

5-2014

# Parent Perceptions of the Relationship Between Pacifier Use, Thumb Sucking and Speech Production

Kelsey Elizabeth Wendt  
*University of Arkansas, Fayetteville*

Follow this and additional works at: <http://scholarworks.uark.edu/rhrcuht>

---

## Recommended Citation

Wendt, Kelsey Elizabeth, "Parent Perceptions of the Relationship Between Pacifier Use, Thumb Sucking and Speech Production" (2014). *Rehabilitation, Human Resources and Communication Disorders Undergraduate Honors Theses*. 31.  
<http://scholarworks.uark.edu/rhrcuht/31>

This Thesis is brought to you for free and open access by the Rehabilitation, Human Resources and Communication Disorders at ScholarWorks@UARK. It has been accepted for inclusion in Rehabilitation, Human Resources and Communication Disorders Undergraduate Honors Theses by an authorized administrator of ScholarWorks@UARK. For more information, please contact [scholar@uark.edu](mailto:scholar@uark.edu), [cmiddle@uark.edu](mailto:cmiddle@uark.edu).

Running head: PARENT PERCEPTIONS

Parent Perceptions of the Relationship Between  
Pacifier Usage, Thumb Sucking and Speech Production

Kelsey Wendt

Program in Communication Disorders

Honors Thesis

April 28, 2014

Keywords: Parents, pacifiers, thumb-sucking, speech

### Abstract

The purpose of this study is to investigate the perceptions of parents about the relationship between speech production and the usage of pacifiers and thumb sucking. One hundred and twenty five participants with children below the age of ten completed a digital questionnaire sent out through social media. The results revealed that the parents who let their child use a pacifier or suck their thumb use a variety of sources to gain information and form opinions about this. These ranged from print materials to website to friends and family. Pacifier use was more frequent than thumb sucking. Most parents did not report speech difficulties in their children and few of those who did, associated these with pacifier use or thumb sucking.

## Parent Perceptions of the Relationship between Pacifier Usage, Thumb Sucking and Speech Production

Speech-language pathology (SLP) as a field is concerned with communication issues that impact the lives of children and adults. Speech-language pathologists (SLPs) who work with young children are many times asked by parents about the impact of thumb sucking and/or pacifier use on the development of speech and language in young children. Thumb sucking is a natural reflex in children that can sometimes start off in the womb. Pacifier usage on the other hand does not come naturally. Parents will give their child a pacifier to calm or soothe them.

To allow thumb sucking or pacifier use is a topic of interest for parents and one on which they receive a range of advice from friends, family, and medical care professionals. With the increase in social media and almost constant/instant communication parents may come to SLPs seeking clarity from the multitude of opinions on whether they should allow thumb sucking/pacifier use and if they do allow this, when it should be discontinued. The purpose of this study is to investigate the perceptions of parents who currently have children who continue to suck their thumbs or use a pacifier and compare their perceptions to those of parents whose children no longer use either in order to better understand how they are using various sources for their decisions.

### **Review of the Literature**

#### **Development of Speech Production**

For newborns, crying is their only way of communication. The first three years of a child's life is the most important for developing speech (Tortora, 2012). As they gradually get older, they begin to communicate through actual words and phrases.

Starting off small through babbling and cooing, then going through one word utterances at around one year of age, then combining words and phrases by 24 months, to finally full sentences and understanding by age four. The first three years of life is usually the critical time during which parents will recognize speech delays or differences in their child (“Speech and language,” 2011).

Several factors, both structural and functional, go into creating speech production. The lips, tongue, teeth and alveolar ridge all play a part in correct speech production. The tongue is the most important articulator when speaking. This muscle is responsible for the majority of our speech sounds. The dorsum, or the largest part of the tongue, rests with the hard and soft palate of the mouth. Tongues assist nearly every other articulator in creating specific phonemes. The lips or oral labials also play an important part of our speech production. The lips assist with the production of bilabial and labiodental sounds, these being /p/, /b/, /m/, /f/ and /v/. With firm closure on the lips, they are able to create sound using a plosive manner resulting in creating these phonemes correctly. Two immobile articulators are also important in regards to developing with pacifier or thumb-sucking habits. The alveolar process, or alveolar ridge is also responsible in assisting to create particular phonemes. This process houses the upper dentition and with the help of the tongue, can create alveolar sounds such as /t/, /d/, /s/, /z/, /n/ and /l/. The last important articulator that comes into contact with these child habits is your teeth. They too, serve a purpose in our speech production. Also in assistance with the tongue, teeth provide us with helping to produce phonemes such as /f/, /v/, /θ/, and /ð/. They also assist in all obstruent fricative phonemes as our breath can pass through our mouths under the lower incisors of our upper dentition (Pena-Brooks & Hedge, 2007).

Another important component to oral development is the development of teeth. When you are developing your first set of teeth as a child, they are considered as your deciduous teeth (Tortora & Nielsen, 2012). These teeth will typically first appear at about six months of age and one tooth should continue to appear each month after. After all deciduous teeth have come in; the child should have twenty teeth (Tortora & Nielsen, 2012). Deciduous teeth normally include two central and lateral incisors, two canines and two molars. All these teeth are generally lost between 6 and 12 years of age before their permanent teeth develop. Teeth, especially the deciduous we have as a child, is important in develop and can be effected when using a pacifier or sucking a thumb.

### **Pacifier Usage**

Pacifiers and a children's habit of thumb sucking have been thought to be ways of comfort and security for children while growing up. Children often start using a pacifier when their caregivers give it to them as a way to calm the child down from crying or discomfort. This nonnutritive method often helps the caregiver more than the child. This way of security for the child can often calm down the child, giving the caregiver a relief from the child's discomfort. But there can also be positives for the child as well. Pacifier usage has proven to calm infants when in discomfort from teething or when in times of stress. It can also help the child fall to sleep while calming them. Research has also shown that pacifiers help pre-term infants. Per-term infants do not often know the ability to suck independently. A feeding tube or active hand feedings might be necessary for a pre-term infant for nutrition purposes. Physicians and nurses in the neonatal intensive care unit often use pacifiers as a daily tool for the pre-term infants. The pacifier will often help them develop the ability to suck and swallow in coordination with breathing.

Research in the past has shown that pre-term infants who use pacifiers as a form of therapy show increased weight gain and growth compared to pre-term infants who do not use a pacifier. A final positive aspect of pacifier usage is the prevention of SIDS.

Sudden Infant Death Syndrome is the unexplained death of a child under one year of age even after thorough examination (Task Force on Sudden Infant Death Syndrome, 2011).

The task force on SIDS states that pacifiers when given to the child before bed time can help the tongue from falling into the back of the pharynx causing blockage to the air supply. Pacifiers could also help the child from not spitting up and blocking the air supply, which has been a probable cause of SIDS. In current research the SIDS task force recommends pacifier usage during sleep so that there is a less likely chance of the child dying of Sudden Infant Death Syndrome (Task Force on Sudden Infant Death Syndrome, 2011). Children often start their increased speech production phase by 12 months (BabyCenter Medical Advisory Board, 2013). It is encouraged that caregivers should start to wean their child off the pacifier at this age for this specific reason. If they constantly have their security device inside their mouths, how will they begin to talk or even learn the basics of talking?

An article from a study completed in the University of Wisconsin-Madison, claims that pacifiers can cause emotional and language delay in children, especially in boys. This study could be written for anyone else conducting research on this topic or parent curious about the topic as well. The author, Karen Herzog, argues that children who use pacifiers are not able to mimic the facial expressions of others when a pacifier is constantly in their mouth. Herzog states that girls make sufficient emotional progress, with or without a pacifier, boys however do not. Herzog completed her study with two

different age groups of boys or men who used a pacifier throughout their childhood. The first group was boys 6-7 years old and the second group was college-aged men. The first group tested lower on their ability to mimic a video that they were shown and the second group tested lower on perspective taking of their peers on empathy. The author then states that this decrease in emotional development caused by pacifiers then causes speech delays. “If a child cant mimic the parents’ emotional expressions, it takes it one step further” (Herzog, 2012).

### **Thumb Sucking**

Thumb sucking is also a popular habit for young children. Some parents would rather have their child use a pacifier over sucking their thumb because of children’s literal attachment to their thumb. When children use pacifiers as their security device, it can be taken away from them when the habit is needed to be broken. Thumb sucking, as a security device cannot be taken away so easily. In majority of cases, children find that sucking their thumb soothes them all on their own. Pacifiers, on the other hand, are given to the child for their comfort by their caregivers. Several sonograms have shown that infants can start this thumb sucking habit as early as inside their mothers womb. Other infants will usually just find their thumb by themselves and realize sucking their thumb feels comforting. Research has suggested that thumb sucking could be the cause of several theories. The theories being, not enough satisfaction with sucking while feeding so the infant results to sucking on their thumb, emotional disturbance that will cause the child to find the comfort of their thumb, or the mere pleasure of sucking their thumb. Studies will majority rule out the first two theories of insufficient satisfaction or emotional disturbance (Thomaz, 2012).



A particular study done in 1970 shows an investigation completed with children who have prolonged thumb-sucking attachments. Dr. Brynjolv Anke (1971) of the dental facility in Oslo, Norway completed the study. It consisted of 47 children who sucked their thumbs regularly. These children were given a splint molded to their palate and alveolar ridge that was removable. 23 children received psychological support as well as the splint to help them reduce their habit while two groups with 12 children each were the control groups. Control group one received psychological support and no splint, while control group two received neither physiological support nor splint. After 6 months of this testing, the results showed that the group with 23 children who received the splint and physiological testing had a dramatic decrease in thumb sucking compared to the two control groups. This study showed us that the thumb sucking habit is not due to psychological problems related to the child. Rather, it is probable that the reason for this habit is the purpose of pleasure. Once the pleasure was taken away from the child through the splint, the child decreased their habit (Anke, 1971).

More up-to-date articles have shown that once a child has reached the preschool age, it is time to start weaning the child away from the habit. Once children reach a more social environment, besides being with family, they start to realize that sucking their thumb may not always be appropriate. Therapist Shari Green states, “Most thumb-sucking children I see want to stop- they just don’t know how” (N.L.C, 2012).

### **Consequences of Pacifier Usage**

Along with the positives of using a pacifier or sucking your thumb, there are also downsides as well. When using pacifiers, there is a chance that the child’s teeth or jaw could become misaligned. Recent studies show that if the child is persistent with the use

of pacifiers up until the age of five, then dental malocclusion such as, anterior open bite, posterior crossbite, and narrow intercuspid are greater compared to children who stop pacifier usage at age two to three years (Nelson, 2012). Another study completed confirmed this statement by showing that posterior crossbite was 22 times higher in children who used a pacifier for over 36 months compared to children who used a pacifier for 18-35 months (Nelson, 2012).

Cavities are another dental concern related to children's use of pacifiers. A review of literature states that pacifiers can cause cavities in children's dentition due to the pacifier locking in bacteria inside the mouth. The American Academy of Pediatric Dentistry (AAPD) offers suggestions to parents to help minimize this cause. Suggestions include minimizing saliva-sharing activities such as putting the pacifier in your own mouth to clean off the germs before the child puts the pacifier in their mouth. They also suggest that the child see a dentist by 12 months of age or when their first tooth erupts from the gums (Nelson, 2012).

One of the greatest concerns that mothers come across when deciding whether to allow their child to use a pacifier is the effect it can have on the child's breast-feeding habits. Scholars and medical professionals have stated in previous works to stay away from pacifiers due to this fact. The greatest impact that pacifiers could have on breast-feeding is accommodating the child to the shallow suck. This sucking mechanism used while utilizing a pacifier does not necessarily teach the child to suck and swallow like they would while breast-feeding. Using a pacifier teaches the child a sucking habit with no swallowing attached since there is no nutrition satisfaction with pacifiers (Nelson, 2012).

The biggest concern for SLPs would be the effect pacifiers could have on a child's speech. Some studies show that some speech delays can occur in children who use pacifiers for more than three years of age (Nelson, 2012); however, few evidence-based studies have been completed in the field. Speech pathologist, Patricia Hamaguchi, states in article from Baby Center that pacifiers can sometimes cause the child's tongue to thrust, flatten at rest, or push between the teeth causing malocclusions such as the ones stated earlier. These dental limitations can then inhibit the child from being successfully able to produce the /s/ and /z/ phonemes. This speech development delay in these phonemes can then cause the child to form a lisp when producing words (BabyCenter Editorial Team, 2007). Most of the time, it is critical to know to take away the pacifier at a certain age in order to not produce certain speech delays. According to Hamaguchi, 18 months is the best time for the toddler to kick the pacifier habit (BabyCenter Editorial Team, 2007).

### **Consequences with Thumb Sucking**

Just like pacifier usage, thumb sucking can also cause dental problems in children. Children's teeth can start to be misaligned if they prolong their thumb sucking till all of their deciduous teeth have grown in (N.L.C, 2012). When teeth are misaligned from thumb sucking the front teeth tend to be pushed out from the pushing of the thumb. The lower teeth could also be pushed in from the knuckle of the thumb while sucking. When the teeth are misaligned like this, the teeth do not close properly when they bite down (Afzelius-Alm, 2004). This open bite can start to be discomforting to children while eating. Due to these uncomfortable eating habits, children will normally develop a tongue thrust with a thumb sucking habit. Singer-Vine( 2009) points out that tongue

thrusters are normal in a child's development but tongue thrusters along with the occlusions in the child's teeth is a concern.

Tongue thrusters and occlusions in teeth could lead to speech problems with thumb sucking children. Certain phonemic sounds are accompanied by tongue tip movements such as, /t/ /d/ /s/ /z/ /l/ and /n/. When a child has a tongue-thruster problem, these phonemic sounds may be challenging to them (Singer-Vine, 2009). Evidence shows that tongue thruster should decrease with age. But if the child has occlusions due to thumb sucking, this problem could not decrease. In this case, seeing a SLP would be ideal. An article from American Health, states that thumb sucking could also cause lisps in children's speech as well. This article states that thumb sucking can cause the roof of the mouth, or palate, to flatten. This can cause the child to lisp with certain phonemes such as /s/ and /z/. Interestingly though, they did not refer the parents to SLPs, the article instead referred parents to orthodontists. It states, "...The sucking motion flattens the arch of the roof of the mouth. The result can be a lisp and a need for orthodontic treatment when the child is older" (Colino, pg 82).

### **Summary and Questions of the Study**

The presented literature suggests that while oral structure may temporarily change with pacifier use, thumb sucking and speech production, the effects may not be long-lasting and can be addressed with a combination of speech therapy and orthodontic treatment. Therefore, based on research that has spanned several decades, there is little reason for parents to be concerned. However, the scientific explanations do not seem to be aligned with parent perceptions as seen in popular press and on websites. SLPs are in the position of working with parent perceptions as they make decisions to treat or not

treat speech differences. Since a number of young children will be brought to them by concerned parents, and many of these concerned parents will have multiple social inputs for the perceptions that they bring with them, it is necessary in today's high-tech, socially connected world to reassess the perceptions held by parents. The purpose of this study is to investigate the perceptions of parents about the relationship between speech production and the usage of pacifiers and thumb sucking. The specific questions of this study are as follows:

1. Do parents believe that pacifier use impacts speech production?
2. Do parents believe that thumb sucking impacts speech production?
3. Do parents believe that age of use, frequency of use and duration of use (time, months, per day) of pacifier and thumb sucking impacts speech production?
4. What sources do parents use to form these opinions?

## **Methodology**

### **Participants**

Fifty parents of children below the age of ten were sought for this study. There was no control for race, gender or geographic location.

### **Materials**

A questionnaire was developed from the literature. This questionnaire included demographic information as well as parent beliefs about pacifier use, thumb sucking and speech production by age of use, frequency of use, and duration of use. The questionnaire also asked participants about the sources of their information.

### **Procedure**

The questionnaire was created in digital form, submitted through social media websites. Parent support groups and local, regional and state associations were sent links with the request to forward to possible participants.

**Analysis**

The demographics from the questionnaire were used to sort the responses into children who sucked their thumb and children who used a pacifier and some who did both. Items from the survey were assigned to specific questions of the study in order to analysis the results.





**Results**

**Demographics**

A total of 125 individuals responded to this questionnaire that was placed online through social media. Out of this number of responses, a majority of parents, 47%, stated that their child used at pacifier. Twenty-four percent of parents stated that their child sucked their thumb and 6% stated that their child did both. The 23% of parents who stated that their child did not suck their thumb nor use a pacifier were then directed toward the end of the questionnaire. Therefore, the results for this study are based on the responses of 96 responses. (see Table 1)

Table 1

*Demographics of Study Participants*

Answer		Response	%
Pacifier		59	47%
Thumb Suck		30	24%
Both		7	6%
None		29	23%
Total		125	100%

**Question One**

The first question of the study asked participants if they believe pacifier usage impacts speech production. Questions six and seven were used to answer this question. Question six asks parents if their child have ever experienced any speech difficulties and sixteen parents whose child used a pacifier responded yes to this question. Forty-two parents whose child used a pacifier responded no, their child did not have any speech difficulties. (see Table 2)

Table 2



*Amount of Children that had Speech Difficulties after using a Pacifier*

Answer	Response	%
Yes	16	28%
No	42	72%
Total	58	100%

The sixteen parents who responded yes to question six were then taken to question seven and were asked if they believe their child’s speaking problem were due to their pacifier or thumb sucking habit. Out of the sixteen parents, four responded yes, I do believe their pacifier habit effected their speech production, and twelve responded no, I do not believe their speech production difficulties were because of pacifier habit. (see Table 3)

Table 3

*Parent’s Belief on Whether or not their Child’s Speech Difficulties were due to their Pacifier Habit.*


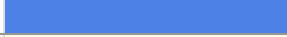
Yes, I believe their habit effected their speech production		4	25%
No, I do not believe their speech production difficulties were because of their thumb sucking or pacifier habit.		12	75%
Total		16	100%

**Question Two**

The second question in the study asked participants if they believe their child’s thumb-sucking habit impacts their speech production. Items six and seven were also used to answer this question. Item six asked the participants if their child ever had any speech difficulties. Out of the participants whose child sucked their thumb five responded that yes, their child did have a speech problem and twenty-five participants responded that no their child did not have any speech problems. (see Table 4)

Table 4

*Amount of Children Who had Speech Difficulties after sucking their Thumb*

Answer		Response	%
Yes		5	17%
No		25	83%
Total		30	100%

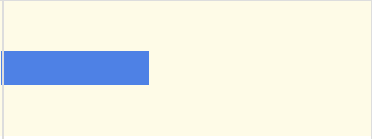

The five participants who responded yes to the previous item were then taken to item seven and asked if they believe their child’s speech production problem is because



of their thumb-sucking habit. Two respondents stated that yes they do believe that their child’s thumb-sucking habit created a speech production problem. The remaining three respondents stated that they do not believe their child’s speech problem was do to their thumb-sucking habit. (see Table 5)

Table 5

*Parent’s Belief on Whether or not their Child’s Speech Difficulties were due to their Thumb Sucking Habit*

Yes, I believe their habit effected their speech production		2	40%
No, I do not believe their speech production difficulties were because of their thumb sucking or pacifier habit.		3	60%
Total		5	100%

**Question Three**

The third question of the study looks at age and frequency of use regarding pacifiers and thumb sucking. The questionnaire revealed that almost all of the children started using a pacifier below the age of one and continued to use their pacifier till four or five on average. The statistics of children who suck their thumbs show that majority of those children started below the age of one as well. It was different from pacifier use in that the average of children who sucked their thumb quit the habit at age five or later (NOTE: The letter ‘C’ in table 7 indicates continued use beyond 5+ years of age.) Comparing these averages of beginning and ending of use, the majority of participants stated that their child did not end up with speech problems. (see Tables 6 & 7)

Table 6

*Start of Pacifier use and Thumb Sucking*

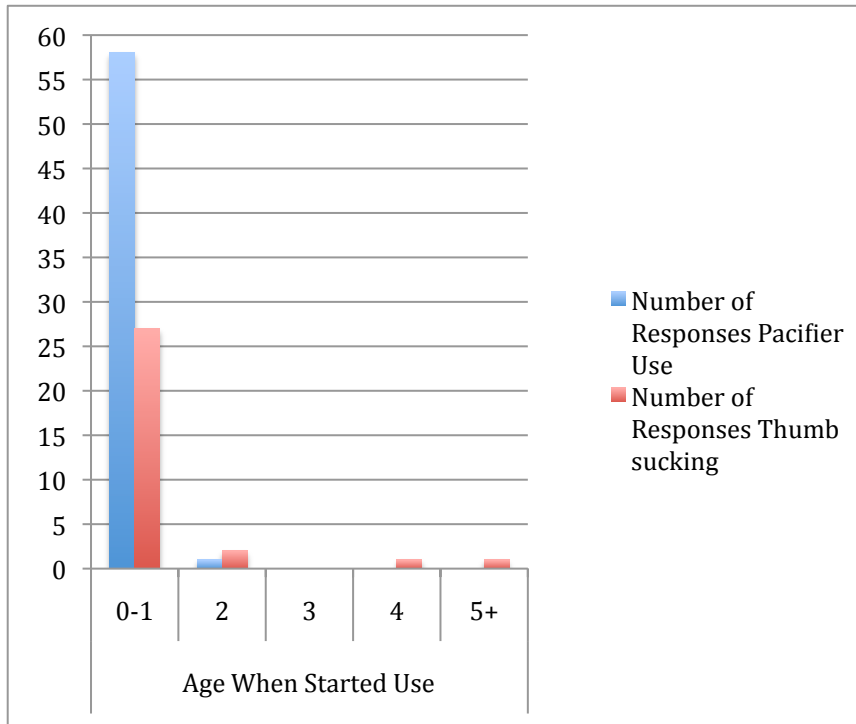
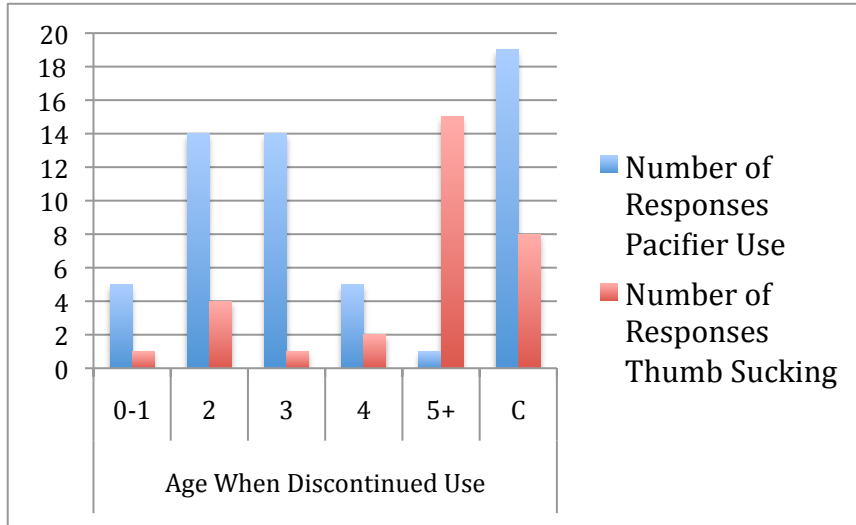


Table 7

*End of Pacifier use and Thumb Sucking*



Of the participants who stated their child used a pacifier and did have speech difficulties, the child's frequency of use was high compared to children who sucked their thumb and had speech difficulties. Participants showed that they would give their children a pacifier in several situations compared to children who sucked their thumb on their own. 100% of participants stated that their child uses their pacifier when sleeping when only 80% of participants chose that option with thumb sucking. Also, zero participants stated that their child sucks their thumb in social situations when twenty participants stated their child uses a pacifier in social situations. (See Table 8 & 9)

Table 8

*Frequency of Pacifier use*

Answer	Response	%
During naps/sleeping	15	100%
When cranky or unhappy	13	87%
When waking up from nap/sleeping	6	40%
Car Rides/Transportation	10	67%
Whenever I offer it (Pacifier use)	7	47%
School/social environment	3	20%
Other	1	7%

Table 9

*Frequency of Thumb Sucking*

Answer	Response	%
During naps/sleeping	4	80%
When cranky or unhappy	3	60%
When waking up from nap/sleeping	1	20%
Car Rides/Transportation	1	20%
School/social environment	0	0%
Other	1	20%

**Question Four**

The last question of the study asked participants what sources they used to form their opinions on whether or not to let their child use a pacifier or suck their thumb. The results varied as the participants were asked to check all that apply to their situation. Family was the number one selected option with fifty different responses. Friends and books/articles were also very popular with thirty-nine responses. Television was the least selected of the participant with only one person selecting the option (see Table 10).

Table 10

*Where Parent's Found Sources of Information*

Answer	Response	%
Family	50	57%
Friends	39	44%
Books/articles	39	44%
Television	1	1%
Social Media	12	14%
Other	34	39%

**Discussion**

The purpose of this study was to investigate the perceptions of parents about the relationship between speech production and the usage of pacifiers and thumb sucking and determine the sources of these perceptions. The results of the questionnaire showed that the majority of children who suck their thumbs or use a pacifier, do not have any speech difficulties. Of those children who did have speech difficulty, the majority used a pacifier instead of sucking their thumb. Out of the twenty-four participants who responded that their child did have speech difficulties, majority of them did not think of their child's habit to be the cause of it. Results suggest that parents do take into consideration how often and for how long they let their child suck their thumb or use a pacifier. Children who used a pacifier broke the habit a lot earlier than children who sucked their thumb. Age of use was more scattered for children who sucked their thumb compared to children who used a pacifier. The results also showed that the parents who let their child use a pacifier or suck their thumb use a variety of sources to form opinions.

Although this questionnaire did not ask any questions regarding the child's dental history, the literature stated before that malocclusions and tongue thrusts could become a problem with children who suck their thumb or use a pacifier (Singer-Vine, 2009). These

dental problems are likely to then end with speech impediments before the children are able to lose their deciduous teeth. The results showed that the majority of parents whose children used a pacifier or sucked their thumb did not end up having any speech problems at all. It was interesting to see that out of the few who stated their child did have speech problems, the majority did not believe their child's habit to be the cause of it. It is safe to assume then, that the children of these parents also did not have any issues with dental problems.

The results in the questionnaire regarding frequency and age of use show that parents did take into consideration when it was time to take their child's pacifier away, or help their children stop sucking their thumb. The literature states that the appropriate age for children to stop using a pacifier is 18 months (BabyCenter Editorial Team, 2007), and the appropriate age for children to stop sucking their thumb is around three and four years old ("About the thumb," 2014). The questionnaire shows that the majority of children stopped using a pacifier at two or three years of age and stopped sucking their thumb at age five or later. Professionals would agree that the parents who stopped their children from using a pacifier at age two or three is appropriate. They might disagree, however, with the majority of the parents who let their child stop sucking their thumb at age five or later.

Although there is very little literature regarding where parents are most likely to seek information about whether or not to let their child use a pacifier or suck their thumb, this questionnaire covered it. More than half of the respondents chose family as their number one source of information. Others also chose friends, books, and articles. Television was surprising the last option with only one respondent choosing this.

Finally, the questionnaire provided information about parent perceptions regarding speech production with pacifier use and thumb sucking. Majority of participants who completed the questionnaire stated that their child never had any speech difficulty, but of children who did have speech problems they were more likely to use a pacifier than suck their thumb. This was an inconsistent finding in that most participants stated that they did not believe their child's speech problem was due to their pacifier use or thumb sucking habit.

### **Limitations**

There were several limitations to this study. Some of the items could have been more specific, which would have added details as well as allowed for connections between items. In items such as "When did your child stop using a pacifier/sucking their thumb", there was an option to choose "Still going on". The participants did not have the opportunity to elaborate the age of their child. Another limitation was the "Other" option in items nine and ten. Item nine asked, "How frequent does your child suck their thumb/use a pacifier? (Check all that apply)". The questionnaire did not include a space for participants to expand by talking about other situations where their child sucked their thumb or used a pacifier. The same limitation applies to item ten where the respondents were asked, "Where did you find sources of information on whether or not to use a pacifier/let them suck their thumb? (check all that apply)." Again, the questionnaire did not continue to ask the respondents what other sources of information they use besides the choices already listed.

### **Future Directions**

This data collection provides a first look at parent perceptions with regard to pacifier use and/or thumb sucking and the relation of these to speech difficulties. The professional literature including that from speech-language pathology was used as the reference point. A next study can be designed for speech-language pathologists, dentists, and pediatrician to see how the perceptions from these professionals compare to those of the parents as well as to each other. In addition, parents of children who are being seen for early speech difficulties such as tongue thrust and lispings could be interviewed with regard to pacifier use and thumb sucking. This would add information about that small segment of children identified in this study by parents.



## References

- About the thumb sucking habit.* (2014). Retrieved from <http://tguard.com/about-thumb-sucking/>
- Afzelius-Alm, A. Factors that influence the proclination or retroclination of the lower incisors in children with prolonged thumb-sucking habits. (2004). *Swedish Dental Journal* , 28(1), 37-41.
- AllPsych. (2002, September 23). *Freud's stages of psychosexual development* . Retrieved from [http://allpsych.com/psychology101/sexual\\_development.html](http://allpsych.com/psychology101/sexual_development.html)
- Anke, B. The etiology of prolonged thumb sucking. (1971). *Scandinavian Journal Of Dental Research*, 79(1), 54-57.
- BabyCenter Editorial Team. (2007). *When should my baby stop using a Pacifier.* Retrieved from [http://www.babycenter.com/408\\_when-should-my-baby-stop-using-a-pacifier\\_1368496.bc](http://www.babycenter.com/408_when-should-my-baby-stop-using-a-pacifier_1368496.bc)
- BabyCenter Medical Advisory Board. (2013). Retrieved from [http://www.babycenter.com/0\\_pacifiers-and-your-toddler\\_12254.bc?page=1](http://www.babycenter.com/0_pacifiers-and-your-toddler_12254.bc?page=1)
- Herzog, K. (2012). Baby pacifier study: Daytime use blocks key facial expression. *The Christian Science Monitor*.
- Kohnle, D. (2012, October 02). Health tip: Kids need to stop sucking their thumbs. *Health Day*.
- Nelson, A. A comprehensive review of evidence and current recommendations related to pacifier usage. (2012). *Journal of Pediatric Nursing*, 27(6), 690-699.
- Nelson, A. (2010, October). *Delayed speech or language development.* Retrieved from [http://kidshealth.org/parent/emotions/behavior/not\\_talk.html](http://kidshealth.org/parent/emotions/behavior/not_talk.html)

- N.L.C. (2012, November). Thumb wars. *Parenting Early Years*, 40.
- Meitner, S. (2012, September). What's up with pacis?. *Baby Talk*, 15.
- Shotts, L., McDaniel, D., & Neeley, R. (2008). The impact of prolonged pacifier use on speech articulation: A preliminary investigation. *Contemporary Issues In Communication Science and Disorders*, 35, 72-75.
- Singer-Vine, J. (n.d.). Pacifiers tied to speech disorders. (2009). *Wall Street Journal - Eastern Edition* , 254(106), D4-D8.
- Speech and language developmental milestones*. (2011, May 12). Retrieved from <http://www.nidcd.nih.gov/health/voice/pages/speechandlanguage.aspx>
- Task Force on Sudden Infant Death Syndrome. SIDS and other sleep-related infant deaths: Expansion of recommendations for a safe infant sleeping environment. (2011). *Pediatrics*, 128(5), 1030-1039.
- Thomaz, E. Maternal breastfeeding, parafunctional oral habits and malocclusion in adolescents: a multivariate analysis. (2012). *International Journal Of Pediatric Otorhinolaryngology*, 76(4), 500-505.
- Tortora, G., & Nielsen, M. (2012). *Principles of human anatomy*. (pp. 821-823). Jefferson City: Biological Sciences Textbooks, Inc.

Appendix A - Questionnaire

1. Did/does your child use a pacifier or suck their thumb?
  - a. Pacifier
  - b. Thumb suck
  - c. Both
  - d. None
2. When did your child begin using a pacifier?
  - a. Age 1 or younger
  - b. Age 2
  - c. Age 3
  - d. Age 4
  - e. Age 5 or later
3. When did your child begin sucking their thumb?
  - a. Age 1 or younger
  - b. Age 2
  - c. Age 3
  - d. Age 4
  - e. Age 5 or later
4. When did your child stop using a pacifier?
  - a. Age 1 or younger
  - b. Age 2
  - c. Age 3
  - d. Age 4
  - e. Age 5 or later
  - f. Still using one
5. When did your child stop sucking their thumb?
  - a. Age 1 or younger
  - b. Age 2
  - c. Age 3
  - d. Age 4
  - e. Age 5 or later

- f. Still going on
6. Did your child have ever have any speech difficulties?
    - a. Yes
    - b. No
  7. If so, do you believe this to be because of their pacifier or thumb sucking habit?
    - a. Yes, I believe their habit effected their speech production
    - b. No, I do not believe their speech production difficulties were because of their thumb sucking or pacifier habit.
  8. How frequent does your child use a pacifier? (Check all that apply)
    - a. During naps/sleeping
    - b. When cranky or unhappy
    - c. When waking up from nap/sleeping
    - d. Car rides/transportation
    - e. Whenever I offer it
    - f. School/social environment
    - g. Other
  9. How frequent does your child suck their thumb? (Check all that apply)
    - a. During naps/sleeping
    - b. When cranky or unhappy
    - c. When waking up from nap/sleeping
    - d. Car rides/transportation
    - e. School/social environment
    - f. Other
  10. Where did you find sources of information on whether or not to use a pacifier/let them suck their thumb? (Check all that apply)
    - a. Family
    - b. Friends
    - c. Books/articles
    - d. Television
    - e. Other

Appendix B - IRB Approval

November 26, 2013

MEMORANDUM

TO: Kelsey Wendt  
Fran Hagstrom

FROM: Ro Windwalker  
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 13-11-294

Protocol Title: *Parent Perceptions of the Relationship between  
Pacifier Usage, Thumb Sucking and Speech  
Production*

Review Type:  EXEMPT  EXPEDITED  FULL IRB

Approved Project Period: Start Date: 11/26/2013 Expiration Date:  
11/25/2014

---

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

**This protocol has been approved for 100 participants.** If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or [irb@uark.edu](mailto:irb@uark.edu).