

## Twins In School

A Senior Project submitted in partial fulfillment of the requirements  
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Katelyn Theresa Smith

Psychology and Child Development Department

College of Liberal Arts

California Polytechnic State University

San Luis Obispo

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Faculty Advisor: Linda Lee

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## CHAPTER ONE

## INTRODUCTION

According to the National Center of Health Statistics the rate of twin births has gone up 76% from 1980 to 2009, and now about 1 in 30 births result in twins (Bakalar, 2012). Twin research is important because twins are often not seen as individuals in their academic and social lives. They are seen as a unit, twins, not as two separate beings that have different personalities, needs, and wants (Kozlak, 1978). The average twins are born premature, which slows their development and this can later have effects on their readiness for school (Garite, Clark, Elliot, & Thorp, 2004). Taking all of this into consideration, this is why I chose to do my senior project on twins. Parents having twins may face decision-making issues unique to this family structure. For example one topic that parents may find themselves considering as their children become old enough for school is whether and how the twin relationship will influence their social, emotional, and academic experience. I review these topics with the goal of discovering gaps in studies on twins, which will include twins not being seen as individuals, being compared with their co-twin in sports, grades in peer relationships, and the effects of being separated or put in the same classroom as their twin.

Some evidence suggests that monozygotic twins will react the same way to peer difficulties because they are genetically identical whether they are in a shared environment or not. Where as dizygotic twins who only share fifty percent of the same genes can act differently I regards to peer difficulties whether they are in the same environment or not (Button, Corley, Rhee, Hewitt, Young and Stallings, 2007).

Other evidence indicates that emotional adjustment to school can be easier for twins since they take a home bond with them to the classroom (Lemelin, Boivin, Forget-Dubois, Dionne, Seguin, Brendgen, & Persusse, 2007). With regard to academic achievement research suggests that twins who are in the same classroom as their co-twin are more successful academically compared to twins who are in separate classrooms (Byrne, Coventry, Olson, Wadsworth, Samuelsson, Petrill and Corley, 2010). In other words they score higher grades in their subjects when they are kept together. Having grown up around twins my whole life led me to wonder if twins are treated as individuals, if they are compared with each other, and if they more successful in school if they are in the same classroom as their co-twin or separated into different classrooms. This decision can be informed by research on the development of twins, in general, as well as on specific studies that explore social, emotional, and academic outcomes for twins who experience school in various ways.

### **Terminologies**

There are two different types of twins, monozygotic and dizygotic. Monozygotic, or identical twins, develop from one sperm fertilizing one egg and that then later splitting to make two individuals with identical DNA (Twins, 2014). These twins will be the same gender and look exactly the same as one another. Dizygotic, or fraternal, twins develop from fertilization of two different sperm and two different eggs by making two individuals. Identical twins share one hundred percent of their genes, whereas fraternal twins only share fifty percent of their genes. Even though monozygotic and dizygotic are both kinds of twins they have

different genetic makeup, which leads them to have different social relationships and academic success.

## CHAPTER TWO

## LITERATURE REVIEW

Many parents and teachers of twins want to learn more about twins in school. There are many aspects of school that can impact twins. Some researchers look at peer relationships. Others focus on academic achievement and school readiness of twins. Findings from these studies will help parents and teachers of twins to know more about twins.

**TWINS IN SCHOOL**

***Peer Relationships.*** Peer relationships can affect the way twins perform in school. Boivin, Brendgen, Vitaro, Dionne, Girard, Perusse and Tremblay (2013) examined the genetic and environmental contributions that relate to peer difficulties. Peer difficulties were assessed of the twins from kindergarten to 4<sup>th</sup> grade. The participants include 796 kindergarten twins, 948 first grade twins, and 868 fourth grade twins. The study was conducted through multiple tests. First, peer rejection was assessed. Then peer victimization was assessed. The results indicated that monozygotic twins were less likely to be victimized by their peers and had less peer difficulties compared to dizygotic twins.

Twins who were victimized by their peers tend to be aggressive. Lamarche, Brendgen, Boivin, Vitaro, Perusse, and Dionne (2006) examined if family and friends have the same impact on protection against peer victimization on twins. The participants of this study included 246, 6-year-old pairs of twins. Peer victimization was evaluated by the twins' classmates. Teachers assessed the twins' aggressive behavior and social behavior. Results showed that children with an aggressive

reaction towards peer victimization tended to be more aggressive. However, if the student's friends or family members showed them prosocial behavior, they were less likely to be victimized and have an aggressive reaction.

Peer relationships have a lot of influence on twins. Vitaro, Brendgen, Boivin, Cantin, Dionne, Tremblay, and Perusse (2011) study looked at friends' aggression and how it lead twins to be aggressive themselves and even in some cases could lead to depression from this aggressive behavior. The participants consisted of 223 monozygotic twins and they were studied from kindergarten to first grade. Teachers assessed the twins' aggressive behaviors and depressive behavior. Peers also rated their peers' aggressive behavior and depressive behavior. Results concluded that for both boys and girls, twins who had aggressive friends tended to become aggressive themselves moving from kindergarten to first grade. However, friends' aggression did not have an affect on twins to have depressive symptoms later on.

Conduct problems and peer delinquent peer affiliation can be determined for twins depending upon if they are identical or fraternal. Button, Corley, Rhee, Hewitt, Young and Stallings (2007) studied twins' genetics to determine if they had an effect on peer delinquent affiliation and conduct problems. The participants included 553 monozygotic and 558 dizygotic twin pairs aged 11 to 18 years old. Conduct problems were assessed through a self-report. They determined the twins exposure to delinquent behavior by having them answer 13 questions about delinquent behaviors of their friends. Results showed that monozygotic twins, because of their shared genetics, had a higher correlation or equal share in conduct problems. On

the other hand dizygotic twins were less likely to conduct themselves in the same manner as their co-twin. Dizygotic twins can be different from each other. For instance one twin can act properly in class, while the other one can be cheating on a test. Overall results found that delinquent peer affiliation can be influenced by shared environment, non-shared environment and genetics of twins.

From these studies on twins' peer relationships we conclude that twins are more aggressive if they have aggressive friends. Also, monozygotic twins act and react in the same way as their co-twin, where dizygotic twins usually act and react in a different way. These studies overlooked how their teachers or their peers do not treat twins as individuals. So keeping this in mind I interviewed twins and asked them how this affected them.

***Academic Achievement.*** Academic success for twins can be influenced by teachers and peers. Byrne, Coventry, Olson, Wadsworth, Samuelsson, Petrill and Corley (2010) examined if teacher characteristics can have a direct impact on children's academic achievement. To determine this, twins were being studied in kindergarten, first grade and second grade, some twins sharing a teacher and others who had different teachers (Byrne et al, 2012). There were a total of 711 pairs of twin participants, 355 were monozygotic and 355 were same-sex dizygotic twins. The researchers looked at their literacy achievement to see if the characteristics of the teacher had an effect. Findings were that both monozygotic and dizygotic twins who were in the same classroom tended to achieve higher academically compared to twins who were in separate classes. Teacher effectiveness is based on how the teacher presents and teaches the curriculum, their communication skills, and how



well they know their students within their classroom. For instance, knowing their student's family background situation, which will help the teacher teach the student better. Teachers who were most effective had twin students in the same classroom who had a high literacy ability compared to twin students who had teachers who were less effective.

Teachers may assess twins academic achievement based on if they are identical or fraternal. Walker, Petrill, Spinath and Plomin (2004) researched how academic achievement can be influenced by the environment and genetically. The participants included 1,189 7-year-old monozygotic and dizygotic twin pairs. Teachers assessed the twins' academic achievement in two areas Mathematics and English. The twin method was used to assess the children by comparing similarities of monozygotic twins and dizygotic twins. Results found that genetics did have an impact on the way the teacher assessed the twins' academic achievement. So if the twins were identical, the teacher would assess the same exact way, but if the twins were fraternal they would be assessed differently. Monozygotic twins are twice as similar to dizygotic twins when teachers assessed both Mathematics and English. This study shows that genetics as well as the environment plays an important role in school achievement. We know that twins are compared by their teachers when it comes time for grading their academic work, but we do not know how twins perceive this themselves. This led me to ask if the twins that I interviewed felt either their teacher or peers compared them with their co-twin.

Twins can be impacted in their academic achievement based on if they are in the same or separate classroom as their co-twin. Walker and Plomin (2006) studied

3,020 9 year-old twin pairs consisting of monozygotic and dizygotic twins and looked at six areas, which include (1) social integration; relationships with the twins' peers, (2) opportunity; choices given, (3) adventure; willing to try new things, (4) general satisfaction; how happy the child is, (5) negative affect; lack of self confidence, and (6) teachers; twin students relationship with their teacher in regards to academic achievement. The participants were in same and different classrooms, meaning that some twins were in the same classroom as their co-twin and others were in separate classrooms from their co-twin. Teachers assessed the academic achievement of the twins. The twins assessed the classroom environment as being positive or negative by how inviting the classroom was and how well they interacted with the teacher. The researchers hypothesized that the twins would perceive their classroom environment based on the twins' genetics not the child's experiences. However, the findings proved that the environment had a greater impact compared to genetic factors, which played a modest role. Like Byrne et al (2012), they also found that twins who were in different classrooms had a significant lower academic achievement compared to twins in the same classroom. High academic achievement was also influenced by negative affect, adventure, social integration, and opportunity that the children assessed of themselves.

Peers and teachers can influence how twins do academically in school. Vitaro, Biovin, Brendgen, Girard and Dionne (2011) studied the social experiences of monozygotic twins in kindergarten and the effect it has on their academic achievement. Social experiences included the relationship with classmates, relationship with one's best friend and the relationship with the teacher. There

were 223 monozygotic pairs of twins who participated in this study. They were studied at two time intervals first at 6 years old and then at 7 years old. Peer rejection was assessed through peer nominations. Every child in the class had to choose three children that they enjoyed playing with and three children who they did not enjoy playing with. They tallied these results to determine if the twins were more liked or disliked by their peers. Other things were assessed such as peer victimization, how well the teacher and child related and academic achievement. Results found that twins who were rejected by peers and had a poor teacher-child relationship in kindergarten tended to do poorly academically in first grade. We know that peers can influence how twins will perform in school, but we do not know how twins feel about this themselves. One of the questions that I tackle in my interview in regards to this is having the twins describe their friendship network in school throughout their life.

Twin's IQ can be determined by if they are identical or fraternal. Segal (1985) studied 103 pairs of monozygotic and dizygotic twins aged five to thirteen years old. She studied the IQ's of the twin pairs to see if there was a difference between the monozygotic and dizygotic twins. IQ testing was performed on the children through the WISC-R. Some of the children were not old enough to take the WISC-R, so they were administered a different test, the Wechsler Preschool and Primary Scale of Intelligence. The mean score of the children's IQ was 110.75, which is higher than normal since twin pairs usually score about 4 to 10 points below the average individual child. Monozygotic twins had a higher correlation in their IQ,

while dizygotic twins had a lower correlation, which means that test results were very similar of monozygotic twins, but differed substantially for dizygotic twins.

These studies found that twins have higher academic achievement if they are in the same classroom as their co-twin. They also found that identical twins are more likely to be similar to their co-twin in academic achievement compared to fraternal twins. These studies lacked looking at if twins are compared with their co-twin in sports, grades or behavior. I took this into consideration when interviewing twins.

***School Readiness.*** Adjusting to school is easier for some twins than others. School readiness can be influenced by the home environment in which the child grows up. Twins share the same environment at home and this can have an impact on being ready for school or not. If twins have a positive learning environment at home they will be more ready for school. Forget-Dubois, Dionne, Lemelin, Perusse, Tremblay and Boivin (2009) studied a group of 662 twins at four time intervals (6, 19, 32 and 63 months of age) to examine whether school readiness is affected by socioeconomic status and exposure to reading. They also wanted to see whether there are genetic factors such that the twins inherited genes that contribute to school readiness and language. This study showed that genetic factors did not play a role in school readiness. School readiness was based on their home environment and indirectly their language skills. They found that school readiness was directly affected by socioeconomic status and being exposed to reading, meaning that children who came from low-income families and who were not read to, tended to not be ready for school. This is also the same for children who are not a twin. The

environment was the main predictor of school readiness since twins share the same environment.

Another school readiness study was performed by Lemelin et al (2007) who also studied twins by looking at environmental factors and genetics related to school readiness by using a four-component structure. The participants included 840 60-month-old twins. Within these contexts they looked at four areas of school readiness, the capability within these four areas and the predictive relationship between school readiness and school achievement. The four areas included reading, writing, mathematics and overall achievement. The Lollipop test was used to assess cognitive school readiness as the first step. Secondly the teachers assessed the children's school achievement through reading, writing, mathematics and overall achievement. Lastly, the Block Design subtest of Wechsler Preschool and Primary Scale of Intelligence was used to assess general cognitive ability of the twins. Genetics played a small role, however the twins were affected more by their environment. Since twins share more than their home environment with each other, such as daycare and extracurricular activities, environment plays more of a vital role in regards to school readiness. The study showed that school achievement and school readiness were positively influenced by if the twins were placed in the same classroom. Shared environment of twins at home and outside the home also had a positive impact on twins by they were cognitively more ready for school. We know that in regards to school readiness and academic achievement that twins do better if they are in the same classroom with each other, but we do not know twin's perspective on this. Some of the questions that I tackled were, are twins more

successful in their grades if they were put in the same classroom or a different classroom from their co-twin? In their relationships? And in their behavior if once again if they were in the same class or separated into different classrooms?

Socioeconomic status can determine how a child will perform in math. Rhemtulla and Tucker-Drob (2012) studied 1,400 monozygotic and dizygotic four-year-old twins. They examined the effects that the environment and genetics have on school readiness in mathematic skills and reading skills. They measured the socioeconomic status of the twins through the SES index, which includes parent's education, parent's occupation, and family income. Early reading skills and mathematical skills were tested. Findings were that both monozygotic and dizygotic twins who were from a higher SES had higher scores on there mathematic skills compared to a child from a lower SES. However, when it came to reading skills it did not matter the SES of the child. Genes are more expressed for children from higher SES families in early mathematic skills. Environment matters, twins who come from a wealthier family test higher in math skills and tend to be more ready for school.

From these studies, results show that twins who come from a high SES are more ready for school. Another finding shows twins are more ready for school if they stay in the same classroom with their co-twin. Since these studies looked at the effects of separating or keeping twins together in school, I thought it was important to interview twins and see their perspective on this.

### **Project Significance**

Although twins are more common in the world today, there is still not a lot of research done on twins. As reviewed in the literature above, socioeconomic

background of any student including twins plays a part in their readiness for school as well as twins being placed in the same classroom verses being separated into two separate classrooms. Strong evidence shows that twins do better academically if they are in a shared environment in school with their co- twin. If twins have peers who are aggressive towards them they tend to be aggressive in return. Overall these studies show that twins succeed in school, socially and academically when they are kept together in the same environment. For my senior project I endeavored to get twins' perspectives on subjects that have not been widely studied such a: not being seen as individuals, being compared with their co-twin in sports, grades and peer relationships and the effects of being separated or put into the same classroom as their twin.

## CHAPTER THREE

## METHOD

**Participants**

A convenience sample was used to recruit the participants. They consist of three twin pairs who are family and friends of mine. They are all from the west coast of the United States. They are aged from 21 to 22 years old. One twin pair consists of a male and a female, the other is two dizygotic females and the third pair is two monozygotic females.

<b>Twin Pairs</b>	<b>Gender</b>	<b>Age</b>	<b>Twin Type</b>	<b>Ethnicity</b>	<b>Schooling</b>	<b>Family SES</b>
Set A	Both Female	20	Fraternal	White	College in progress	Middle Class
Set B	1 Female 1 Male	22	Fraternal	White	College in progress	Middle Class
Set C	Both Female	22	Identical	Hispanic	College in progress	Middle Class

**Procedure**

Case studies will be used to find gaps in the research on twins in school. One gap is twins not being looked at as individuals and being looked at as a pair. Another gap is twins being compared with their co-twin in sports, grades and in peer relationships. The last gap includes the effects of being separated or put in the same classroom as their twin. With these gaps in mind three sets of twins will be interviewed. The twins will be contacted individually through e-mail and given a set of six questions to answer about being a twin in school. They e-mailed their answers to the six questions back to me. From previous research I found that twins



tend to do better academically if they are in the same classroom as each other (Lemelin, Boivin, Forget-Dubois, Dionne, Seguin, Brendgen & Perusse, 2007).

### **Measures**

The twins answered five questions regarding being a twin in school. The questions include:

- 1) Were you separated from or in the same classroom as your co-twin in school?
- 2) Do you feel like you would have been more successful:
  - a. With your grades if you were separated or in the same classroom as your co-twin?
  - b. In your relationships if you were separated or in the same classroom as your co-twin?
  - c. With your behavior if you were separated or in the same classroom as your co-twin?

3) Were you compared with your twin in school with your grades?

Were you compared with your twin in sports?

Were you compared with your twin in behavior? If so, explain.

Previous studies have not examined this area in regards to twins. This is an important factor to take into consideration.

4) Do you feel like you were treated as an individual in school? By your teachers?

By your classmates?

5) Briefly tell me about your friendship network in school throughout your life.

## CHAPTER FOUR

## RESULTS

I used a qualitative analysis to acquire my results. All of the twins that were interviewed were in the same classroom, for the most part, as their co-twin in elementary school. It was interesting that both the sets of girl twins were separated for one year during their elementary years of school. Four out of the six twins were compared with their co-twin with their grades. One thing that stood out was that the pair of identical twins said that others did not only compare them, but they also compared themselves. Again, four out of the six twins were compared with their co-twin in sports. Something remarkable was that the twin pair that was not compared was the opposite sex twins. This was mainly because they never played the same sports. Behavior wise all the twins were compared with one another. One fascinating thing that the twins mentioned in their interview was that they felt like there was a bad twin and a good twin. The bad twin was always compared with the good twin because people did not understand why they could not both be good.

Most of the twin pairs felt like their teachers or their peers did not treat them like an individual. Four out of the six twins said that their classmates knew them as “the twins”. The male-female twin set, not only because of their different sexual orientation, but also their social pattern and social circle were so different, that they were treated as individuals.

Separation may be good for some twin pairs, but not for others. Half of the twin pairs did better when they were in the same classroom as their twin. They received better grades, had better relationships and behaved better when they were

in class together. Interestingly enough the identical twin pair thought that they would have done better overall if they were separated from their co-twin in school.

A different aspect that was taken into consideration was friend relationships. Four out of the six twins shared the same group of friends throughout their childhood. The twin pair who did not share friends was the opposite sex twins.

## CHAPTER FIVE

## DISCUSSION

The goal of this project was to get twins' perspectives on being a twin in school. I felt like my project was very successful because the twins answered each question in a very unique way. They all had their own perspective on each question.

To revise this project I would first interview more twins. I would also get anonymous people, so that they would be able to answer more truthfully and not answer in a way that they think I would want them to answer. There should be a range of twins from different SES backgrounds, since all the participants in this study were from middle class families. I would also interview twins who are different ages, since all the twins I interviewed were in their early twenties.

Future research should be done on the effects of twins not being treated as individuals, since there has not been research done on this to date. The interviews clearly showed that the twins felt that they were always seen and treated as a unit and not as individuals. There should be more studies done on the effects of having twins separated or kept together in the same classroom. Some of the twins that were interviewed felt like they were more academically successful and did better in school overall if they were in the same classroom as their co-twin, but others felt like it would be better for them to be separated. Previous research indicates that twins do better academically and are more ready for school if they are in the same classroom as their co-twin (Lemelin et al, 2007). There should be more studies done just like this one.

Even though it was hard to find research on twins in the three particular

areas including: peer relationships, school achievement and school readiness, I hope the interviews will help researchers want to study more about twins. Twins are more and more common in today's world, so teachers and parents of twins are going to want to know more about twins. It is time to acknowledge the growing number of twins in the world and have more research done on twins.

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