project or experiment in which the class discovered the formula on its own by coming to a conclusion on how much is needed to fill a container. Again, the teaching method is key in using of Waldorf methods to integrating the standards.

Summary of Major Themes

The two major themes that became apparent in researching Waldorf methods charter schools were that there is a loose definition about what exactly the methods are in the public sector as well as a debate in regards to the appropriateness of these methods in the public sector. There is a lack of research on this topic yet many opinions.

Many of the Waldorf methods have been brought into the charter schools yet typically there are differences in regards to which methods are being retained and which are not. With Waldorf method charter schools just entering their teen years, there is a lack of research on these methods in the California public schools. There still needs to be research

conducted as to which methods are being used to clearly define Waldorf methods charter schools.

A recurring theme in the research on Waldorf methods in public schools revealed that there are many perspectives in the literature about the appropriateness of Waldorf methods in the public sector. Some argue from a private Waldorf perspective that it should only remain in the private realm, thus protected from state regulations (Lamb, 2004) while others argue that methods should be implemented, whenever possible, into public schools (Howard, 1983). From the public school perspective some argue that the methods offer a beneficial teaching method in today's schools, such as charter schools, while others argue that Steiner's ideology does not separate church and state and is therefore not appropriate in public schools.

According to Lamb (2004) part of Steiner's mission was to separate school and state just as there is a separation of church and state. His basic premise is that "when the government goes beyond creating and upholding human rights to dictating educational policy, it can be only a stifling influence on the creativity and initiative of teachers, even the most dedicated and idealistic ones" (Lamb, 2004, p. 22). A separation of state and education would avoid the state's imposition of standards into the Waldorf curriculum. Further on he does point out that few children from low-income families are able to attend Waldorf schools, which has led to his drive to create a voucher system to support these families (Lamb, 2004).

Howard (1983), in his article *What a Waldorf School is and What it is not*, discusses both the pros and cons of public Waldorf schools. He points out that public Waldorf schools would be beneficial since they would free up teachers from worrying about financial support yet they would have to be careful to avoid state intervention and direction (Howard, 1983).

If the government was concerned with the rights of children in education and trusted teachers to make decisions on curriculum Waldorf education would fit in the public schools (Howard, 1983).

This is where it becomes important to distinguish between Waldorf schools and Waldorf methods schools. The intentions of both are similar yet the guidelines and expectations are different. Waldorf schools are truly independent schools that are mostly free from state regulations in regards to curricular standards and spiritual practices. Waldorf methods schools are using many of the same teaching approaches while integrating the state standards and leaving out anthroposophy. There is a clear distinction between the two. Waldorf methods schools are seeking to bring the best educational practices from Waldorf schools into the public sector. With research into the successes of method schools these practices may help offer a solution to teachers seeking to teach the state standards in a meaningful way.

Extending the Literature Review

The literature review defines Waldorf method charter schools in a broad sense while striving to demonstrate how to integrate California's academic content standards using the methods that arose from Steiner's developmental theory. Furthermore, it demonstrates the need for the integration of two sets of standards in methods schools.

Discussion

Summary of Major Findings or Results

In examining the integration of geometry standards into Waldorf methods charter schools it became apparent that a template would help assist teachers in doing work this on their own. Furthermore, a completed template could be passed from teacher to teacher or school to school. This template would include certain key aspects within each grade in which one was integrating standards; the existing block schedule, a list of both the Waldorf and state standards, and activities. Lastly, it would include a reminder that at the heart of Waldorf methods is teaching to the students not the standards.

Comparison of Findings/Results with Existing Studies

In examining the Waldorf and California standards and then finally comparing them with River's integrated standards it became apparent that most of the state standards could be easily integrated with existing Waldorf standards in sixth grade geometry. After deciphering the variations in language the main difference overall is the teaching approach, described in detail in the methods section. This essential difference demonstrates the uniqueness of Waldorf methods charter schools from typical public schools.

In younger grades the discrepancy in standards is more apparent as the state's standards are more academically rigorous than in Waldorf methods schools. Once students reach fourth grade the standards start to align more with one another.

Limitations of the Study

This paper was written within a six-month time restraint, which affected the author's ability to survey a variety of Waldorf method charter schools to determine which methods are being used in each school. Additionally, this paper examined sixth grade standards, which are more easily integrated than some of the lower grades. There is a greater discrepancy between the Waldorf and California standards in the younger grades, especially in regards to kindergarten where Waldorf methods typically have a non-academic kindergarten and California standards are clearly academic in both reading and mathematics beginning in kindergarten.

Implications for Future Research

To clarify Waldorf-methods a thorough study of which methods are being used would be beneficial. Once this is clearly defined it will be easier to determine which methods are universal in these schools and furthermore, which are demonstrating success in public education. This research could be key to show that teaching students to think while creating well-rounded individuals by offering students varied, interesting, developmentally-appropriate curriculum leads to success. So far method schools that have implemented California standards while holding true to the teaching methods are demonstrating impressive STAR results (California Department of Education, 2005).

Overall Significance of the Review of the Literature

This review attempted to address the need and process involved in the integration of standards while staying true to the Waldorf philosophy. It provided the context from which a

template would emerge to help other Waldorf methods schools integrate the standards into their existing block schedules and teaching methods.

In York's (2003) introduction to teachers he discussed the importance of imagination and interwove it into Waldorf methods in regards to mathematics when he quoted Einstein and continued to describe the benefits of imagination nurtured strongly by Waldorf methods:

> "Einstein said, 'Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.' Imagination is what gives rise to judgment and the ability to develop one's own morality and ethical basis. Lack of imagination is reflected in peoples' inability to think for themselves, develop their own opinion, and question the 'facts' presented in the media. The lack of values in today's culture, I believe, is rooted in our weak imagination. A healthy imagination leads to an ability to solve problems—to imagine creative solutions. We need leaders that can imagine solutions to our world's problems…Imagination is woven throughout Waldorf education, and, in math, this is most apparent in how we teach geometry (p.5)."

In Waldorf methods charter schools this is what teachers are striving for and delicately trying to instill in the children who will become tomorrow's leaders: leaders that are well educated, meaning that they are able to think abstractly and divergently, have a broad understanding of human nature and society, and can use their imaginations to solve tomorrow's problems.

Furthermore, Waldorf methods charter schools are striving solve today's problems in public education. They are beginning to go one step further by providing a template for all public schools by keeping the arts, music, and movement alive while using them to teach the academic content standards that are emphasized in today.

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