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Effect of Gradual versus Abrupt Weaning Strategies on Lamb Performance and Ewe Udder Health

Emmanuel Camarillo

Dr. Michael Seipel, Mentor

Weaning is well-known to be a stressful experience that can affect subsequent animal performance (weight gain, health) and thus have an impact on farm profitability. The aim of this study is to see if gradual separation of ewes and lambs during the weaning process affects lamb distress, weight gain and ewe udder health compared to abrupt separation. Nineteen Katahdin Hair Sheep ewes and their lambs from a local farm were assigned to two different groups: a control group (AW=abrupt weaning) following normal abrupt weaning procedure and an experimental group (GW=gradual weaning). Lambs in GW allowed to nurse once a day for the first 2 days and then once every other day for six more days, at which time lamb and ewe were separated completely. Lamb and ewe vocalization and agitation, lamb bodyweight, and ewe udder characteristics were evaluated. Lamb weights were recorded weekly for five weeks total. California Mastitis Test scores and ewe weights were observed and recorded at three intervals during the study. The study found no significant difference in lamb weight gain or ewe weight change between the groups. By day 16, mastitis was observed in a larger proportion of AW ewes, but the group differences were not statistically significant. Vocalization scores differed between gradual and abrupt groups, but only for the first three days post-weaning. This study did not generate conclusive evidence that a gradual weaning strategy would offer sufficient economic or health benefits to justify the additional labor it would require.

Introduction

Sheep-farming is an important primary source of income for many farmers. The demand for lamb fluctuates year-round depending on the economy and the time of the year. Religious customs and cultural preferences drive the production of lamb meat and its consumption in the United States. Demand for lamb is highest in the spring, resulting in high early spring prices and creating an incentive for farmers to produce for this time frame. Recent immigration trends have broadened the consumer base for lamb demand in the United States, increasing interest from producers in better systems of production to assure good meat quality and quantity throughout the year.

The most labor intensive part of sheep production is lambing season, when ewes in Midwestern farm flocks are often closely monitored to limit lamb loss due to dystocia or predation. Lambs are often weaned between 60 to 90 days of age to facilitate
getting the lambs to market weight in time for price peaks associated with religious holidays and festivals and to allow ewes to regain normal body condition prior to breeding. Weaning strategies that maximize lamb and ewe health while minimizing owner labor are of economic importance to the industry.

Many studies have examined different methods of weaning lambs, using breeds of sheep like the Morada Nova breed (Selaive, 2008) but very few have used the Katahdin Hair Sheep. Katahdin sheep have been selected for a shedding hair coat that does not require shearing, for low-maintenance lambing, multiple births, and improved muscling. They also exhibit out of season breeding ability as well as parasite tolerance (Bradford, 2002). The breeds used in developing the Katahdin are adaptable to a wide range of climatic conditions; their hair sheep ancestry makes them better adapted to hot, humid climates than most U.S. breeds (Schoenian, 2007).

The central question examined in this research is: Does gradual separation of ewes and lambs during the weaning process affect lamb distress, weight gain and ewe udder health compared to abrupt separation? My hypothesis is that gradual separation is less stressful for the ewe and the lamb than abrupt separation; lower stress should result in greater lamb weight gain and reduced frequency of mastitis in ewes.

**Literature Review**

The maternal bonding between a ewe and the lamb is an important aspect for the development and nourishment of the lamb. In social mammals, maternal-offspring recognition is necessary to provide good maternal care. This recognition process involves sensory cues including olfactory, visual and auditory cues, which begin as soon as the lamb is born. According to one study “suckling is a major factor in the strength of the ewe-lamb bond” (Schichowski, Moors, & Gauly, 2007), one in which bonding begins to establish. “During the suckling phase the ewe appears to use both vision and hearing to locate her lamb and to use olfaction to confirm her choice, but as lactation advances she appears to rely less on olfaction and more on the other senses” (Hafez, 1975). Olfactory cues allow recognition at short range and permit the ewe to check the lamb’s identity before allowing suckling. Both visual and auditory cues are used by ewes to discriminate between their own and another ewe’s lamb, typically at greater distances than olfaction. One study concluded that “changing the visual appearance of lambs interferes with the mothers’ ability to identify her offspring. Blackening the head, either partially or completely, resulted in a relatively high percentage of ewes avoiding their lambs” (Alexander and Shillito, 1977). Vocalization between the ewe and lamb is important for recognition especially after the ewe and lamb have been separated. A study done by Searby and Jouventin (2003) confirmed that ewes and lambs recognize one another by audition and noted that individual differences in sound frequency and timbre were most relevant.

Weaning typically occurs when lambs are between 60 and 90 days of age, because it allows for the ewes to return to breeding condition earlier. Weaning sheep under farming conditions combines two factors that can be potentially stressful agents: (1) physical separation of mother and young and (2) modification of lambs’ feeding habits (Orgeur, et al., 1998). To help reduce stress on the lamb when weaned “the ewe should
be removed from the lamb...and not vice versa” (Schoenian, 2007). Schichowski, et al., (2007), using Merinoland and Rhoenschaf sheep, compared lambs weaned at 8 or 16 weeks of age in two stages to those weaned by abrupt separation and concluded that “lambs weaned with the 2-stage method vocalized less and showed less behaviors indicative of agitation after separation than animals weaned by the traditional method of abrupt separation.” Also lambs weaned at 8 weeks had greater average daily gain than lambs weaned at 16 weeks of age. However, the study found no difference in lamb weight gain between gradual and abrupt groups. Weaning was done by one of two procedures. The traditional weaning method was by abrupt visual and acoustical separation of the ewe and lamb. In the 2-stage method, lambs were first prevented from nursing their dam for 1 week before their physical separation. Nursing was prevented by covering the udder of the mother with a net that was fixed on the back of the animal. My study differed from Schichowski, et al. in that the gradual weaning group was allowed to continue suckling when reintroduced back with the ewes on day 0, 1, 3, 5 and 7 before final separation. Also, this study used a different breed, the Katahdin Hair Sheep. Among other domesticated animals, cattle have been most extensively studied, though the modified weaning strategy most used with calves has been fence line separation to allow visual contact between cow and calf, but without reintroduction for nursing.

As the animal is weaned and a decrease in milk synthesis begins, “The residual milk is reabsorbed, the alveoli become reduced in size and eventually disappear leaving only the duct system and lobules of fat. A second pregnancy will result in complete restoration of the lobule-alveolar system” (Schalm et al., 1971). One of the most common health problems affecting sheep during weaning is mastitis. It is most prevalent shortly after lambing and during the post-weaning period. Severe cases of mastitis “can result in death of the ewe, but more often it takes its toll in the form of treatment costs, premature culling, and reduced performance of lambs” (Schoenian, 2007). Mastitis is inflammation within the mammary gland (Schalm et al., 1971). It can be caused by physical injury or stress or by bacteria which invade the mammary gland. Most commonly, mastitis begins as a result of penetration of pathogenic bacteria through the teat duct into the interior of the gland. If the internal environment of the gland is favorable to multiplication of the invading bacteria, the byproducts of bacterial growth and metabolism irritate the delicate tissues causing an inflammatory response (Schalm et al., 1971). There are several forms of mastitis. Clinical Mastitis, which can be chronic or acute, involves physical symptomologies in the udder. The udder becomes swollen and warm and sometimes painful to the touch. Ewes affected with mastitis develop fever, shivering, loss of appetite and weight loss. They may not allow the lamb to nurse. Ewes with sub-clinical mastitis can appear healthy, but there is a reduction in milk yield and there may be development of scar tissue in the mammary gland, as with clinical mastitis. This form of mastitis is the most severe form of mastitis and is also a major concern for the producer, as it often goes undetected.
Methodology

This study involved a quantitative analysis of data measuring post-weaning weight gain and behavior of lambs and ewe udder health under two weaning procedures: gradual separation and abrupt separation.

**Hypotheses:** Lambs in the gradual weaning group will gain more weight than those in the abrupt weaning group because the lambs from the gradual group would be suckling their mother’s milk for more days in addition to having access to concentrated feed and hay, allowing them to gain more weight. Lambs in the gradual weaning group will show lower rates of vocalization and agitation than those in the abrupt weaning group. Ewes in the gradual weaning group will exhibit lower incidence of mastitis.

**Animals:** 18 Katahdin ewes and 40 lambs from a local farm were studied. The lambs ranged in age from 50 to 106 days at the beginning of the study.

**Apparatus and Instruments:** A Salter-Brecknell digital scale was used to measure the weight of the lambs and the ewes. Two Sparco Brand hand held tally counters were used to count vocalizations of lambs and ewes. To test for mastitis in the ewes, a California Mastitis Test Kit was used.

**Procedures:** Stratified random sampling was used to assign ewes to treatment group. The lambs and ewes were sorted by litter size at weaning (single, twin, or triplet) and by age of lamb(s). Within this ordered list, ewes were alternately assigned to gradual weaning (GW) or abrupt weaning (AW) groups, with their lambs assigned to the same group. GW was the experimental group which was allowed reintroduction of lamb and ewe once per day for thirty minutes for the first two days and then for thirty minutes every other day until day seven post-weaning before their final separation. AW was the control group, which followed a typical abrupt weaning procedure, with lambs separated from ewes on Day 0. During the same post weaning period, lambs from GW and AW had access to a concentrated ration of 3:1 corn/protein supplement pellets (15 percent protein) and free choice of alfalfa hay, while the ewes only had access to free choice of alfalfa hay. All animals had access to fresh, clean water at all times. During the first week the lambs and ewes were acclimated to their new environment in the AHT barn and the initial body condition score (BCS) for each ewe was taken. Body condition score is an index of the amount of muscle and degree of fatness of the animal. BCS is used for “evaluating the adequacy of previous feed supply, determining future feed requirements, assessing the health status of individual animals, and establishing the condition of animals during routine animal management” (Body Condition Scoring of Sheep, 2006). Condition scoring is a simple method of assessing the condition of sheep by placing the hand over the backbone in the area just behind the rib cage. Scoring is done on a scale of one to five, where one is emaciated (extremely thin) and five is obese (see Table 1). Mean BCS of ewes was similar for both groups (GW = 1.90, AW = 1.875 [p < 0.849]) and showed generally thin condition resulting from suckling of lambs (12 of 19 ewes weaned twins and 5 weaned triplets). All lambs and ewes were treated with Cydectin and Valbazen for internal parasites.
Table 1. Body Condition Scoring (BCS) in Sheep

<table>
<thead>
<tr>
<th>Condition 1 (Emaciated)</th>
<th>Condition 2 (Thin)</th>
<th>Condition 3 (Average)</th>
<th>Condition 4 (Fat)</th>
<th>Condition 5 (Obese)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinous processes are sharp and prominent. Loin eye muscle is shallow with no fat cover. Transverse processes are sharp; one can pass fingers under ends. It is possible to feel between each process.</td>
<td>Spinous processes are sharp and prominent. Loin eye muscle has little fat cover but is full. Transverse processes are smooth and slightly rounded. It is possible to pass fingers under the ends of the transverse processes with a little pressure.</td>
<td>Spinous processes are smooth and rounded and one can feel individual processes only with pressure. Transverse processes are smooth and well covered, and firm pressure is needed to feel over the ends. Loin eye muscle is full with some fat cover.</td>
<td>Spinous processes can be detected only with pressure as hard line. Transverse processes cannot be felt. Loin eye muscle is full with a thick fat cover.</td>
<td>Spinous processes cannot be detected. There is a depression between fat where spine would normally be felt. Transverse processes cannot be detected. Loin eye muscle is very full with a very thick fat cover.</td>
</tr>
</tbody>
</table>

Source: Thompson and Meyer, 1994

Weight

Weight gain was assessed by recording ewe and lamb weights weekly. Using the Salter-Brecknell digital scale the weight of the ewes was recorded on days -7, 8, 16, and 23; for lambs, weight was recorded on days 0, 7, 16, and 21 of the study (See Figure 1).

Vocalization and Agitation

Vocalization and agitation of each lamb and ewe, as stress indicators, were recorded by an observer at the same time each day twice per day, once in the morning and once at night by using the hand held tally counter on days 0 to 14 (See Figure 1). Two different methodologies were used during the study to attempt to quantify vocalization and agitation of lambs and ewes as indicators of stress. The first method was used on days 0 to 2. The researcher, once per day, counted and recorded total vocalizations from ewes and from lambs in each group for four consecutive 15-minute intervals. The researcher also assigned the group an overall agitation score for the 15-minute interval, using the scale given in Table 2. The second method was used after day 2, in which the researcher observed each lamb and each ewe for 1 minute, counting the number of vocalizations and assigning an agitation score for that minute. These observation periods were conducted each morning and evening.
Figure 1.

**Timeline**

![Timeline Diagram]

Table 2. Agitation Scoring Test

<table>
<thead>
<tr>
<th>NO AGITATION (1)</th>
<th>AGITATION (2)</th>
<th>HIGH AGITATION (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>feeding, resting, lying, standing, or play behavior</td>
<td>moving around, head or leg moving</td>
<td>continuously moving, restlessness, or vocalization</td>
</tr>
</tbody>
</table>

Source: Schichowski, Moors, & Gauly, 2007

Ewe Udder Health

Ewe udder health was evaluated in part by stripping milk from the udder of each ewe and using a California Mastitis Test Kit to determine the presence or absence of mastitis. A half teaspoon of CMT solution was mixed with an equal amount of fresh milk from each ewe’s udder in the paddle. A brief rotary motion of the paddle allowed for the reaction to thicken the mixture or stay in liquid form. A scale of zero to three was used, where zero is negative (the mixture remains liquid) and three is positive (the mixture thickens) (see Table 3). The test was administered independently and results recorded for each half of the ewe’s udder.
Table 3. California Mastitis Test

<table>
<thead>
<tr>
<th>NEGATIVE (0)</th>
<th>SUSPICIOUS (1)</th>
<th>POSITIVE (2)</th>
<th>POSITIVE (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixture remains liquid. No slime or gel forms.</td>
<td>Mixture becomes slimy or gel like.</td>
<td>Mixture distinctly forms a gel.</td>
<td>Mixture thickens immediately, tends to form jelly.</td>
</tr>
<tr>
<td>NO MASTITIS</td>
<td>TRACE OF MASTITIS</td>
<td>MASTITIS</td>
<td>MASTITIS</td>
</tr>
</tbody>
</table>

Source: Original Schalm California Mastitis Test

The mastitis test was done on days 2, 8, and 16 of the study (See Figure 1). On day 8, those ewes with mastitis test scores that were greater than or equal to one were treated with oxytetracycline antibiotic to combat the bacteria in the udder. The study concluded on day 24, when ewes and the lambs were taken back to the owner’s farm. The statistical software package SPSS was used to analyze differences in weight gain, mastitis tests scores, and stress indicators between the two groups.

Results

A review of descriptive statistics prior to data analysis revealed one outlier – a lamb with measurably lower initial weight (-2.5 s.d.) than its peers. This lamb and its mother, who had chronic mastitis, were removed from the data analysis, resulting in a final sample of 18 ewes and 40 lambs. Descriptive statistics for lambs and ewes, after removal of these individuals, are shown in Table 4.

Table 4. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LAMB DATA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth Weight (lbs)</td>
<td>40</td>
<td>8.85</td>
<td>1.50</td>
<td>5.60</td>
<td>11.80</td>
</tr>
<tr>
<td>Weight Day 0 (lbs)</td>
<td>40</td>
<td>47.30</td>
<td>10.77</td>
<td>26.00</td>
<td>78.00</td>
</tr>
<tr>
<td>Age Day 0 (days)</td>
<td>40</td>
<td>71.95</td>
<td>13.44</td>
<td>57.00</td>
<td>113.00</td>
</tr>
<tr>
<td>Weight Day 21 (lbs)</td>
<td>40</td>
<td>56.35</td>
<td>11.45</td>
<td>30.00</td>
<td>86.00</td>
</tr>
<tr>
<td>Gain Days 0-21 (lbs)</td>
<td>40</td>
<td>9.05</td>
<td>2.60</td>
<td>2.00</td>
<td>14.00</td>
</tr>
<tr>
<td>Sex of Lambs</td>
<td></td>
<td></td>
<td></td>
<td>40% Female</td>
<td>60% Male</td>
</tr>
<tr>
<td><strong>ewe DATA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lambs Born per Ewe</td>
<td>18</td>
<td>2.33</td>
<td>0.49</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Lambs Weaned per Ewe</td>
<td>18</td>
<td>2.22</td>
<td>0.55</td>
<td>1.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Body Condition Score Day -7</td>
<td>18</td>
<td>1.89</td>
<td>0.27</td>
<td>1.50</td>
<td>2.50</td>
</tr>
<tr>
<td>Weight Day -7 (lbs)</td>
<td>18</td>
<td>139.68</td>
<td>15.42</td>
<td>112.00</td>
<td>160.00</td>
</tr>
<tr>
<td>Weight Day 23 (lbs)</td>
<td>18</td>
<td>138.45</td>
<td>15.67</td>
<td>118.00</td>
<td>166.00</td>
</tr>
<tr>
<td>Weight Gain Days -7 to 23 (lbs)</td>
<td>18</td>
<td>-1.23</td>
<td>7.34</td>
<td>-16.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Age Day -7 (years)</td>
<td>18</td>
<td>4.44</td>
<td>1.89</td>
<td>2.00</td>
<td>9.00</td>
</tr>
</tbody>
</table>
A t-test was used to compare the beginning weight and age of lambs at the initiation of weaning in GW and AW on day 0 of the study period. The t-statistic of 0.402 ($p < 0.690$) showed no significant difference between the mean beginning weight of GW (47.91) and AW (46.56), indicating no bias in assignment of lambs to groups by initial weight. Comparison of mean lamb age also showed no significant difference between GW (71.77 days) and AW (72.17 days) ($t$-statistic = -0.092, $p < 0.927$). The mean birth weight for lambs in GW was 8.75 compared to the AW which was 8.97 ($t$= -0.456, $p < 0.651$).

The t-test was used to compare mean weight gain for lambs in GW and AW groups. Means and t-statistics for each weight interval and the study overall are shown in Table 5.

### Table 5. Lamb Weight Gain (in lbs.) by Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean-GW</th>
<th>Mean-AW</th>
<th>Difference</th>
<th>t-statistic</th>
<th>Sig. of t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Gain Days 0-7</td>
<td>2.27</td>
<td>2.56</td>
<td>-0.28</td>
<td>-0.34</td>
<td>0.735</td>
</tr>
<tr>
<td>Weight Gain Days 7-14</td>
<td>7.45</td>
<td>6.83</td>
<td>0.62</td>
<td>1.00</td>
<td>0.322</td>
</tr>
<tr>
<td>Weight Gain Days 14-21</td>
<td>-0.18</td>
<td>-0.94</td>
<td>0.76</td>
<td>1.48</td>
<td>0.148</td>
</tr>
<tr>
<td>Weight Gain Days 0-21 (Overall)</td>
<td>9.55</td>
<td>8.44</td>
<td>1.10</td>
<td>1.30</td>
<td>0.198</td>
</tr>
</tbody>
</table>

T-tests showed no significant difference in weight gain between groups for any of three one-week intervals. During the first week after weaning for the abrupt group, when weight change difference would be expected to be greatest, the gradual group lambs gained an average of 2.27 lb. compared to the abrupt group lambs at 2.56 ($t$-statistic = -0.34, $p < 0.735$). Over the entire study, the gradual-weaned lambs averaged gain of 9.55 lbs. versus 8.44 lbs. for the abrupt-weaned group ($t = 1.30$, $p < 0.198$). This finding of no difference in gain, while contrary to the author’s initial hypotheses, is consistent with Schichowski (2007). Given the well-established expectation for males to gain weight faster than females, a t-test was used to assess weight gain among lambs by sex (see Table 6).

### Table 6. Lamb Weight Gain (in lbs.) by Sex of Lamb

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean-Female</th>
<th>Mean-Male</th>
<th>Difference</th>
<th>t-statistic</th>
<th>Sig. of t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Gain Days 0-7</td>
<td>1.63</td>
<td>2.92</td>
<td>-1.29</td>
<td>-1.60</td>
<td>0.118</td>
</tr>
<tr>
<td>Weight Gain Days 7-14</td>
<td>6.81</td>
<td>7.42</td>
<td>-0.60</td>
<td>-0.90</td>
<td>0.378</td>
</tr>
<tr>
<td>Weight Gain Days 14-21</td>
<td>-0.81</td>
<td>-0.33</td>
<td>-0.48</td>
<td>-0.89</td>
<td>0.379</td>
</tr>
<tr>
<td>Weight Gain Days 0-21 (Overall)</td>
<td>7.63</td>
<td>10.00</td>
<td>-2.38</td>
<td>-3.09</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Over the three weeks that lamb weights were recorded, males had significantly higher mean weight gain of 10.00 lbs versus 7.63 lbs for females ($t = -3.09$, $p < 0.004$).

The impact of weaning strategy on ewe performance and udder health was assessed by recording ewes’ body weight and by testing their milk for mastitis. CMT
scores were recorded by udder half for each ewe on day 2, 8, and 16. Chi square tests were used to evaluate the significance of differences in observed CMT scores for each ewe (samples from the data represented left half and right half of each ewe’s udder for each test date). The six chi square tests (2 udder halves x 3 dates) showed no significant differences in CMT scores between GW and AW ewes. By day 16, 17 of 17 milk samples from AW ewes had CMT scores of 2 or higher (positive for mastitis), compared to 15 of 20 samples for GW ewes; even so, the chi square test did not show this difference to be statistically significant at the 95 percent confidence level. Ewes with suspicious or positive results on the CMT were treated with antibiotic, but CMT scores for those ewes continued to increase. Since the CMT reflects somatic cell count, or the presence of white blood cells produced to fight pathogenic infection in the udder, it is possible that the ewe’s immune system was continuing its response even as the antibiotic began to take effect. Also, since the ewe was not being suckled, there was no flushing effect, the somatic cells were not being removed from the gland, and the somatic cell number would tend to remain elevated.

Mean ewe weight was not significantly different for the two groups at the beginning of the study. On average, ewes from each group lost a small amount of weight during the study (gradual -0.20 lbs, abrupt -2.25 lbs), but weight change was not significantly different between groups (see Table 7). Table 8 reports data on ewe and lamb vocalization (by group for days 0 to 2 of the study).

### Table 7. Ewe Weights (in lbs.)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean-GW</th>
<th>Mean-AW</th>
<th>Mean Difference</th>
<th>t-statistic</th>
<th>Sig. of t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Weight Day -7</td>
<td>137.60</td>
<td>141.75</td>
<td>-4.15</td>
<td>-0.57</td>
<td>0.576</td>
</tr>
<tr>
<td>Weight Gain Days -7 to 8</td>
<td>-1.20</td>
<td>-2.00</td>
<td>0.80</td>
<td>0.25</td>
<td>0.807</td>
</tr>
<tr>
<td>Weight Gain Days 8 to 16</td>
<td>2.80</td>
<td>0.25</td>
<td>2.55</td>
<td>1.55</td>
<td>0.142</td>
</tr>
<tr>
<td>Weight Gain Days 16 to 23</td>
<td>-1.80</td>
<td>-0.50</td>
<td>-1.30</td>
<td>-0.78</td>
<td>0.452</td>
</tr>
<tr>
<td>Weight Gain Days -7 to 23 (Overall)</td>
<td>-0.20</td>
<td>-2.25</td>
<td>2.05</td>
<td>0.59</td>
<td>0.562</td>
</tr>
</tbody>
</table>

### Table 8. Vocalization by Ewes and Lambs During the First Three Days of Weaning (Study Days 0, 1, and 2)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean-GW</th>
<th>Mean-AW</th>
<th>Mean Difference</th>
<th>t-statistic</th>
<th>Sig. of t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ewe Vocalization (Number per 15 min.)</td>
<td>104.75</td>
<td>71.00</td>
<td>33.75</td>
<td>3.02</td>
<td>0.025</td>
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<tr>
<td>Lamb Vocalization (Number per 15 min.)</td>
<td>106.25</td>
<td>73.50</td>
<td>32.75</td>
<td>4.28</td>
<td>0.006</td>
</tr>
<tr>
<td>Day 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ewe Vocalization (Number per 15 min.)</td>
<td>29.25</td>
<td>76.00</td>
<td>-46.75</td>
<td>-2.64</td>
<td>0.046</td>
</tr>
<tr>
<td>Lamb Vocalization (Number per 15 min.)</td>
<td>42.75</td>
<td>120.00</td>
<td>-77.25</td>
<td>-4.26</td>
<td>0.005</td>
</tr>
<tr>
<td>Day 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ewe Vocalization (Number per 15 min.)</td>
<td>34.50</td>
<td>10.00</td>
<td>24.50</td>
<td>1.85</td>
<td>0.159</td>
</tr>
<tr>
<td>Lamb Vocalization (Number per 15 min.)</td>
<td>103.25</td>
<td>33.25</td>
<td>70.00</td>
<td>3.69</td>
<td>0.015</td>
</tr>
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</table>
Total vocalizations on Day 0, the day of initial weaning, were high for both groups, but significantly higher for the gradual-weaned group (observation period was during the day, before lambs were re-introduced to nurse). On day 1, mean vocalization scores were significantly higher for AW ewes and lambs, as they approached 48 hours of complete separation from each other. By day 2, the AW ewes had dramatically decreased their frequency of vocalization. GW ewes and lambs, however, were vocalizing more, as they now went their first full day without reintroduction for nursing (only the lambs' difference was statistically significant). Mean agitation scores for the two groups generally followed the same pattern as vocalization scores, but analysis showed no significant differences between groups.

Beginning on day 3 the methodology for measuring vocalization and agitation was changed, as described in the methods section. Vocalization and agitation levels quickly declined for both groups after day 2 and no significant differences in vocalization or agitation between AW and GW were noted after day 2.

**Discussion**

This study resulted in mixed findings regarding the impact of weaning method on lamb and ewe performance and health. Lamb weight gain, while higher for males than females, was not significantly different between gradual- and abrupt-weaned lambs. A possible reason for the lack of difference relates to the age of the lambs in the study. The average age of lambs at the start of study was about 72 days (10 weeks); the oldest lambs were 113 days old. Ewes at week 10 or later of lactation may not produce much milk. In a study done by Snowder and Glimp it said that, “Ewes with twins normally reach their peak yield in the 3rd week of lactation, compared with the 4th week in ewes with singles.” (1991). The study concluded that from days 28 to 98 of lactation, milk yield declined. Snowder and Glimp observed a 33 and 28 percent decline in milk yield from 28 to 56 days for ewes with singles and twins respectively. Milk production then decreased more rapidly between 56 and 70 days of lactation, declining 57 and 42 percent for ewes with singles and twins, respectively. The relevance for this study is that the lambs used, averaging 72 days of age at the beginning of the study, were already deriving most of their nutrient intake from forage and concentrate feeds, not milk. Their mothers, at 72 days of lactation, were ending a period of rapid decline in milk output. Therefore, method of weaning would affect lambs primarily via its effect on stress and feeding behavior, not through a direct, significant impact on total nutrient intake. In other words, greater differences in weight gain by weaning method would be expected with early-weaned lambs (weaned at 28 – 58 days of age). These findings are generally consistent with those of Schichowski (2007).

Mastitis scores were higher for the abrupt-weaned group, but were quite high for both groups by the conclusion of the study period. The method used to collect milk samples for the test, stripping milk from each teat, may have introduced infection by opening the teat canal. An alternative approach that may have reduced this possibility, would have been to monitor the udders for inflammation or other externally-observed symptoms and only take a milk sample if infection was suspected. A longer study period would be needed to assess the presence of mastitis in ewes post-weaning and
how rapidly the somatic cell count declines in response to antibiotic treatment.

Another factor that may have contributed to inconclusive findings is small sample size. Having 18 ewes and 40 lambs of the Katahdin breed is not a representation of all sheep. A bigger sample size of both ewes and lambs may have led to a more conclusive interpretation of data between gradual and abrupt weaning.

While vocalization by ewes and lambs showed intergroup differences, these differences were short-lived. The small facility in which the study was conducted may have affected these results. Ewes and lambs usually tend to have greater vocalization and be more agitated when they are in a bigger area where the visual cue is used less and they rely more on their auditory cues. Having a fence through which both ewes and lambs saw each other may have decreased the number of times both groups vocalized and how agitated they became. Having the gradual and abrupt groups within the same enclosure may have also impacted vocalization data, as the levels of agitation and incidence of vocalization tended to be “contagious”, with other animals responding sympathetically to a particular individual’s vocalizations. Recording vocalization and agitation data was a difficult and time-consuming task for a single observer. The use of instrumentation to more accurately record individual animals’ vocalization and/or other stress indicators (such as heart rate) continuously over the study period would allow for more definite assessment of group differences.

Conclusion

Study results showed no significant differences in lamb weight gain, ewe weight gain or incidence of mastitis by weaning method. Vocalization levels differed between groups but only for the first three days post-weaning. Based on these findings, a gradual weaning strategy would not appear to offer enough benefit to offset the extra labor required to reintroduce the lambs for periodic nursing. However, future studies should be modified to address some limitations of this study.
References


Juvenile Offenders: Gender-based Perceptions on Care and Treatment

Jorge Camarillo

Dr. Curtis Blakely, Mentor

The study examines the perceptions of juvenile offenders currently on probation as they relate to correctional care and treatment. A sample of male and female juveniles was interviewed. These juveniles reside at the Bruce Normile Juvenile Justice Center located in Kirksville, Missouri and at the Adams County Juvenile Detention Center located in Quincy, Illinois. Results indicate that improvements to the system are warranted and could be adopted with a minimum of effort, making the juvenile justice system more effective.

Statement of Purpose

The study of the perceptions of male and female delinquents with regard to the level and quality of service provided by the criminal justice system has been largely ignored. By talking directly to juveniles about their experiences in the system, a greater understanding can be achieved about those practices that are especially helpful to juveniles as well as those practices that are harmful and counterproductive. This research serves as the basis by which suggested improvements to the system are offered.

While there has been extensive research done on juvenile offenders, little research has been conducted on juvenile perceptions. In order to improve the system, research is needed to determine the system’s strengths and weaknesses. The purpose of this project is to collect perceptual data in order to provide suggestions for improving the juvenile justice system – thereby, enabling it to more effectively meet the unique needs of delinquents. This may help reduce recidivism which is defined as “a person’s relapse into criminal behavior, often after receiving sanctions or undergoing intervention for a previous crime” (U.S. Department of Justice, 1989). As consumers of these services, delinquents are well-positioned to provide insight into the system that is not available elsewhere.
Literature Review

The juvenile justice system developed as a way to separate young lawbreakers from their adult counterparts. Much of this system developed in the 1800s and early 1900s, which was a period in which juvenile delinquency was on the rise. Previous to these changes, it was common practice to place young offenders in jail with adult criminals, or give them jobs in lieu of a prison term. In some eastern cities there were thousands of poor and delinquent children wandering the streets. These children were often shipped west to live with farm families.

In the nineteenth century, parens patriae was created. This refers to the practice by which the government acts as the child’s parent. In 1899 with the influence of parens patriae, the nation’s first juvenile court system was established in Cook County, Illinois. The juvenile court’s approach reflected the belief that juveniles are different from adults. “Unlike the adult system, the juvenile court’s mission was to be flexible, informal, and focused on individualized attention” (del Carmen & Trulson, 2006, 4). With the creation of the juvenile court came the creation of juvenile detention facilities.

Even though the juvenile justice system separated juveniles from adults, it was still imperfect.

Experts soon discovered that the youths preyed on each other and that the younger and weaker were victims of physical and sexual violence, extortion, and exploitation. Critics complained that many youngsters left these institutions much worse that when they entered…Strict disciplinary measures produce antisocial and antagonistic attitudes in some children…and young children suffer more from fear, humiliation, and separations from parents (McShane & Krause, 1993, 262).

Years later there were too many juveniles in facilities that could have been more effectively treated with a different approach. The juvenile justice system created a new method of dealing with juveniles called, juvenile probation.

Juvenile probation has been termed the “workhorse of the juvenile justice system.” Probation is a mechanism used by juvenile justice agencies at many different points in the system. It serves as a sanction for juveniles adjudicated in court, and in many cases as a way of diverting status offenders or first-time juvenile offenders from the court system. Some communities may even use probation as a way of informally monitoring at-risk youth and preventing their progression into more serious problem behavior (OJJDP, 2010).

In probation freedom of the youth is limited and activities are restricted. When a youth is placed on probation, he or she must complete sanctions or services ordered by the court. In addition to general conditions of probation, the youth is required to follow special conditions deemed appropriate.
Probation and Detention

Juveniles under supervised probation are those that report to an officer on a regular basis. He or she may be required to attend counseling, submit to random drug or alcohol testing, make restitution, maintain gainful employment, and attend group meetings. Juveniles under detention are locked up and detained. Their freedoms are restricted as is their movement. Similar to those juveniles under supervised probation, detainees are often required to attend counseling, submit to random drug or alcohol testing, make restitution, and attend group activities.

Juvenile Needs

In recent years, meeting the treatment needs of juvenile delinquents has become increasingly more difficult as economic challenges have reduced reform initiatives. In essence, hard economic times have negatively affected correctional practices. Furthermore, it is increasingly recognized that each gender may require a uniquely different treatment approach. When female and male juveniles commit the same type of crimes, female delinquents may be treated differently than their male counterparts (Siegel, 2002; pp. 144). Others have observed that females are more often guilty of status offences than the commission of crimes (Teilmann & Landry, 1981; Hoyt & Scherer, 1998). Research into this phenomenon can shed light on treatment options.

Not every juvenile who breaks the law is arrested, prosecuted and sentenced. In fact, the juvenile system uses a great amount of discretion when working with juvenile delinquents. For example, police officers often choose to interact with juveniles in an informal manner. “The seriousness of the offense, the frequency of the offence, and the prior or current involvement with the juvenile justice system” (del Carmen & Trulson, 2006, 77-78) are factors that influence arrest. Extralegal factors, such as race and gender may also influence the decision.

According to Edelman the juvenile system in Missouri uses a rehabilitative and therapeutic model that works toward teaching the delinquent to make positive, lasting changes in behavior. The result has been some of the best outcomes in the nation: fewer than 8% of the youths in the Missouri system return again after their release and fewer than 8% go on to adult prison (2010). Furthermore, “one third of the youths go back to their communities with a high school diploma or GED, and another 50% successfully return to school (Edelman, 2010).

Lack of Information for Juvenile Needs

Even though the literature contains some information about the treatment of delinquents it often fails to link this information with proposed methods aimed at improving the system. This literature may lack suggestions for improving the system offered by juveniles themselves. If researchers use information provided directly by delinquents, it becomes possible to identify ways to effectively improve the system and increase its rehabilitative effect.
Methodology

This study is a qualitative analysis of juvenile delinquents’ experience with the justice system.

Research Question

Are there perceptual differences in the manner female and male juvenile delinquents view the criminal justice system with regard to the level and quality of care they receive?

Participants

A convenience sample consisting of 2 female and 7 male juvenile delinquents on probation enrolled at the Bruce Normile Juvenile Justice Center in Kirksville, Missouri and the Adams County Juvenile Detention Center in Quincy were interviewed/surveyed.

Instruments and Apparatus

Semi-structured interviews were conducted in 30-minute sessions over a 2 week period. Open ended questions addressed each juvenile’s experience in the justice system as well as his/her relationship with peers and correctional staff [see appendix]. Examples of these questions include, How long is your current sentence? Did peer-pressure play a part in the act that resulted in your adjudication? Is this your first juvenile adjudication or have there been others? Other questions were more perception-related and included, What does probation mean to you? What do you think about the juvenile justice system? Furthermore, each juvenile was asked to make suggestions about how the system could be improved. No restrictions were placed upon these suggestions with each participant being encouraged to provide as many suggestions as possible regardless of whether they felt that such suggestions could actually be implemented. Interview and questionnaire flexibility permitted a greater understanding of juvenile experiences and perceptions by allowing them to more fully elaborate on those areas of interest.

Procedure

The researcher developed the questions and methods for the interviews and submitted an application to the Institutional Review Board (IRB) at Truman State University for approval. Approval was subsequently granted. Approval was sought and subsequently granted by the both juvenile detention centers. Once approval was obtained, the researcher was required, as a security measure, to complete a background check by law enforcement authorities. Once completed, the researcher was required to obtain parental permission to interview potential juvenile participants. For the Bruce Normile Juvenile Justice Center, the researcher contacted the parents of each juvenile by phone and scheduled a time and location to meet. For the Adams County Juvenile Detention Center, staff contacted the parents and oversaw the signing of all consent forms. After obtaining parental consent, the researcher acquired informed consent
from the juveniles themselves. Appointments to conduct interviews were made under
the direction and with the consent of the staff of each detention center. For the Bruce
Normile Juvenile Justice Center, the interviews took place in a room that had two
doors that remained open at all times. This room was frequently observed by staff and
a juvenile probation officer would come in and out of the room in a random fashion.
For the Adams County Juvenile Detention Center, the interviews took place in a large
open area in the middle of the detention center that was a cross-road for foot traffic.
Workers would frequently walk by to go from one side of the detention center to the
other.

Results

After examining the results of the questionnaire the average age of the two female
and seven male juveniles was 15.4 years. The researcher utilized a 5 Point Likert
Scale for most responses: (1. Not at all effective, 2. Somewhat effective, 3. Average, as

Juveniles were asked to rate the Missouri Department of Youth Services
/Illinois Department of Juvenile Justice at assigning specific guidelines for
probation.
Five juveniles responded that these agencies were average, as expected,
while two answered that these agencies were very effective in this task and,
two answered that these agencies were extremely effective in assigning
specific guidelines for probation supervision.

Another question asked about staff effectiveness at ensuring that juveniles
fully understood their conditions of probation.
One juvenile answered that staff were somewhat effective in this endeavor,
while four answered that staff were very effective, and four answered
that staff were extremely effective in ensuring that they understood the
conditions/requirements of their term of probation.

Similarly another question asked about staff effectiveness at closely
monitoring their behavior during probation.
One juvenile answered that staff were somewhat effective, two answered
that staff were average, four answered very effective, and two responded
that staff were extremely effective in monitoring their behavior during
their probation terms.

Juveniles were asked about the receptiveness of authorities at listening to
their specific needs.
Two answered somewhat effective, two answered average, two answered
very effective, and three indicated that staff were extremely effective in this
endeavor.
Juveniles were also asked to rate the receptiveness of the authorities at providing them with help or services as needed. Two juveniles answered somewhat effective, two answered average, two answered very effective, and three responded that authorities were extremely receptive at providing them with help/services.

Ratings were also obtained about the ability of the authorities to facilitate open communication (availability and freedom to speak about issues/personal problems) between themselves and juvenile officers/counselors. When asked to rate this ability: One juvenile answered that authorities were somewhat effective in facilitating open communication, while two responded that the authorities were average with regard to their receptiveness, four answered that authorities were very effective, and two responded that authorities were extremely effective in facilitating open communication.

Juveniles were asked to rate the willingness of authorities at helping them successfully complete their probation. Three rated this willingness as average, three responded that authorities were very effective at this, and three responded that authorities were extremely willing to help them complete their probation.

Another question pertained to the frequency that juveniles are required to report to their probation officer/counselor. One juvenile responded that he seldom/never (defined here as once a month) reports, six juveniles responded that they report approximately once per week, and two responded that they report to their officer approximately two times per week.

Another question asked, on average, how many meetings per week with your probation officer/counselor do you miss? Four juveniles responded that they never miss these meetings, four answered approximately once per week, and one responded that twice a week was common.

Lastly, juveniles were asked whether they thought the conditions of their probation were fair. Nine responded “yes”.

Juveniles were also asked the following open-ended questions:

What does probation mean to you? All nine juveniles indicated that probation is intended to help them straighten out their life through supervision and regular meetings with juvenile authorities.
Have any of the officials who work here told you anything about probation?
Six responded “no” that officials did not talk to them about probation. Instead all six responded that they were simply told that they are on probation and that they must follow the guidelines that were given to them by the judge.
Two of them said that they were told when they were first placed on probation about the requirements and expectations but other than that, nothing else about probation has been discussed.
One answered “I read it (the probation agreement) before signing the papers for probation.”

What are you on probation for?
One answered for drug paraphernalia, two answered aggravated burglary, two answered residential burglary, three answered aggravated battery, and one for breaking into private property.

How do you feel about being on probation?
Nine responded that they feel bad for hurting innocent people and they think that their actions were stupid. All indicated that they do not feel proud about being on probation but it is something they have to do.

Why did you do it (commit the juvenile act for which you were adjudicated)?
Three answered that they were hanging out with the wrong crowd at the wrong time at the wrong place.
Six answered that they were under the influence of alcohol or drugs and that they were not thinking right.

How did you feel after you did it?
Nine answered that they felt bad for what they did because they know they hurt many people. Likewise, all nine indicated to some extent that the act “was not worth it” because they did not get anything out of it except probation.

Do you think that you would do it again if you were given the chance?
Nine answered “no” because they don’t want to be in this same situation again for a longer time period. One said, “I do not have freedom, I cannot do what I want to do and I have to follow rules, and it is not worth the risk”.
Seven of those that indicated “no” specifically indicated that they missed their families. One also answered “it is not fun to always be looking behind my back” and one also answered “no because I do not like hurting people.”

Have you been in the system before now?
Seven answered that they are first time offenders and two answered that they are second time offenders.
**Why?**
One answered for aggravated battery and one answered for tobacco/drugs and truancy tickets.

**How was your experience on probation this time compared to your experience on probation last time?**
One answered “last time I was on probation I was let off easily, it was easier for me, it is harder on me this time.”
One answered “last time I thought they were punishing me so it was hard for me, now I know they are just trying to help me.”

**Why do you think it’s different/the same?**
One answered “it is different because this is my second time so I got a longer sentence than the first time. I have to do well because I don’t want to be in here again I am tired of being in here. So I am trying to not get into trouble anymore.”
One answered “it is different because now I see that they are trying to help me. Now I don’t have the mentality of they are trying to punish me but that they are trying to help me. It is for my own good to do everything they tell me to do.”

**What do you think about the system/probation?**
Seven indicated that the system is doing a good job - that it is fair, and that they got what they deserved as an appropriate punishment. These same seven juveniles also stated that being on probation it is a good thing because it keeps them out of trouble and possibly prison.

**Do you think that being male/female has anything to do with the way that you’ve been treated so far?**
Nine answered no.

**Does one’s sex affect the way they are treated by probation officers?**
Nine answered no.

**How about the treatment by Judges?**
Nine answered no.

**Does it affect the treatment one received by the detention center staff?**
Eight answered no and one answered “yes”. The one that indicated a difference stated that she sees a difference in treatment that originates with the juvenile detention employees. When asked to explain, she said that “girls have to wear pants and have to wear an under shirt” in the gym but boys do not have to. “Boys can be half naked without shirts and with shorts when it’s really hot.”
How about treatment by other juveniles?
Nine answered no.

Do you think the system is too rough on juveniles? Why or why not?
Nine answered that they do not think the system is too rough on juveniles because the system is just doing its job. “It’s pretty fair with everyone - I got what I deserve for the crime I committed”.

What are you personally doing to get off probation on time?
Nine answered that they follow the guidelines of their probation. They stay out of trouble and do what they are told to do.

Do you think it would be easy to get off probation for good behavior? Why or why not?
Nine answered yes it’s easy to get off probation for good behavior - just follow everything that is in your guidelines.

What major problem exists within the system?
Eight answered that - from arrest to one’s court hearing is too long, especially if you are arrested on Friday you have to wait till Monday or Tuesday in a cell before being heard.

What do you suggest to address this problem?
Seven answered if courts work over weekends it would help a lot because juveniles will not have to wait till Monday for their case-hearing. The case would be heard faster. The wait over the weekend is too long, you get scared being by yourself and not knowing what will happen.

Do you think that the system is doing a good job of trying to keep juveniles from getting into trouble again?
Seven indicated that the system is doing a good job trying to keep juveniles from getting into trouble again because they “scare you straight”. They tell you that if you continue being a juvenile delinquent you will end up in prison or dead. They tell you that you have it easy here because in prison you do not have this much freedom.
Two also answered that those who come back into the system are those who are hard-headed.

What have you learned by being on probation?
Nine answered that they have learned to follow rules and listen to people. All indicated that probation has helped them straighten out their lives. One also answered “it has taught me to earn respect from peers as well as to give respect.”
One also answered “it is helping me become an adult because I am tired of doing the same bad things.”
Do you think you’ll ever be back in the system? Why or why not?
Nine answered “no” because they will never do anything dumb like that again - they learned their lesson. They will never get in trouble with the law because prison is not where they want to end up.
Seven also answered “no” because they do not want to be back in the detention center again for a longer sentence.
Two also answered they do not think they will be back because they do not like having to report to the detention center every week for the weekly meeting with the probation officer.

What do you think can be done to keep juveniles from becoming repeat offenders?
Nine answered that making it a tougher sentence on those who offend a second time would be effective. For those who offend a third time they should be put in “juvi” for a couple of months - but make sure they are told before they come out of probation what will happen if they come back into the system.

Why do you think this would work?
Nine answered this would work because it would scare them straight because no one likes being on probation.
Seven also answered because no one likes being in a detention center not being able to have freedom or see their family.

Suggestions
To improve the juvenile justice system, juveniles suggested that they would like to:
• Have more outside motivational speakers talk to them and give them inspiration to finish probation successfully, help them do the right thing, and make them see what is important in life.
• Have better communication between them and the staff/probation officer and help them understand the system/probation better.
• Have counselor’s available everyday to talk.
• Have intake processing over the weekends to keep juveniles from spending long-periods in jail.

Limitations
Having a total of nine participants to work with limited my study’s ability to obtain a wide range of answers. Having only two female participants makes it difficult to make gender-based comparisons. Furthermore, also using two detention centers from small Midwestern cities made it difficult to obtain a variety of perspectives. Juveniles tended to share the same experiences and insights since they were likely
to have interacted with the same probation officers, judges, and detention center staff. Having staff or probation officers present during the interview may have also made some of the participants hesitate to elaborate on various topics that may have proven valuable. Therefore, the ability of this study to be generalized to the broader population is questionable. Yet, the findings of this study suggest that this type of research is needed and can provide insight into the juvenile justice system.

Conclusion

While the study of perceptions of juvenile delinquents has largely been ignored within contemporary literature, this study suggests that this area of research can yield valuable results. The experiences and perceptions of those that are “consumers” of juvenile justice system services provide insight that is clearly not available elsewhere. Perceptual data relating to the effectiveness of the system, if implemented, might improve a system that is already doing a good job at providing treatment and supervision. Regardless of how effective the current system is, room for improvements exists.
Bibliography


Appendix

Questionnaire
Please indicate the following: M/F Age: ____
Please answer the following questions as honestly as possible. Please use the following scale to record your responses:

1- Not at all effective
2- Somewhat effective
3- Average, as expected
4- Very effective
5- Extremely effective

A) How effective is the Missouri Department of Youth Services / Illinois Department of Juvenile Justice at:
1) Assigning specific guidelines for probation?
   1 ----- 2 ----- 3 ----- 4 ----- 5
2) Ensuring that you fully understand your conditions of probation?
   1 ----- 2 ----- 3 ----- 4 ----- 5
3) Closely monitoring your behavior during probation?
   1 ----- 2 ----- 3 ----- 4 ----- 5
4) Listening to your specific needs?
   1 ----- 2 ----- 3 ----- 4 ----- 5
5) Providing you with help or services to address your needs?
   1 ----- 2 ----- 3 ----- 4 ----- 5
6) Creating open communication (availability and freedom to speak about issues bothering you) between your probation officer/counselor?
   1 ----- 2 ----- 3 ----- 4 ----- 5
7) Helping you successfully complete your probation?
   1 ----- 2 ----- 3 ----- 4 ----- 5

1- Not at all effective
2- Somewhat effective
3- Average, as expected
4- Very effective
5- Extremely effective

B) How often are you required to report to your probation officer/counselor every week?
   1 ----- 2 ----- 3 ----- 4 ----- 5

C) On average, how many meetings per week with your probation officer/counselor do you miss?
   1 ----- 2 ----- 3 ----- 4 ----- 5

D) Do you think the conditions of your probation are fair?
   Yes  No
Interview

1. What does probation mean to you?
   A. Where did you get your definition from?
   B. Have any of the officials who work here told you anything about probation?

2. What are you on probation for?
   A. How do you feel about being on probation?

3. Why did you do it?
   A. How did you feel after you did it?
   B. Do you think that you would do it again if you were given the chance?

4. Have you been in the system before now?
   A. Have you been on probation before now?
   B. Why?

5a. (IF YES TO #4A). How is your experience on probation this time in comparison to your experience on probation last time?
   A. Why do you think it’s different/the same?
5b. (IF NO TO #4A). What do you think about the system/probation?

6. Do you think that being male/female has anything to do with the way that you’ve been treated so far?
   A. How about the treatment by probation officers?
   B. Judges?
   C. Workers here in the detention center?
   D. Other juveniles?

7. Do you think the system is too rough on juveniles? Why or why not?
   A. What are you personally doing to try and get off of probation on time?
   B. Do you think it would be easy to get off for good behavior? Why or why not?

8. What do you think the system could do to improve the way that juveniles on probation are treated?
   A. Why do you think these things would work?

9. (FOR FIRST-TIME OFFENDERS) Do you think that the system is doing a good job of trying to keep juveniles from getting into trouble again?

10. What have you learned by being on probation?
    A. Do you think you’ll ever be back in the system? Why or why not?
    B. What do you think can be done to keep juveniles from becoming repeat offenders?
Reboot Your Brain to Access Your Memory: A Comparison between College-Aged Students and Adults over 60 on 3 Subtests using Cognitive Re-training Software

Hailey Feldhaus
Dr. Janet Gooch, Mentor

This study explored the use of SoundSmart (a computer software program intended for use with clients with cognitive impairments) with two groups of non-cognitively impaired individuals. A total of 27 non-cognitively impaired individuals were divided into two groups based on age: Group 1: 19-22 years and Group 2: over 60 years served as participants. Each participant independently completed three modules of SoundSmart software. The dependent variables: (1) number of questions answered, (2) percent of questions correct, and (3) time elapsed during the completion of the module were noted for each participant. Analysis of Variance and t-tests were used to determine differences between the two groups. Results indicated statistically significant differences between the two groups in Math Time, Sound Discrimination Questions Answered, Sound Discrimination Percent Correct, and Sound Discrimination Time. These findings in conjunction with the participants’ attitudes and reflections on the use of the software suggested that the SoundSmart software might be a useful clinical tool with neurologically impaired clients if tailored to the unique characteristics of clients.

Introduction

Cognition is the process of knowing. Cognitive disability may result in reduced efficiency, performance rate, and success in activities of daily living (Cicerone, K.D. et al, 2000). One million four hundred thousand people suffer traumatic brain injuries (TBIs) each year in the U.S. according to the Centers for Disease Control and Prevention (CDC) (www.neurologychannel.com/tbi/index.shtml, 2007). This estimate excludes people who were treated in physicians’ offices, outpatient centers, or military facilities or who received no treatment at all (Guiffrida et al, 2009). TBIs can occur after any accident in which a strike to the head was received. Substantial variability in communication along with simultaneous cognitive and/or other impairments exist
in survivors (Brain Injuries Lawyer, 2010). The extent of the damage correlates to the amount of time in rehabilitation, as well as the cost the person afflicted may incur (Mayoclinic.com, 2008). The CDC estimates that the total cost of TBIs in a given year is $37.8 billion (Einstein Law, Inc., 2009). Unlike physical rehab, “[c]ognitive abilities may take a longer time to improve . . . [and] treatment may end before meaningful recovery can occur due to limitations in reimbursement” from insurance (Brooks, 2009, p.3).

*SoundSmart*, a computerized software program marketed by *Brain Train*, was created to enhance the rehabilitation of clients with acquired neurological disorders. An advantage of computerized therapy is that clients can use the software independently once released from therapy. This allows Speech Language Pathologists (SLPs) to dedicate more time to critical areas, as computer programs offer the client the ability to work individually and take aspects of therapy home. Merzenich and colleagues (1996) and Tallal (2000) studied the effects of computerized therapy programs and found that clients showed substantial improvements on several standardized measures of language comprehension (Cochran, 2005, p.35). It is premature to say whether computerized therapy results can exceed traditional intervention (Cochran, 2005). However, the potential these computerized games hold is promising in that they offer a way for patients to practice without additional support from a therapist. As new computer software programs become available, the strengths and weaknesses of these programs and what types of clients might benefit from them the most need to be explored. The purpose of this study was to compare performance ability as a function of age to gain a better understanding of how *SoundSmart* (2000), a relatively new software program, may be used in therapy.

**Literature Review**

Computer software programs may not be the answer for all clients with TBI as each TBI client exhibits unique characteristics as a result of their injury. Cognitively impaired individuals recover at different rates but statistical improvements have been seen after intensive therapy (Bhogal et al., 2003). In a study conducted by Fazio and Rieth (1986) individuals “[s]howed a marked preference for software considered learner-controlled rather than drill-and-practice in format” (Cochran, 2005, p. 31). Clements (1987) proved that even drill and practice with computer games that focused on specific skills can benefit clients when worked on for brief periods (Cochran, 2005). It can be inferred that if a computerized program is both tailored to the client and used consistently, the client can have positive results.

*SoundSmart* is a multi-level 11 set game with three different modules, and four different tracks that target key areas. The modules include the Math and Memory Coach, the Sound Discrimination Coach, and the Attention Coach. The Math and Memory Coach module is targeted at audiences grades K through four, although it does have more challenging arithmetic problems aimed to improve mental math skills and working memory. Sound Discrimination Coach is a phonemic awareness drill that trains the player to listen carefully under varying conditions while simultaneously challenging their short-term memory retrieval skills. Attention Coach is a module that
teaches the player to listen to directions carefully and develop impulse control. This study examined participants’ performance on one game (in the form of Bingo) from each of these modules.

This was a quantitative study with qualitative aspects such as the Informational and Response Questionnaire. Quantitative data was used to support the qualitative feedback, as the participants’ own satisfaction by itself isn’t necessarily reflective of the software program as a whole. The aim of this study was to evaluate how two populations differing by age and not targeted by this software (no cognitive impairments) performed and to determine how SoundSmart may be used in clinical settings. In a study performed by Dou et al., 2005 it was indicated that “[a]s of 2005 few computer aided errorless learning tests had been conducted in the elderly or individuals with memory impairment and none for persons with TBI” (p. 220) making this an important study to conduct in an effort to understand the abilities of this under-studied group. This research is important, because currently limited research regarding the SoundSmart software is available. This research study evaluated the performance of non-brain injured individuals to determine the strengths and weaknesses of the SoundSmart software for future clinical use.

Two sample populations, college students and adults 60 and over were studied to examine their performance and reactions to the three selected games from the SoundSmart software. It was anticipated that the 60 and over group would perform more poorly as a function of age. The population of people over 60 is rapidly growing and as people age cognitive functioning declines. Given that the population of people over 60 is increasing, studies need to include this population to learn more about typical behavior as a function of age. Roszak in 2001 provided some staggering statistics to support this idea. First, “[h]alf of all the people on the planet who have ever lived to the age of 65 in human history are alive today and then he furthers this by indicating that the elderly population is rising in large increments, an estimated 795,000 elderly every month. At this rate the United States alone is expected to show a 102% increase in the elderly population between the years 2000 and 2030 (Shipley & Roseberry-McKibbin, 2006).

Methodology

A primarily quantitative analysis of memory and cognitive function was conducted with the cognitive re-training software, SoundSmart, to assess the performance of college aged students and adults over 60.

Participants

A convenience sample consisting of 27 individuals was gathered from a rural community: 16 participants who were age 60 or older and 11 college-aged students 19-22 years old with no cognitive impairments. The older participants were gathered by sending out recruitment emails to members of the local Rotary club and Quota service chapter located in Adair County. Additionally, there was word-of-mouth recruitment by the researcher among fellow undergraduates enrolled at Truman State University.
Procedure

Participants came into the Truman State University Speech and Hearing clinic for a single visit to complete the necessary testing and to interact with the SoundSmart software. Each participant's involvement did not exceed an hour. Once at the clinic informed consent was obtained. Each participant filled out the Informational Questionnaire (Appendix I). This was administered to evaluate each participant’s familiarity and relative comfort when using computers and to gather demographic information.

Hearing Screening

Each participant’s hearing was screened using the following protocol: Otoscopy was conducted to visualize the canal and tympanic membrane. A pure tone hearing screening at 20dB for the frequencies 500, 1K, 2K, and 4K was conducted using a GSI 61 Clinical Audiometer and headphones. If the participant failed the pure-tone hearing screening at any frequency the experimenter performed further evaluation to find threshold levels. Participants with a hearing loss were referred for further evaluation. Participants who had no past history of stroke or other neuro-cognitive impairments and had hearing sufficient for the task (mild or moderate loss whereby computer speaker volume could be adjusted) were allowed to continue in the study. The speaker volume on the Dell 2.5 was adjusted accordingly as requested by the participant to compensate for any minor hearing problems that were noticed.

Interaction with SoundSmart Software

Following the hearing screening, participants were led back to a computer room in the Truman State University Speech and Hearing Clinic. Participants were seated in front of a 2.5 Dell PC computer containing the SoundSmart software. Participants were read a script detailing the orientation and directions of the SoundSmart Bingo tracks. These SoundSmart tracks consisted of “Mental Math Coach”, “Sound Discrimination Coach”, and “Attention Coach” at various levels (Stages) predetermined by the researcher before the study. All variable aspects of the SoundSmart interaction were kept the same with each participant. The “Mental Math Coach” was set to the track, Speed Multiply and Divide on stage 100 and played first. The “Sound Discrimination Coach” was set to the track, Challenge Order on stage 97 and played second. The last game administered was “Attention Coach” set to the track Challenge Memory on stage 100. The researcher purposely selected the high stage level assuming that the increased complexity of the task would reveal differences among the age groups. An orientation and directions script was used to ensure that all participants had an equal chance for success when interacting with the program’s tracks they were assigned to complete. The researcher sat near the participant to answer questions and record observations of the participant’s behavior during their interaction with the SoundSmart software. If participants became frustrated the researcher reassured them that mistakes were to be expected. They were encouraged to try again, listen carefully to the audio voices, and do their best. If however, prior to exceeding three items the participant still did not understand the task, measures were taken by the researcher. The client could ask for help and have the researcher clarify the directions or, restart the level.
If participants did not seek help before three items were administered, or ask for a restart the participant was encouraged to proceed with the game. At the completion of each of the three interactive tracks the researcher recorded the following dependent variables: 1) questions answered, 2) percent correct and 3) time elapsed to complete the track.

**Following Interaction with SoundSmart**

When the participant completed the three computer tracks they were asked to fill out a short response questionnaire to determine their reactions to the *SoundSmart* software.

**Data analysis**

The independent variable in this study was age, while the dependent variables consisted of exposure time, questions attempted, and percent correct. The researcher used SPSS version 17.0 to perform an analysis of variance (ANOVA) and obtain results based on the compiled data. In addition t-tests were used to find the difference between group means. An a priori significance level of $p \leq 0.05$ was chosen.

**Results of data compiled**

Results of the ANOVA are presented in table 1.0. There were significant, statistical differences in Math Time, Sound Time, Sound Questions Answered, and Sound Percent Correct.

**Box plot of the 3 Modules looking at the dependent variable of Percent Correct**

The box plot indicates that the Sound Discrimination module was the most difficult as evidenced by the large variance in percent correct and the lowest mean. The Memory module proved to be the easiest. Individual t-tests were used to compare
the groups on nine variables on the three tests; the difference of means in minutes, percentages, and numbers of questions attempted (refer to table 2.0.)

**Box plot representing the dependent variable of time**

While Math Time was statistically significant, the mean times of completion for the two groups did not differ widely. For participants aged 19-22, the mean time was 4.1 minutes while the 60 and over group, on average, took longer to complete the track, with a mean of five minutes. The Sound Time as shown above was also found to be statistically significant. The t-test revealed that it took the 19-22 group on average 10.1 minutes to complete the Sound Discrimination track and the 60 and over group 14.5 minutes. The t-test showed that in Memory Percent Correct the mean for Group 1: College Students was 91% while in Group 2: Adults over 60, the percent mean was found to be 82%.

**Summary of Responses to the SoundSmart Software Questionnaire**

Each response to the questions asked in the SoundSmart Software Questionnaire provided insight on how to better tailor the software program to meet the demands of the different participants by gaining an understanding of their feelings towards the program and its respective modules.

When asked about their reactions after interacting with SoundSmart, participants’ comments ranged from positive answers such as the software was fun and easy, to negative answers such as SoundSmart was frustrating and they would not purchase it. Three participants stated that they needed more practice on some of the skill areas, but questioned what practical life skills would improve if they improved their performance
using SoundSmart. Another participant identified that paying attention was essential to being able to fully understand the task.

When the participants were asked if they felt color blindness or other factors affected their performance, 24 answered no and three (all from Group 2) answered yes. The three participants who answered yes felt other factors negatively influenced their performance. They reported a poorer performance as a result of 1) a color vision deficiency, 2) teaching Shorthand for 30 years which affected how they identified and chose letters in the Sound Discrimination module, and 3) a general lack of experience playing computer games.

When the participants were asked what they enjoyed about SoundSmart a variety of answers were given. Participants answered that they liked the variety of challenges, having a goal to win Bingo which kept them engaged and motivated, the vivid colors, following instructions and reacting, the “bonus” games, and the fact that it helped them witness their memory ability. Three participants stated that there was nothing enjoyable about the program or that it left them feeling hopeless.

When the participants were asked what they did not enjoy about SoundSmart they gave several answers. One participant said that the second game was difficult to track while the third game was too easy to remain engaged. Another participant said that they felt inadequate. Several participants did not like waiting for the stoplight to change colors before they were allowed to answer. In addition, several participants agreed that the mouse was too sensitive to minor movement and the noises that were supposed to distract were irritating. Moreover, visual cues as opposed to auditory cues and misleading prompts reportedly caused unnecessary stress for some participants. To clarify, the timer not accurately representing time, and the stoplight changing colors versus SoundSmart’s audio voice telling the participant to “hurry up and go” caused confusion for participants.

Participants were asked for whom they felt this software would be beneficial. One participant said they would not use it at all but other participants provided answers that reflected a wide range of individuals and uses. Participants felt individuals of all ages could benefit from the software. More specifically, participants reported that it could assist people with language disorders, learning impairments, persons with attention deficit disorder (ADD), hearing or memory impairments, mentally challenged individuals and/or ‘normal’ individuals who need to be alert and focused like emergency dispatchers and military personnel.

Discussion

The results of this study suggest a number of characteristics of the SoundSmart software that may have contributed to higher or lower scores by the two groups on the three modules. Factors internal to the participants (e.g., age, colorblindness) and external (e.g., characteristics of the software itself) were reported to affect/influence participants’ performance.
**Short-term memory strategies employed:**

The statistical significance between performance for the Sound Discrimination Coach module for participants over 60 and college-aged students suggested that the skills (particularly memory) required for this module were affected by age. It can be postulated from the results box plot that the Sound Discrimination Coach required too much memory and capabilities than Group 2: Adults over 60 possessed to be successful in the task. It was noticed that participants employed short-term memory strategies to improve recall and opportunity for success. Two common techniques were finger tracing the letters and repeating the letters after they had been said. Five participants noticeably employed these skills during the Sound Discrimination module. It was found that when participants employed these strategies the likelihood of them getting answers correct increased.

**Feeling inadequate for the task**

Participants in Group 2 reported that they felt inadequate in comprehending the directions and ultimately displaying success in the tasks. Participants in Group 2 more frequently asked for help by having directions clarified or even in restarting the program. Evidence of a significant correlation between efficacy beliefs, referring one’s own ability to perform a specific task, and performance attainment has been found in many studies according to Man, D.W.K, et al. [T]he enhancement of self-efficacy is important in the rehabilitation of people with brain injury (Man, D.W.K et al, 2006.) As the study by Man, D.W.K and colleagues further stated, people may perform more poorly due to lack of perceived self-efficacy in their own skills rather than actual lack of abilities. If a participant feels their abilities are inadequate, the clinician should step in and provide reinforcement. Clients should not be left to struggle independently with the software. A client’s independent use of the software does not provide a mechanism for feedback regarding the specific nature of their errors.

**Restart**

Participants were allowed to terminate the level and restart if they felt they would not be successful, as long as they requested a restart within three attempts. Eight individuals from Group 2 asked for assistance but only one of those individuals actually requested a restart on the Sound Discrimination track. Users in the older group reported being less familiar with computers and/or less independent than the younger group.

**Hearing Loss**

Thirteen of the participants, all in Group 2, did not pass the hearing screening. Presbycusis according to MedicineNet.com is an age-related hearing loss that can progress until an individual cannot hear especially high frequency sounds. Presbycusis affects one third of people between the ages of 65-75 and one half of people 75 years and above (MedicineNet.com, 2010). The results of this study suggest that it is important to determine the hearing status of individuals prior to their interaction with the SoundSmart software. Furthermore, when using the SoundSmart software with individuals who have a hearing loss it is important to ensure that the level of presentation can be modified to compensate for the degree of loss. The researcher
did not feel as if hearing impacted participants’ performance in this study. Subjects reported that adjusting the volume control on the computer seemed to compensate for any loss they exhibited.

**Inability to sit for long periods of time**

One participant identified that downshifting of the lumbar vertebrae left her unable to sit for long periods of time. Any postural deficits and/or neck and back related pain that clients exhibit must be considered when asking clients to sit at a computer for extended periods of time.

**Tremors**

Essential tremors are most commonly attributed to genetic mutations or old age. According to Mayo Clinic if your parent has the autosomal dominant disorder you have a 50% chance of developing the disorder yourself and it may affect 14% of people over the age of 65 according to the National Institutes of Health. Tremors can affect any part of the body but tremors in the hand in particular have the ability to disadvantage a client who works with a computer. Two participants reported that the mouse used in this study was very sensitive. Virtually any contact with the mouse before the stoplight turned green (the signal for the participant to select a piece) resulted in a reprimand from the computer. For some individuals a less sensitive mouse or a program that does not involve a steady hand might be more practical.

**Color Vision Deficiencies**

According to About.com: Men’s Health, color blindness can be inherited, caused by diseases such as macular degeneration, poisoning, or be a side effect of medication (Jerry, 2007). “Approximately 5% to 8% of men and 0.5% of women are born colorblind, or one out of twelve men and one out of two hundred women. People who are protans (red weak) and deutans (green weak) comprise 99% of this group” (Webexibits.org, 2010). “Some 10 million American men, fully 7 percent of the male population, either cannot distinguish red from green, or see red and green differently from most people” (Geoffrey, 2008). Color vision deficiencies are primarily congenital as a result of an abnormality on the X chromosome but can also be acquired as the result of a disease or accident. Four out of the 11 males in this study or 3.4% acknowledged themselves as having some form of color deficiency with red and/or green weakness. This deficiency could limit the success rate of a participant, using the SoundSmart software, as the stoplight is a critical element to completing the track quickly. If a participant cannot decipher red from green from yellow, they may move the mouse before it is actually time. Three of the participants who were colorblind did not mention that it was a factor that impeded their success when the Response Questionnaire was administered. Performance rates could decrease in those who identify themselves as color deficient in other tracks where color is more prominently used, (e.g. “find the yellow L.”). It was not expected upon entering the study that color vision deficiencies could potentially be a factor. Knowing a participant’s visual capabilities will be critical when choosing modules, if color is a variable important to success.
Frustration Levels

Frustration was a common theme among participants. If the software program was frustrating for participants who only interacted with the computer for 45 minutes or less, is it realistic to expect that individuals will want to interact with the software on a daily basis? Participants in this study were cognitively normal. If it was frustrating for them, it might be assumed to be even more frustrating for those whom exhibit cognitive impairments and a loss of skills. Recommendations to decrease frustration levels would be to start at easier stages and allow the participant to self-pace.

Statistical Significance vs. Clinical Significance in Making Sense of Results

The four-minute gap found for the Sound Discrimination track using the individual t-tests was both statistically and clinically significant. This is an important factor to consider as time has to be utilized in therapy and extra time might not be possible when sessions are only 50 minutes long. Differences in Memory Percent Correct between the two groups were not statistically significant, but may be clinically significant. Clinically, goals are usually set with a 90% accuracy rate meaning that the client successfully performs a task 90% of the time before they are able to move onto a higher-level task. The t-test showed that in Memory Percent Correct the mean for Group 1: College Students was 91% while in Group 2: Adults over 60 the percent mean was found to be 82%. If this particular finding was applied to a clinical setting, Group 1 would move on to a more difficult task while Group 2 would still be working toward 90% accuracy. The faster clients accomplish their goals, the quicker they will be dismissed from therapy.

Limitations of the Study

One limitation of this study was the small sample size. The findings of this study should be generalized with caution given the small number of participants in both groups. In addition, more diverse participants should be studied. In this study all participants in Group 1 (college age) were students at a selective Liberal Arts and Science University in the Midwest. In future studies, participants who suffered a traumatic brain injury or stroke would be of interest.

In Summary

This was a primarily quantitative study with qualitative elements such as the Demographic and Response Questionnaire. The purpose of this study was to see how two populations differing by age performed on the SoundSmarts software and to explore possible uses for the software in a clinical setting. Two groups of participants (college-aged and adults over 60) served as subjects. Results indicated that the difference of ages was significant in Math Time and all components of Sound Discrimination. The older population’s performance was not significantly different in all areas of the three modules, as it might have been anticipated. The study accomplished its purpose in
providing information on characteristics of clients and of the software itself that may affect user performance. Careful considerations of these characteristics and potential modifications that can be made by clinicians are suggested to increase the “usability” to the *SoundSmart* software.
Acknowledgements

I would like to thank the Ronald E. McNair Post-Baccalaureate Program along with the McNair staff for allowing me the opportunity to conduct research and present my findings. I’d also like to thank Dr. Victoria Landrum for her Methodology expertise and the time she set aside to be of help throughout my research process. In addition, I would like to thank Dr. John Quinn for his knowledge on how to run the statistics and portray the most significant results. Last, but certainly not least I would like to thank my mentor and research faculty supervisor, Dr. Janet Gooch CCC-SLP for whom I have the utmost respect. Her guidance was essential in recruiting participants, channeling discussion topics that I hadn’t fully considered, and for reviewing and providing important editorial changes.
Appendix

Informational Questionnaire

Birth date:

Subject Identification Number:

Do you wear corrective lenses or contacts? Please specify.
   If so, is your vision restored to 20/20 as far as you know?

To your knowledge do you have any colorblindness? If yes, please describe.

How would you describe your general health? Check the most representative.
   Excellent        Fair
   Good            Poor

Have you ever had any neurological/cognitive impairment?
   If so, when and what was the cause?

Do you have any history of stroke(s)?

On average how many hours a week do you use a computer?

Of the activities listed below please rank them in increasing order of (1) the activity you use the most, (2) next, (3), and so on.
   Internet/web surfing         Business programs
   Games                        Documents/typewriting
   Other: ______________________

How do you feel using computers? Please check all that apply.
   Comfortable     Frustrated
   Knowledgeable   Confused
   Easy when assisted     Other: ________________

Are you familiar with Brain Train, in particular, The Sound Smart Software?

What is the highest level of education you have completed?
   GED/High School        Bachelor’s degree
   Vocational/tech School Masters degree
   Associates degree       PhD
   Other, Please explain: ________________________________________

What is your profession, or if retired former profession?

Is there any other information you feel would be relevant to this study?
### Table 1.0: Oneway ANOVA

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<th>Source</th>
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<th>Df</th>
<th>Mean Square</th>
<th>F</th>
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<td>5.407</td>
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<td>.005</td>
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Bibliography


Living on the ‘Fringe’: An Oral History of the Kansas City Fringe Festival

Max Daniel Glenn

Professor Janet Albanese, Mentor

Fringe festivals have been a growing phenomenon in the arts scene since it arrived in Edinburgh, Scotland in 1947. The original fringe festival has now inspired global spin-offs from Budapest to the heart of the Midwest. This study seeks to uncover the origins and history of one of these Midwest Fringe Festivals, KC Fringe. Using interviews from those directly involved with KC Fringe as performers and administrators, this oral history of KC Fringe explores key events associated with the festival as well as central figures, where it is going and what challenges it faces, all through the words of those who made it what it was.

Introduction

A jazz dance company; a group of homeschooled children’s interpretation of The Tortoise and the Hare; Spoken Word Art; Bongo Drums Set to Slam Poetry; Student-Written Iconoclastic Theatre. What do these things have in common? They’re all acts that have appeared in some form at Kansas City’s Fringe Festival. The World of the fringe festival format is one of the most intriguing performance festival formats and one that have been of interest to performers and spectators for some time.

In the wake of World War II, the year 1947 saw the creation of the very first Edinburgh International Festival (Shum Jr, 65). The festival was created in hopes of bringing optimism and renewed human spirit to Scotland, Britain and Europe. Filled with quality professional theatrical acts, the festival would have gone off as planned if eight uninvited theatrical groups (ranging from the players at the Mercury Theatre of London to a local amateur group) had not set up shop at the edge of the Edinburgh International Festival and chosen to perform. The uninvited performers were shunned by the internal structure of the International Festival for their relative obscurity in the professional theatre world, but that did not matter to them and most critics (Shum Jr, 66). They were the first group to create a festival format that would become a worldwide phenomenon. They were the very first Fringe Festival.

Sixty-three years later the Edinburgh Fringe Festival has outstripped its more mainstream counterpart in terms of attendance (Shum Jr, 64) and has inspired similar styled ‘fringe’ festivals around the world (KC Fringe). While these other festivals may
deviate in small customs from the original Edinburgh Fringe Festival due to location, they all operate under one tenet: unjuried selection of performers. This generally means that anyone who applies—from a professional to an amateur—has an equal shot of performing during the festival, becoming more a matter of first come first served. And while thousands of plays have debuted at fringe festivals in Edinburgh, New York, and California, little has been researched or written about these festivals, and no research may be found on KC Fringe.

The purpose of this study was to investigate and develop an oral history of KC Fringe, in order to discover why and how a fringe festival has surfaced in Kansas City over the past decade. This study also explores how these Festivals serve and better their communities. This study provides new information on a phenomenon that has been mostly unexplored, and will perhaps be of benefit and inspiration to fringe festivals in mid-western communities elsewhere.

**Literature Review**

A few historical accounts, books, and views exist on the forming of the Edinburgh Fringe Festival, but there is very little scholarly insight into the phenomenon of the fringe festival itself and what impact it has on the community around it. In this respect my research is ground breaking. What literature I have found gave me insight into the original Edinburgh Fringe and the origins of other arts organizations that are more exclusive than fringe festivals tend to be. This literature served as a framework to approach the gathering of my oral history through interviews and personal testimonies.

Wesley Monroe Shum, Jr. provides a thorough account of the Edinburgh Fringe Festival and its origins, as well as the meaning of the word ‘fringe’: an approach and style of performance outside the boundaries of the establishing or being outside the Edinburgh International Festival. Monroe claims that ‘The Fringe’ is in fact a “competitive performance market” (Shum Jr, 67), one that has relatively no biases toward the traditional or avant garde. This book serves to provide a useful context to examine the young KC Fringe against the ‘Grand Daddy Fringe,’ Edinburgh, in how it operates and how artists handle a ‘competitive market.’

Paul J. DiMaggio’s article on “Cultural Entrepreneurship in Nineteenth-Century Boston” describes how upper—class patrons in Boston established private non-profit organizations in order to perform higher-class art than the common popular entertainment of the nineteenth century. These patrons did not do this as a means to be wholly exclusive of other performers, but to create a safe place for them to practice and continue their craft. This organizing was predominantly manifested in the creation of the Boston Philharmonic Orchestra. This idea of a ‘safe place’ to try art I felt was key due to the nature of artists who want a place to take risks and do the art they want to do, something the fringe’s format allows one to do. Understanding why artists would seek out a safe haven felt crucial in understanding how the artists I interviewed might have had an interest in an a place to perform their art uncensored.

Both of these pieces of information gave me some groundwork of where and how ‘fringe’ began in Edinburgh and common motives for creating art organizations or festivals. With these in mind I developed questions for my interviews so as to more
accurately focus on how and why The Fringe has arrived in Kansas City. Through personal testimony I gained and developed a better understanding of what KC Fringe represents to its community and the people who run it.

Methodology

I developed an oral history of KC Fringe Festival using qualitative research with a phenomenological approach; I let the interviewee’s narratives reveal unifying themes as to why KC Fringe, especially in their community, is important. This took the form of interviews with administrators, founders, and performers at the Kansas City Fringe Festival. I was able to attain ten interviews as a sample of convenience.

I looked for participants who were from the staff and board of the KC Fringe Festival and performers who have performed at KC Fringe, so as to gain a unique perspective on why they support, partake, and run the Kansas City based festival. I set out to find individuals to interview by contacting the Director of KC Fringe, Cheryl Kimmi. I explained my study and interest in the festival, asked her for an interview, and requested a list of those who work with her or have been a part of the festival. From there it was a sample of convenience, cold calling artists and staff for interviews. I used a series of open-ended questions that provided a significant amount of allowance for deeper discussion on a variety of topics. See the appendix for sample questions.

Upon receiving documented approval by those I wanted to interview, I traveled to a location of their choosing, so that they would feel comfortable being videotaped and audio recorded. The location usually took the form of the KC Fringe office but in other instances interviews were conducted in an interviewee’s backyard or his apartment living room in downtown Kansas City. I also conducted interviews via telephone due to scheduling complications. With each interview I began with a series of questions looking into their background as artists, producers, or art enthusiasts. From there I investigated how they came to be involved with KC Fringe, any personal importance it had to them, and questions regarding the KC Arts scene when relevant. These questions were kept open—ended so participants could discuss freely their opinions for the purposes of developing their history.

Once interviews were concluded, I transcribed the interviews and scoured over them for reoccurring themes including: KC Fringe’s Origins, The importance of KC Fringe, Problems with KC Fringe, KC Fringe’s Future, and Ways KC Fringe benefits artists and Kansas City. The transcription was a reflective and interpretive process that aimed to identify possible thematic patterns found within the interview participants’ narratives, and then explores the greater contextual meaning of those experiences.

Genesis

While ‘fringe festivals’ were born well over 60 years ago, KC Fringe was born as the brain child of Cheryl Kimmi (Brionnes). In the fall of 2004, Kimmi was working for the Kansas City based audience development organization ArtsAlive. According to the mission statement, ArtsAlive is, “...a non-profit organization that promotes
the visual and performing arts in Greater Kansas City through social events hosted by a different organization each month” (artslivekc.com). Part of Kimmi’s job was to help stop the “draining arts audience” or shrinking audience by helping steer and aid young urban professionals toward attending arts events in Kansas City (Kimmi). She would organize and provide tickets to the ballet, the orchestra, but regularly found that the biggest turn-out for events was plays. Kimmi described her time at ArtsAlive as getting about forty or fifty people to come see the opera but when it came to “more ground breaking theatre, late night theatre…things like Metamorphoses at the Rep, we would have 120 to 150 people participate” (Kimmi).

The idea of bringing a fringe festival to Kansas City arose from conversations Kimmi had with some friends who worked in theatre. Her friends were quietly murmuring, “she needs to do a Fringe Festival. Kansas City needs a fringe festival.” (Kimmi). These friends began to implant the idea into her head. As she talked with those who supported the wealthier, more main stream theaters, she realized that Kansas City had an emerging arts scene, and she could take advantage of it.

Kimmi began to investigate what fringe festivals were, not having much prior knowledge. She attended the Minnesota Fringe, a more established fringe festival to gain an idea of the format. From there she talked to the Metropolitan Arts Council of KC who gave her an affirming opinion as to whether to launch a fringe festival in Kansas City or not. She investigated fringe festivals and through the support of friends came to the decision she was going to begin to move this Fringe idea into motion for a possible summer 2006 launch.

However, things moved much faster than Kimmi could have planned. The executive director of the Metropolitan Arts Council put her in contact with the Kansas City Public Library and Park University. The KC Public Library was seeking to create a cultural center and children’s programming that was similar to “…the Youth Fringe program in New York City…”(Kimmi) but Kimmi stated that institution only functioned because it was attached to the much larger New York City Fringe Festival. Recognizing that she had similar intentions with her fringe, she found a quick partnership in the KC Public Library. The library, however, wanted to move even faster.

With the goal of starting programming in the summer of 2005, Cheryl had little time in the early part of the year to figure out how to get this festival on its feet. She decided to put out a call to Artists. She asked three primary questions: “Do you think Kansas City is ready for a Fringe Festival? Would you participate? Should we shoot for ’06 or try to throw something together for ’05?” The answers she received were a simple “Yes, Yes, why wait,” (Kimmi). After throwing together a quick website and a May 1st deadline for artists to apply, she was gifted with 53 applicants to perform. Kimmi admitted all of them to the festival. She describes her first year as filled with hard knocks, having never been a festival organizer before. There were initial missteps in the beginning. Having used the Minneapolis Fringe as a basis for its format of being an unjuried, uncensored arts festival, Cheryl and her staff had very vague guidelines for how shows were rated in terms of content, not unlike Minnesota Fringe. Needless to say, after an incident of audience members leaving after watching a show re-enact prison rape, Kimmi came
to the very stark conclusion: the values of Kansas City are a bit different than those in more “progressive” cities (Kimmi).

She spoke with other Fringe directors at the U.S Fringe Festival Conference when she told them that she had established content ratings system. All applicants to KC Fringe are asked to indicate if their shows have violence, nudity, or sexual content, and rate themselves as being good for the family, teenagers, or adults only. This sort of full disclosure is not the common case with many fringe festivals internationally or nationally, according to Kimmi, but such are is necessary for KC Fringe due to being located in the ‘Bible Belt’. So while in some ways KC Fringe had to forsake a truly ‘uncensored’ format, Cheryl Kimmi has adapted and forged on for the festival regardless, since a performance art based festival cannot exist without an audience.

**Cheryl Kimmi**

Over the course of my interviews it became abundantly clear how integral Cheryl Kimmi is and was to this festival. Many of those I interviewed who were on the staff of KC Fringe would defer from giving an answer on questions concerning the festival. They would often cite that Cheryl was “more qualified” (Brionnes), though my questions were more matter of opinion. Described by multiple people as a class act, a mentor, and someone who really opened the door for them, it is easy to see how Kimmi is the driving force of this festival.

Kimmi’s background in the arts began with a Music Education degree that she never truly put to use. Deciding that she did not actually enjoy teaching, and with a husband and child, she moved into the “corporate world” (Kimmi). She worked for a variety of businesses before leaving the corporate world behind after the events of September 11, simply saying, “Done. Don’t need this anymore,” (Kimmi). Exhausted mentally and emotionally from the tragedy and the lack of human compassion in her career (Kimmi), she decided to focus on being a better mother to her children. She would often serve as a back—stage helper for her children’s plays in the community theatre. One of the community theatre directors who told her she should work in the arts and directed her to Kansas City Shakespeare. Through volunteer work at KC Shakespeare she moved into ArtsAlive and her current position today as the director of KC Fringe (Brionnes). She is the only salaried employee.

One of the success stories of KC Fringe was Heidi Van, proprietor of Fish Tank Performance Studio (a theatre venue in Kansas City) and member of HYBRID: a theatre collective. Van got her generative performance start at KC Fringe due to the Cheryl’s interest in helping artists grow (Van). Generative Performance refers to scripts and performances written/created and performed by the same artist or artists (Van). Through using the fringe, Heidi found success with her show *The Copalia Project* (Kimmi). A silent clowning show that explored the meaning of beauty through movement, *The Copalia Project* was met with immense success at the KC Fringe Festival. After its fringe festival debut, *The Copalia Project* soon toured the US Southwest. As a result, Van’s view of herself in her art experienced a fundamental change. Van, as she says, has transitioned from just being an actor to a producer and creator of new works, including *THRILL ME: The Leopold & Loeb Story*, which
debuted at KC Fringe this past summer (Van). _THRILL ME_ is the story of 1924 thrill killers Nathan Leopold and Richard Loeb in the form of a one-hour musical (KC Fringe). In years past Van might have just been an actor but now she is producing shows because Kimmi helped nurture her growth as an artist (Van).

Timothy Mooney, traveling artist of the Timothy Mooney Repertory Theatre, described Kimmi as one of his favorite reasons for attending the festival. Being a seasoned performer from outside of Kansas City, Mooney enjoys the hospitality and welcoming attitude she exudes as the Fringe director in welcoming out of town performers. Mooney discussed how parties set up at Fringe Central (the main operating area for KC Fringe) for artists to interact. He also appreciates how Kimmi and her staff go out of their way to be nurturing, hospitable, and enjoyable to work with.

Artist Susanna Lee, a Kansas City native, discussed in our interview how Kimmi has been a nurturing influence on her art.

“She comes to other shows that I do so it’s not that she’s just involved with people during the Fringe Festival. She really takes an interest in shows and an interest in artists that she believes in, you know, all of the time. She calls me. I know that Cheryl Kimmi cares about me.” (Lee)

Susanna Lee, stage name Lucky Deluxe, is a comedian, producer and touring burlesque performer who debuted _The Good Book Variety Revue_, a burlesque performance. Burlesque is a form of performance often consisted of skits and strip teases involving an earthy sense of humor (Webster Online). Susanna Lee found out about KC Fringe through her burlesque classes. However, Kimmi’s impact is clear in that KC Fringe’s appeal is how “inclusory” (Lee) it is and ultimately, Kimmi being the nurturing extension of that.

It is clear in these that Kimmi’s strong recruiting skills, gift for nurturing talent and will to make the festival succeed is one of the major factors that propels KC Fringe forward; all of which is evidenced in further chapters.

**Funding**

KC Fringe is a non-profit organization, and running the festival is no cheap endeavor. One of the new tasks Joseph Brionnes, KC Native and head of KC Fringe promotions, has had to take on as part of the KC Fringe staff, is the hunt and application for grants. Grant money is one of the many ways KC Fringe can continue to grow.

According to the most up-to-date budget I received from Cheryl Kimmi, KC Fringe’s total income is approximately $86,175. Money for the festival primarily comes in the form of grants; totaling $20,000. The festival also receives a substantial part of that $86,175 from artist entry fees, ticket sales for the shows, and button sales, which allow audience members to get cheaper tickets.

The biggest shock this year is looking over the changes made for the festivals revised budget in June. In an effort to find more money for the festival, nobody on the administrative staff is getting paid. While Kimmi is a full—time salaried employee, there are others who come on to the pay roll during the festival. This includes
volunteer coordinator Christa Donner. The technical director, Glenn Lewis, and the various house technicians at the venues for the festival still receive nominal fees. So in order to spend money on the festival and stay in the black, the Fringe’s own director, Cheryl Kimmi, has foregone her share to help KC Fringe operate this year.

Collin Naughtin, KC Fringe board member and technical director and designer for Square Egg Productions in KC, claims that getting the festival up and running is almost a miracle with a budget described as “vanishing.” Staffers essentially have to “steal and beg and plead” (Naughtin) for venues, spaces, and other items they need to make this festival run (Naughtin). While the festival grows every year, it appears that running it is an endeavor of survival.

Vision

Since day one, Kimmi aimed to make KC Fringe a springboard for experienced and amateur artists to grow onto the next level, whatever that may be for the individual artist. Kimmi has been vigilant in helping KC Fringe grow its town audience, geographic size and number of artists attending. She is looking to use the festival as both a platform for the artist and a means to encourage novices to explore the arts. As she puts it, she wants to “Make them more aware of the world beyond their four walls” (Kimmi).

To adapt to some of the more conservative ideas that come with the region, Kimmi promotes full disclosure to the audiences about what they will be seeing. As she puts it “people can make informed choices, we’ve learned…that we have to provide more information than less,” (Kimmi). KC Fringe is one of the few fringe festivals in the Midwest Fringe Circuit (which is comprised of KC Fringe, Minnesota Fringe, Indianapolis Fringe and the 2010 inaugural Chicago Fringe) that actually cards attendees if the show is rated for 18 and over.

KC Fringe has had substantial growth despite being in what Cheryl has called a “conservative climate” (Naughtin). The 2010 KC Fringe Festival will be the first time that the festival cannot support all the performers who applied (Kimmi). Interest in performing at KC Fringe is growing. Audiences, according to Cheryl Kimmi, continue to grow due to promotions, or fundraising parties that include performances, fashion shows, films that go on throughout the year. Also, by aligning with the Midwest Fringe Circuit, KC Fringe can better support the artists who wish to expand beyond Kansas City and ultimately bring new performers into Kansas City through helping artists out with hospitality, navigating the city, attaining a venue, and basic promotion (Kimmi).

It should be noted that KC Fringe has now moved from a simple staff of governors and is transitioning from what Collin Naughtin has labeled as “an operations board” to a “traditional board.” In the past the board of directors for KC Fringe not only raised funds and established some system of organization to the festival, but also to found venues at the last minute, aided artists in crisis during the festival, mopped floors, and performed physical labor involved with running a festival (Naughtin). As Naughtin put it, the traditional board will focus more on the fund raising and organizing with “volunteer committees” taking over the grunt work.
Moving from a loose group of volunteers to an actual structured board that collectively handles the money is the sign of a growing infrastructure within KC Fringe. Naughtin notes that the ticket and head count has increased by 20 to 30 percent over the past couple of years and public awareness for the event has increased as well. More artists are asking about the Festival rather than and KC Fringe having to recruit so much. As participation has increased, they have struggled to keep pace with having enough venues and time for performers. With the Youth/Teen Fringe (an opportunity for youth to have the stages) the Festival is running roughly one and a half to two weeks, a growth from its original one week length. Additionally, KC Fringe finally has its own geographical home. As prior the KC Fringe office was literally Cheryl Kimmi’s car.

Major plans in administrative staff growth is to continue to enlist more volunteers who “actually go through with what they say they’ll do” (Kimmi) and a commitment to artist education. Van, who once described herself as simply an actor, now produces thanks to KC Fringe helping her learn the business end of the arts. As Kimmi describes it, they can do the art, but they know very little of the business end of things. In this way, KC Fringe is serving as outreach for the artists themselves.

In a broader sense its impact on the community could be measured in terms of awareness amongst citizens in Kansas City. Bob Paisley, director of Metropolitan Ensemble Theatre attends KC Fringe regularly, and notes that the core audiences are people already in the established Kansas City Theatre scene. Late night theatre venues appeal to a variety of transplants to Kansas City (Lewis). Kimmi related the story of a couple originally from Brooklyn who since relocating felt like they are at home while at the festival. According to Kimmi, the most rewarding experience is just watching the people trying to get one from venue to another, sharing maps and ultimately communicating with one another.

Involvement and Growth

Kimmi has served as inspiration for her staff and performers alike. Joseph Brionnes calls Kimmi “…a mentor of mine and I really respect her and she’s one of the main reasons I do this, you know. She keeps me going and praises me and helps me grow as a person.” Prior to his involvement with Fringe, Brionnes was simply a steel salesman who took a chance one evening on seeing some shows and ended up wanting to help.

A key component of Kimmi’s ability to help the Fringe grow is her own personal magnetism (Naughtin). Collin Naughtin described her as being “notorious” for her ability to get people on her side and willing to help. While she was able to draw from within the theatre community, she was able to get him to stick and help KC Fringe transfer to its new board. She was also able to draft KC Fringe technical director and local scenic carpenter Glenn Lewis with a similar passion and background knowledge. The offices of Naughtin, Lewis and Kimmi were next to one another during her tenure in Arts Alive, giving her quick access to Naughtin and Lewis for discussion and developing KC Fringe.
Challenges

Many ventures, business or otherwise, face troubles in their early years. KC Fringe is no different and has had to face continual adversity in the financial realm. As they face the realities of how they operate versus how they want to operate. As mentioned in the previous chapter on funding, sponsorship and donation is crucial to operating the festival, especially when every cent counts. One particular anecdote that Kimmi shared encompassed some of the resistance they have met for putting on shows that are unjuried.

During the 2008 festival, Cheryl Kimmi received a phone call from one of the sponsors of KC Fringe, Crown Center. The Vice President of Marketing explained that they were responding to attorneys in New York. Cheryl was shocked to learn that the lawyers of the Catholic League of Charities were contacting every sponsor of KC Fringe and threatening them with boycotts and picketing. They were upset over the show debuting at KC Fringe, titled Jesus Christ, King of Comedy (Kimmi). This show in particular depicted Jesus Christ as an African American, something Cheryl Kimmi believes is the real reason they were upset with the play. The result of this threat from the Catholic League was the loss of $5,000 sponsorships from the King City Public Libraries and Park University. They were the first sponsors to have signed on with KC Fringe (Kimmi). Despite the loss, KC Fringe has carried on (Brionnes).

Another major challenge the festival faces is its own geography (Brionnes, Van, Mooney, Paisley, and Lewis). Kansas City, being a small market theatre city, has venues and spaces spread out all over the city. With no centralized area for the festival to actively take place in, it is difficult to centralize the festival (Paisley). As such, it makes easy access to all the events a challenge for performers and audience alike. The festival has, as Timothy Mooney and Heidi Van described, a very “spread out” feeling. This is evidenced in audience numbers for individual places and also the “vibe” of the location (Lewis). Experienced performer Tim Mooney commented on the culture of fringe festivals elsewhere, saying that after someone performs and watches some other shows, most people go back to a Fringe central for drinks and networking. In his experience, most of the local talent go home and that leaves the “out of towners” left to their own devices and unable to build networks with local artists.

Many of the artists and staff concluded definitively that access to the venues was one of the biggest hindrances to the growth of the festival. With venues miles apart at certain locations, it makes is extremely difficult for the festival to feel like a true celebratory event. As they grow bigger, KC Fringe will have to look ahead or adapt to their geographical realities.

One of the more interesting notes I heard from Timothy Mooney was his comment on the ‘young voice’ of KC Fringe. Many of my interviewees referred to KC Fringe as a young festival but Mooney was able to elucidate that every festival has its own voice: KC is still looking for theirs. For example, the Orlando Fringe has a very strong gay contingent and styling to the majority of the work that appears. Right now KC Fringe lacks a clear voice, hosting theatre pieces but also visual art, dance, and fashion: things more readily ingrained into the Kansas City arts scene (Mooney). As KC Fringe grows and matures, it will face the challenge of finding a voice.

And of course, although the audience is growing, the Board still desires to reach
new audiences. With Kimmi’s mission of wanting to use art to reach out and change people, she must find new and creative means to reach new people. Kimmi related in our interview that the following day she would actually be attending a Sunday school to talk about the youth fringe program. Either way, KC Fringe has many hills to overcome, but the organization, with Cheryl Kimmi in charge, seems determined to do so.

Discussion

If there is one thing I did not expect when I began my research was just how important one person could be. In many ways the narrative of KC Fringe’s history became the story of Cheryl Kimmi. I had not expected that one person could be so important to such a large organization. Kimmi is clearly a germinal figure of KC Fringe and it will be interesting to see in future research how much she remains in the big picture as KC Fringe matures or whether the festival would survive without her leadership.

I was not surprised to find that KC Fringe was a ‘safe place’ for artists, both from my own experience as an artist who has performed at KC Fringe and seeing the smorgasbord that KC Fringe can be. This was only further confirmation of my belief that these festivals are a safe ground for free exposure, and while some interviewees, including Bob Paisley, disagree with the unjuried notion due to a lack of quality control (Paisley), they see the value of it.

I was surprised by the scope of KC Fringe in terms of what it allows versus Edinburgh Fringe. KC Fringe’s policy and openness to visual art, film, and burlesque is quite a broader idea of unjuried art compared to Edinburgh, which has a more theatrical focus. In future research it would be interesting to take a stronger comparative look at the programming that comes about from American fringe festivals against the Edinburgh original.

However, this research is only beginning to uncover KC Fringe. Due to time and availability, my sample size was only ten interviews. I feel that there is much more research to be done to attain an even broader understanding. My selection of performers to interview was limited by time and geography and given time I think a bigger and more detailed picture of the KC Fringe could be discovered with more interviews and more investigation into how this festival runs, grows, and rises above challenges. In future research I would additionally like to interview audience members during the actual run of the festival.

Through my interviews it has become abundantly clear that KC Fringe is important to the arts community of Kansas City. The Arts and specifically this festival holds importance to the economic and cultural growth of Kansas City with the way it brings people together. The festival holds power over a slew of people; beyond those my research led me to meet. The festival helped launch performers such as Van Lee. KC Fringe has given teenagers a chance to discover a voice through Paisley’s producing. It has helped experienced performers such as Mooney make new contacts. But ultimately KC Fringe has given everyone involved, including the audience, technicians, volunteers and the festival director a chance to use a celebration of art as
a chance to broaden horizons and grow culturally, community, and economically. One can only speculate how the landscape of Kansas City may fundamentally change if KC Fringe continues to grow.
Bibliography


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Appendix: Sample Questions

“How did you become involved in the Kansas City Fringe Festival?”

“How do you feel KC Fringe impacts Kansas City and its neighboring communities?”

“What do you think draws people to attend and perform in these kinds of festivals?”

“What is your history as an artist/art administrator/art enthusiast?”

“Had you heard of Fringe Festivals prior to your involvement with KC Fringe?”
Newborn Hearing Screening Standards in Rural and Urban Areas of Missouri

Danielle Henry

Dr. Ilene Elmlinger, Mentor

A policy analysis was conducted to compare the practices of hospitals in rural Northeast Missouri, and more urban St. Louis, Missouri to the state requirements and national recommendations of the Joint Committee on Infant Hearing for newborn hearing screenings. Data was obtained through interviews conducted with various hospital staff. Slight differences were found in rural versus urban area hospitals within Missouri in regards to their percentages of infants screened before discharge, amount of refusals received, and protocol for referrals. This study should help to shed light on any inconsistencies in hearing screening standards across Missouri and assist policy makers in realizing the importance of consistent and equal practices throughout the United States.

Introduction

When a newborn arrives in the world, they undergo many tests to ensure their health. New babies have their hearing, vision, and reflexes tested soon after birth in addition to a plethora of screenings for prenatal conditions and assessment of any additional risk factors. These screenings aid in the health and wellness of our society and allow for early intervention for any identified issues.

As part of my hypothesis, I suspect that rural areas like that of Northeast Missouri have fewer resources than urban areas due to smaller populations and possibly less funding from state and federal governments. However, do people in more rural areas experience a lower quality of care than those living in more urban regions of the state?

To explore these questions, as well as identify each hospital’s protocol for newborn hearing screenings I have conducted interviews with various hospital staff in both Northeast Missouri hospitals, and St. Louis area hospitals. This data will be used to find out how methods compare to the existing state requirements and federal recommendations.

All babies deserve an equal opportunity to have a healthy, happy life, and for that to be possible they need to develop communication skills such as auditory and language skills. The National Institute on Deafness and Other Communication disorders explains on their website, “The earlier that deafness or hearing loss is identified, the better the chances a child will acquire language, whether spoken or signed. A hearing
screening can be an important indicator of hearing loss in a child. For this reason, all infants should be screened while still in the hospital or within the first month of life.” (NIDCD, 2002). Speech and language skills will be negatively impacted when a diagnosis is delayed. In the United States, newborn hearing screenings are not federally mandated and therefore each state makes policy decisions regarding newborn hearing screenings for their own state.

Literature Review

I found no previous research comparing urban and rural hospitals in way of newborn hearing screenings. Researchers have explored which screening tools are most beneficial in terms of ease of use, cost effectiveness, and sensitivity to hearing loss. Tools such as Otoacoustic Emissions and Auditory Brainstem Response testing have been extensively examined. However, no previous studies were found comparing urban to rural area newborn hearing screening practices.

Testing Methods

Otoacoustic Emissions themselves are “sounds generated by a normal cochlea during auditory processing” (Billeaud, 2003). An Otoacoustic Emissions Test (OAEs) is a method to measure these sounds in the external ear canal once the sound is detected by the cochlea by using a small inserted earpiece with a connected microphone. This method, tests one’s hearing capabilities by determining the cochlear function, looking at the mobility of the outer hair cells, measuring how sound travels starting at the cochlea, through the middle ear, ear canal and finally collecting data through a microphone inserted in the ear. If there is a problem with the outer hair cells, this will lessen or stop the otoacoustic emission produced and therefore the microphone will not pick up an echo, and the test will register as “refer.” Two types of OAEs can be used, Transient Evoked Otoacoustic Emissions (TEOAEs) and Distortion Product Otoacoustic Emissions (DPOAEs). TEOAEs are when the OAE consists of a short duration of sound, while DPOAEs have two tonal stimuli. According to Billeaud in Communication Disorders in Infants and Toddlers: Assessment and Intervention, both of these tests can be appropriate to use on infants because they are quick, reliable, cost effective and non invasive.

In the article Otoacoustic Emissions in 2002: Some Perspectives, Theodore J. Glattke discusses the issues with OAEs as well as how they compare to ABRs. He starts by discussing lack of tracking infants to decipher how accurate hearing screenings actually are. Glattke also says that ABRs are the “gold standard” until an infant is old enough to partake in a more reliable predictor of hearing abilities, deficits and thresholds, behavioral audiometry (Glattke, 2002).

An Auditory Brainstem Response Test (ABRs) is an apparatus used to measure Auditory Evoked Potential (AEP), the auditory nerve and brainstem’s reaction to sound. This test, when used on infants is completed with a small electrode on the head accompanied by headphones or insert earphones which introduce sound into the ear. While the headphones introduce an auditory signal, the electrodes on the babies scalp picks up the change in neural activity following the introduction of the sound. ABRs
Newborn Hearing Screening Standards

as well as OAEs should be performed while the babies are sleeping, or still and quiet, for the most accurate results.

State Requirements and National Recommendations

According to the “Missouri Summary of Universal Newborn Hearing Screening Legislation” Missouri requires all babies to be screened for hearing loss as newborns before the age of three months old, unless a parent or guardian specifies in writing that they do not wish the child to be screened. Furthermore, Missouri requires all results of these screenings to be sent on to the Department of Health. Information must also be given to the parents of each infant regarding what tests are being performed and why, as well more information provided if their infant is referred to seek diagnostic testing.

The American Speech-Language Hearing Association (ASHA) has suggested that the timeline followed for newborn hearing screenings is to have all babies screened within their first month, diagnosed within three months and fit with amplification by six months.

The Year 2007: Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs written by the Joint Committee on Infant Hearing (JCIH) is a document that contains the national recommendations for newborn hearing screenings and provides detailed information about why screenings are so important and how early detection as well as early intervention are vital to the future care of newborns with hearing impairments.

The American Speech-Language-Hearing Association (ASHA), the American Academy of Audiology and the Alexander Graham Bell Association for the Deaf, Inc. collectively composed the Model Universal Newborn/Infant Hearing Screening, Tracking, and Intervention Bill. This bill is a model of what these three groups would like to see in the future for federally mandated requirements of newborn hearing screenings. At this time, newborn hearing screenings are not federally required by law and each state decides on their own standards. This bill would make a difference in many areas, as it would require a standard for newborn hearing screening protocols to be maintained throughout the country. The desired result would be consistent provision of a high level of testing and earlier initiation of early intervention services, when necessary. The purpose of this study is to perform a policy analysis to compare standard newborn hearing screening practices in rural and urban hospitals within Missouri to each other and to the national recommendations by the 2007 JCIH Policy position statement. Throughout this research, the following question will be examined: “How does location, be it Rural or Urban, within Missouri affect the standards or the practice of newborn hearing screenings within hospitals?”

Methodology

Participants: Administrators and practitioners from Northeast Regional Medical Center, Moberly Regional Medical Center, Hannibal Regional Hospital and Scotland County Hospital represented Northeast Missouri rural area hospitals whereas Missouri Baptist Medical Center, St. John’s Mercy Medical Center, Barnes Jewish Hospital and
St. Louis Children’s Hospital in St. Louis, Missouri comprised the urban area portion of the sample. Among these urban hospitals St. Louis Children’s Hospital does not have their own birthing center, but does however have a Neonatal Intensive Care Unit (NICU) and their practitioners perform hearing screenings on the infants within this unit. Participants of this study were all directly involved in the newborn hearing screening process at their respective hospitals, and they were all recruited by calling ahead of time and asking staff for suggestions and referrals for the best person on their staff with whom to talk regarding the newborn hearing screenings performed.

**Interview Questions and Protocol:** All interviews were conducted over the phone, and recorded using a call manager program called Shoretel Call Manager. Shoretel Call Manager is a computer program that places and records calls, allowing cell phone calls to be recorded onto a laptop or personal computer. Shoretel was first installed on the investigator’s personal computer, and assigned to ring only to the investigator’s cell phone. From this call manager’s interface on that computer, phone numbers of the hospitals could be entered; the call manager would call the cell phone, and then continue to dial the hospital’s number. When the interviewee answered, the investigator would hit record and then remind them that they were being recorded and could stop the interview at any time if they needed to attend to a patient or felt uncomfortable with any of the questions. For this study, interviews were conducted semi-anonymously. Each of the interviewees was informed that the investigator would be listing which hospitals participated; however, no connecting information would be given to directly link any of the hospitals to their answers to any specific interview questions.

Once the call was completed the recorded information would arrive as a voicemail on the call manager, and would was saved directly to a password protected folder on the computer as a .wav file, removing the unprotected copy all together. During these interviews, questions like “What tests are required within your hospital’s newborn hearing screenings?” and “How many times are hearing screenings typically administered to a newborn before they leave the hospital?” (see Appendix for complete list of questions) were asked to obtain a better understanding of each hospital’s practices. Additionally, staff were asked “Around how many newborns are delivered in your hospital per year, and how many of those newborns have their hearing screened?” to better define the size and activity of each unit.

**Procedure:** The interviews were organized with the chosen hospitals by calling the nurse’s stations of the nurseries or OB/GYNs within each hospital. Initially, the study was briefly explained and the best contact person was identified. After this pre-screening phone call, a consent form was faxed or emailed, based on their preference, to each participant with all necessary information regarding the study, as well as the opportunity to raise any questions or concerns that they may have. Once the consent form was returned via fax or email, a second call was placed to set up an interview.

Interviews were conducted based on times of availability given by each participant, and interviewees were instructed that they were allowed to ask any questions at any point throughout the interview. Following each interview, information was transcribed and a detailed comparison between the hospitals within the rural and urban areas of what tests were required, when tests were administered, how many times tests were administered before infants were sent home, and how each hospital ensures the infants
that have failed screenings receive further hearing examinations. Finally the hospitals were compared in terms of demographic information and data about each hospital’s surrounding areas and servicing areas.

**Results**

**Urban Sample Results:** All urban interviews were conducted with participants over the age of 18. Two Audiologists and two Nurse Managers were interviewed; one Nurse Manager over “Mother/Baby” and one over “Post Partum/Nurseries.” All four of the interviewees were directly involved in the newborn hearing screening processes at the hospitals with which they were associated, either by performing these screenings themselves, or by overseeing the screenings and results obtained from them as they were conducted. Each of these nurseries had from one to four trained technicians available at any point in time to perform the hearing screenings.

As far as continuing education, these hospitals all had similar policies; for the most part each hospital ensured the training of new technicians or nurses on how to use the equipment when they first start in the unit. After that, unless they notice any problems, obtain new equipment, update their policies, or gain new interpretation methods for the results, they don’t traditionally require continued education for their newborn hearing screenings. They focus their training and education more on an “as needed basis” explained one interviewee. However, one of the Nurse Managers explained that they have a number to call if they have any questions or need help trouble shooting with any of the machines.

All four of these hospitals expressed that they have the equipment and training to perform both Otoacoustic Emissions Tests (OAEs) and Auditory Brainstem Response Tests (ABRs) but each of them had their own reasons for performing each one. In one of the hospitals, they only have a high risk nursery, so they perform automated ABRs on all of their babies and there are only very rare occasions in which they would use OAEs. The other three interviewees had similar explanations stating that they use ABRs automatically on their high risk babies such as newborns that have been on any medications, preterm infants or those with low birth weights as well as any babies with a known family history of hearing loss or problems, or those who don’t pass the OAEs which they run initially on all other babies.

All four of these hospitals reported using Natus Bio-Logic ABaer equipment for their hearing screens and all equipment was reported to range from brand new to three years old.

When asked “How many times do you typically administer hearing screenings to an infant before they leave the hospital if they do not pass the initial screening?” each of the hospital’s responses was slightly different from one another. In one instance, the technicians at their hospital only administered the hearing screening once. She went on to explain that this was due to the fact that they only have sick or at risk babies at their hospital and they do not expect most of them to pass because of this, they often immediately refer for diagnostic testing. However in the other three hospitals, it was more common to have at least one rescreening. One of the Audiologists reported their protocol was to perform OAEs twice, and if the infant failed both times, they would
administer the ABR. If the ABR was failed, they wait another 24 hours, typically the day before the infant left the hospital, and repeat the ABR again before referring the baby for diagnostic testing. Another hospital’s process included testing the baby once, and if the baby failed the first screening depending on how much longer they were to be a patient at the hospital they would screen one to two more times before discharge. The interviewee relayed that if a baby was delivered via cesarean section there was more time to test the baby again before they were discharged from the hospital. The final hospital’s procedures were to wait until right before the baby was to be discharged, and run the OAE. If the baby failed the OAE after a few tries – no specified number of times – they would run the ABR.

Next the interviewees were asked to discuss their procedures for referring babies that had failed all screenings completed before being discharged from their hospitals. In all four of these hospitals a diagnostic test was scheduled before the infant is discharged from the hospital and all hospitals preferred to have this test scheduled within a month of discharge.

Each of these interviewees reported that from 3,900 to 7,000 babies were born in their hospital per year, other than the NICU hospital which said they had screened 590 infants last year and referred 60 of those 590 infants. All of these interviewees also stated from 98 to 100% of the infants born in their hospital are screened before discharge; if any infants are missed they are found and screened unless they have refused this service, which does not often happen.

Rural Sample Results: All of the participants interviewed for this sample were over the age of 18. All four of these interviewees were nurses; three of them registered nurses and one licensed practical nurse. All participants were directly involved in the newborn hearing screening process by either performing them directly or by supervising those who do. Each of these participants reported that every nurse in their unit is trained to do the hearing screenings.

When asked, “How often does training or continuing education occur?” each nurse explained that they do training when a new nurse enters the unit; however, unless more training is needed, new equipment is added, or questions arise they do not have any extra follow-up training. One of the hospitals responded that they also have a phone number for the state, should they need extra help with the equipment or protocol and another reported that they do yearly updates with all nurses and technicians to ensure that everyone understands the system and does not require any further training.

All four rural hospitals had the training and equipment to run the OAE but only one hospital had the ability to do ABRs. The lack of ABR equipment may be due to the fact that they do not have intensive care units. The one hospital that was equipped for ABRs only performs them on babies that have been on any medications or any babies that do not pass the OAEs. Two of the interviewees explained that they use the Natus Bio-Logic ABaer, while the other two did not know the manufacturer of the equipment that they use. The machines ranged from brand new to ten years old.

One of the four hospitals in this sample has their nurses screen each of the infants several times before discharge, from three to five times if needed. The hospital with both OAEs and ABRs runs the OAE first, if the infant does not pass, they run ABR and if the infant does not pass again they are referred. One of the nurses reported that sometimes they do not have time to run a hearing screening on infants before
they are discharged from the hospital. In such cases the parents are asked to return for their infant’s hearing screening within two weeks. Another hospital’s standards include rescreening the infant when they come in for their one week check up with their doctor, after that if more needs to be done the doctor is in charge of referring the infant. A separate nurse said that her hospital requires that they give the infant’s parents the phone number for Truman State University, and they are required to make an appointment with the Speech and Hearing Clinic at the University. If the parents do not make an appointment or do not keep it, the state will contact the hospital or the parents themselves and ask for results.

Each of these hospitals reported between 100 and 650 births in their hospital per year. Two of these hospitals reported that they screen each infant before they are discharged unless they are first transferred to another hospital for more intensive care. Of the other two hospitals, the first reported screening 90 - 95% of the babies in their hospital before discharge; however, she went on to explain that not screening 100% of infants was greatly because of the Amish population refusing screenings and they only occasionally miss an infant. The final hospital reported only having screened 75% of infants leaving their hospital, stating, “sometimes they will pass [their screening] if they are less than 24 hours old, we will try but if they’re not, we usually tell the parents there is probably still water in their ears, just bring them back. And they usually do, they’re usually pretty good at that.” This shows a slight deviation from Missouri’s statewide requirements as each infant is not getting their hearing screened before they are discharged, the families are being asked to return for their newborn’s hearing screening.

Discussion and Conclusion

In both urban and rural hospitals, there was some form of newborn hearing screening protocol being conducted. However, between these two samples, each had different amount of access to the two types of tests, ABRs and OAEs. While the urban hospitals all had both ABR and OAE capabilities, only one of the rural hospitals had both, the other three only had access to OAEs. There was also notable difference in the way in which these hospitals referred infants who had not passed their screening. The interviewees at each of the urban hospitals reported they make sure an appointment is made before they discharge any infant that needs to be referred. In contrast, in the rural hospitals it was more common to give the parents of infants being referred information on how to set up their own appointment for a rescreening.

In both urban and rural hospitals, continuing education was rare unless needed after obtaining new equipment or when new staff arrived in the unit. Between the two samples there was a difference in the percentage of infants screened before discharge. Each of the urban hospitals claimed to have screened between 98% and 100% of all babies before discharge; they had rare refusals or missed infants. Of the rural hospitals, there were two that matched the urban hospitals rate of screening before discharge; however two of the hospitals were different. The hospital near the Amish community had an increased percentage of refusals of newborn hearing screenings. Another rural hospital reported they don’t always have time to screen each infant before they are
discharged deviated from the urban sample results.

**Weaknesses of the Study:** Future research in this area could be improved by adding to the sample sizes of both urban and rural hospitals. In conducting this research not all originally selected hospitals were able to participate either due to investigator’s inability to get in contact with the correct person to interview. The number of rural hospitals the investigator had access to was limited. Also, more in depth personal face-to-face interviews could have been conducted with less time constraints possibly with more or different varieties of questions.

It is hard to compare the urban hospitals to the rural hospitals for several reasons. For instance, rural hospitals had a lower percentage of infants screened in some cases. One rural hospital reported Amish citizens refusing this service, whereas there are not as many Amish communities near big cities, so this would not affect the urban area hospitals. It is also difficult to compare these hospitals due to the difference in communities served by each set of hospitals. The hospitals within the cities were larger and served larger numbers of patients than the rural hospitals, while the rural hospitals served larger but less populated areas. Also, cities serve high risk infants in the NICU, and most rural hospitals have well baby nurseries only. Finally, some of the rural hospitals did not have access to both ABRs as well as OAEs, while all of the hospitals in the urban sample had both testing options.

**Importance of the Study:** Policy makers should see that newborn hearing screenings should not only be a universal practice but should have much more specific requirements set forth so each and every infant gets equal quality of care.

**Conclusion:** While there was a difference in the percentage of infants screened before discharge in urban vs. rural hospitals, the difference could be due to factors other than lack of requirements. Again, one of the rural hospitals reported that their lack of screening all infants before discharge was due to the number of refusals, which in their case was due to a nearby Amish community. Only one of these hospitals was not fully following the standards set forth by Missouri by “not having time” to screen all infants before they are discharged, and simply asking for them to return within two weeks for the initial screening.

In general, all of the hospitals were making an effort to uphold the standards put forth by the state of Missouri. The hospitals in St Louis had more testing equipment and personnel. They all had access to perform the ABR test as well as the OAE but this also might have been due to the fact that they had neonatal intensive care units while all hospitals with OAEs only did not. Future research will hopefully be conducted in this area with more hospitals per sample as well as other areas throughout this state and others such as suburban areas or bigger cities. In futures research, it may be interesting to recreate this study in a state without hearing screening requirements to see how their hospitals compare.
References


Appendix A: Questions Administered in Interviews

Are you over the age of 18?

What is your position or job title at this hospital?

How are you involved in the newborn hearing screening process at your hospital?

How many people are involved in the screening process?

How often does training and continuing education occur?

What tests are required in your hospital for newborn hearing screenings?

Do you know the manufacturer of the equipment that you use?

How old is this equipment?

How many times do you typically administer hearing screenings to an infant before they leave the hospital if they don’t pass initial screening?

What is the next step if a newborn has failed a hearing screening in your hospital?

How soon after they are discharged is the rescreening scheduled?

Where is the rescreening and who administers?

Are the tests you require as a part of your newborn hearing screenings typically covered by insurance?

How many newborns are delivered in your hospital per year?

How many of those newborns have their hearing screened before being discharged?
This is an ethnographic study that examines the perceptions and water utilization patterns among Mexican families living along the New River in Mexicali, Baja California, Mexico and Calexico, California, U.S.A. Open-ended interview questions were administered to adult males and females of Mexican households living within half-a-mile radius to the contaminated river in both communities. This study contributes to the awareness of how members of the same ethnic and cultural group may be exposed to health hazards associated with their perceptions and water utilization patterns pertaining to severely polluted environmental sources of water from the New River.

Introduction

In 1904 the flood of the Colorado River gave birth to what is considered to be the most polluted river in North America, the New River (City of Calexico New River Committee 2005). It flows 15 miles north of the city of Mexicali, Mexico, and crosses the International Boundary at Calexico, California where it then travels 66 miles through Imperial Valley into the Salton Sea. Historically, it has been the dumping ground for maquiladoras, sewage companies, and agricultural farms from the United States and Mexico (California Environmental Protection Agency 2009).

Since the mid 1970s the New River has been monitored daily and shown steady-high pollution levels. Currently it is estimated that the Mexicali Valley contributes to the flow of the New River urban runoff, municipal wastes, industrial wastes, and agricultural runoff, while the Imperial Valley contributes wastewater in the form of agricultural runoff (California Environmental Protection Agency 2009). Along with biological contaminants, volatile organic compounds, heavy metals, and pesticides, the New River also carries pathogens capable of causing tuberculosis, encephalitis, polio, cholera, hepatitis and typhoid (California Environmental Protection Agency Justice Action Plan 2005). Yet, as polluted as the New River is, residents in both countries live at close proximity to the river, and there are reports from less than fifteen years ago...
indicating that families use it as a source for drinking, bathing, washing, cleaning, food
and recreational activities (Agency for Toxic Substances & Disease Registry (ATSDR)
and Division of Health Assessment & Consultation (DHAC) 1996).

Despite the numerous studies that have been conducted on the river’s pollution and
the potential health hazards that may arise from it, there remains a significant gap in the
literature exploring the unique perceptions and experiences of the residents living by the
river in both countries. This research seeks to fill this gap by examining the associated
perceptions and water utilization patterns pertaining to severely polluted water from the
New River. The study will focus specifically on Mexican families living within half-a mile
radius from the river in Calexico and Mexicali, and the water utilization patterns will be
contrasted according to the residence of the informants.

Literature Review

The New River’s pollution has been a concern since the 1940s (United States
Environmental Protection Agency 2003). At the time the pollution was primarily
untreated sewage from the Mexicali Valley. By requirement of the International
Boundary and Water Commission (IBWC) in 1949, a wastewater plant was ordered
to be built on Mexican territory and expense (Regional Water Quality Control Board
1997). In 1972 the Mexicali sewage disposal project was completed and the sewage flow
into the New River decreased by 70% (California Environmental Protection Agency
2009). However, it wasn’t until the mid 1980s that both countries took responsibility
for the river’s pollution and projects began to address the problem. Environmental
sampling of the New River had been performed at the International Boundary as early
as 1969 by ATSDR. In 1994, upon petition from the Imperial County of California,
ATSDR performed an extensive evaluation of the environmental data available from
1969 to 1994 in order to assess the public health impact of the New River. In alliance
with the California Regional Water Quality Control Board (CRWQCB), the California
State Water Resource Control Board (CSWRCB) and the California Department of
Fish and Game (DFG), surface water, sediment, mosquitoes, fish and turtles from the
New River were analyzed and compared to ATSDR’s standard comparison values. The
study concluded in 1996 that the New River “pose[d] a potential health hazard” due
to the high concentrations of fecal streptococci and other pathogens by contact with
surface water. It was recommended that the river not be used as a drinking or hunting
source for the metals, pesticides, organic compounds (PCBs) and volatile organic
compounds found in the water, and tissue of the animals could be dangerous upon
consumption. Based on the available data, the river’s sediment is not considered to
be a health hazard unless consumed in large amounts. Mosquitoes were also analyzed
for the potential of carrying viruses; however, due to the uncertainty of the origin
of the mosquitoes, the data was unable to conclude if the mosquitoes that did carry
viruses originated from the New River (ATSDR and DHAC 1996, p. 4). The estimated
percentages of the pollution from the Imperial Valley into the river primarily consist
of 35% agricultural runoff, 32% groundwater seepage, 30% tile drainage, 1% treated
sewage, and 2% agricultural wastewater (California Environmental Protection Agency
2009). From the Mexicali Valley, the estimated percentages of pollution consists of
Perceptions and Water Utilization Patterns

45% groundwater seepage, 20% agricultural drainage, 10% canal spillage, 1% livestock wastewater, 10% geothermal wastewater, 2% industrial waste, and 13% human waste (ATSDR and DHAC 1996, p. 2). In 2003, an independent study analyzed pesticide concentrations in the water and bed sediments in twelve sites along the New River. Similar to the findings of ATSDR, the levels of pesticides and metals were dangerous for consumption and exceeded cancer-causing levels (LeBlanc 2003). Furthermore, the State Water Resources Control Board estimated that the New River carried per day at least 10 million gallons of raw sewage from Mexicali into Calexico; the amount was expected to increase as Mexicali’s population of an estimated 1 million continued to grow (California Environmental Protection Agency Justice Action Plan 2005). In 2001, the City of Calexico New River Committee was formed by residents of Calexico and neighboring towns to address the pollution by proposing improvements to the river’s clean up. The committee had the long-term goal to reroute and enclose the river (City of Calexico New River Committee 2005). In October of 2009, Governor Arnold Schwarzenegger signed three bills that initiated the New River Improvement Project and required the California-Mexico Border Relations Council to develop a plan to guide the cleanup on both sides of the border (Panta 2009). On April 4, 2010, a 7.2 magnitude earthquake occurred along the Laguna Salada Fault causing damage to the wastewater plant in Mexicali and sections of the enclosed concrete linings of the river (Los Angeles Times 2010). The earthquake damage increased the flow of water and raw sewage into the New River (City of Calexico New River Committee 2010).

Methodology

This was an ethnographic study that used qualitative methodology for data analysis. The purpose was to explore from an emic perspective the residents’ perceptions and water utilization patterns among both Mexican and American communities living near the New River. The research questions addressed were the following:

- What are the perceptions of residents within half-a-mile radius who identify with an ethnicity of Mexican descent?
- What are their patterns of water utilization?
- How do patterns of water utilization differ between residents of Mexicali and Calexico?

Participants

A convenience sample was recruited through contacts with the City of Calexico New River Committee. Adults representing 17 households were interviewed; nine were Calexico residents and eight were Mexicali residents. “There are no rules for sample size in qualitative research—sample size is usually determined based on informational needs. A guiding principle in sampling is data saturation—that is, sampling to the point at which no new information is obtained…” (Polit & Beck 2010, p. 308).

The inclusion criteria were the following:

- Acknowledged Mexican ethnicity
- Adults 18 years or older
- Residence within half-a-mile of the New River
- Resident of Mexicali or Calexico
Instruments

Data collection was possible through a cross-lingual consent form and interview guide in Spanish and English. A copy of the consent form was given and read to the participants. The interview guide consisted of open-ended questions which addressed two concerns: perceptions of the New River and water utilization patterns. (SEE APPENDIX 1 for questions).

Procedures

With collaboration from the City of Calexico New River Committee, names and addresses of participants were obtained. The interviews were held in the privacy of the participants' homes. Each interview was conducted in the language of the informant (either Spanish or English) and recorded with a digital audio device. The digital audio recordings were transcribed into the language of the informant, and each transcript was reviewed a second time with the digital audio recordings for accuracy of the transcription process. Field notes were also recorded during the interviews and subsequently to provide additional descriptive information about the context of the interview.

Data Analysis

A content analysis of the transcripts from each community was conducted using two data analysis procedures.

Procedure 1: A conventional content analysis, also referred to as an open-editing content analysis, is an inductive process of developing themes from textual data (Hsieh & Shannon 2005). In order to answer the first research question, this conventional content analysis was performed primarily from data resulting from responses from questions 1, 2, and 9 of the interview guide. First, each transcript was read holistically in an attempt to recognize messages from the informants. Second, significant phrases (“data”) were identified and coded. Third, the identified phrases were grouped and sorted into common categories. Each category was reviewed for themes.

Procedure 2: To answer research questions 3, 4, 5, and 6 a template analysis was constructed (Hsieh & Shannon 2005). For each community, data from the informants was placed into four categories. The four categories of water utilization were: drinking, cooking, bathing, and cleaning. The patterns of water utilization between the communities were then compared according to the city of residence of the participants.

Theme Results

Utilizing the conventional content analysis, seven themes emerged from the interviews. Four of the themes were common by the residents of Calexico and Mexicali, while two themes were identified only in the residents of Calexico and one only among the residents of Mexicali.

Theme #1 - We Cannot Use That Water, It’s Not Safe Water.

The most commonly reported theme among Mexicali and Calexico residents was their personal reasoning of what makes the New River and its surrounding areas unsafe for their personal well being. All 17 participants mentioned the pollution of
the river and attributed it to human, industrial and agricultural waste. The majority of residents also mentioned the presence of pesticides and metals that are found in its water, soil and air. Members of both communities try to minimize their contact with the river as much as possible due to the sources of pollution they assume are in it.

Example 1: “It carries sewer water from Mexicali…sewer water from fabrics, from businesses, from hospitals, from residential areas and it runs less than an eighth of a mile from where I live …”

Example 2: “I would never dare get near it, let alone touch it because it’s super dirty. It is contaminated, it has pesticides and who knows what else…”

Theme #2 - As We Moved Here, the Calvary of Illnesses Began.

The residents of Calexico and Mexicali view the New River as a health hazard. Both communities correlated illnesses and diseases to the river’s pollution. Residents shared their concern for the river’s contamination that spreads by air, soil and water. The following symptoms, illnesses and diseases were attributed to the New River: cancer, skin rashes, skin welts, fever, asthma, nasal and eye allergies, headaches, and seizures. One participant mentioned “lingo,” Spanish slang term for a virus carried and spread by mosquitoes capable of causing encephalitis.

Example 1: “It bothers me because the cooling system brings it in the house and we breathe it...if the cooling systems break down because of the chemicals in the air, imagine how our bodies are managing?”

Example 2: “Each day, more and more illnesses...these are the consequences families that live near the river are having.”

Example 3: “I have seen many illnesses among the people who have lived here...they were my neighbors, they were my friends and three of them died from cancer.”

Theme #3 - The Smell is Unbearable.

The peculiar smell emitted from the New River is not favored among members of both communities. The smell was described as “hostigoso,” a Spanish word that roughly translates in English as something irritating or offensive to smell. The majority of the residents stated that the bothersome smell does not let them or their children enjoy their time outdoors. The smell of the river is known to worsen as temperature rises. Residents in Mexicali who live near the covered sections of the New River stated that the odor has decreased; however, the odor is still present and worsens at the breathing holes and the remaining uncovered sections.

Example 1: “My granddaughter would say, ‘Tata I like the smell of the cow farms better than the smell here...”

Example 2: “You go outside your house to have fun with your kids and you can’t stand the smell…”

Theme #4 - Mosquitoes! There Are Too Many Mosquitoes!

Mosquitoes have been a great concern in both communities for many decades. The stagnant water of the New River serves as a breeding ground for mosquitoes. Residents complain of rashes and welts from the mosquito bites. Residents try to avoid mosquito bites by staying away from the river and going outside only when necessary.
Example 1: “There are too many mosquitoes. You can’t go outside. There have been cases of “lingo” it’s from them, and many people have died…”

Example 2: The mosquitoes! Imagine, they bite you and you’re afraid because it’s not a little bite, it’s a big rash [that] forms.”

Theme #5 - Now They Covered It, It Seems To Have Gotten Better. (Mexicali Residents)

This theme was common only among the residents of Mexicali, Mexico. Over the past sixty years the residents of Mexicali have seen many improvements to the New River. The improvements consist of new bridges being built, realigning the river and covering sections with a concrete tunnel. The residents are pleased with the improvements compared to the past though some stated there was more work to be done. Also with the concrete tunnel, some residents believe they are less exposed to the river’s contamination.

Example 1: “I was born in this house and I can tell you the river is currently the best that it has ever been…”

Example 2: “I moved here when [the river] was only a ditch with a horrible stench, it was nasty but now it is a lot better because it has been paved and the bridge is better…”

Example 3: “Everything is perfectly fine, now there are no more complaints about the river. Before, it was a bunch of nastiness…dirt, dead animals…but not anymore.”

Theme #6 - Too Many Promises and No Action. (Calexico Residents)

This theme was only seen among the residents of Calexico, California. The residents expressed disappointment in many unfulfilled promises government officials have made over the decades to clean up the river. Recently, Governor Schwarzenegger signed the necessary bills to begin improvements on the river, and the residents hope to see a significant improvement.

Example 1: “I have lived near this contaminated river for 47 years and we have all hoped for a solution…unfortunately authorities, presidents, governors and city council men have only made promises…”

Example 2: “They don’t care about the people. Who cares if we all die? All they care about is making money.

Example 3: “The state of California has set apart 80 thousand dollars to make improvements on the New River… yet I still haven’t seen any work being done…”

Theme #7 - When are they going to cover the New River? (Calexico Residents)

The majority of Calexico residents want the river to be enclosed to decrease the odor, mosquitoes, illnesses and environmental contamination. Many of the residents expressed their desire for the river to be covered by a tunnel as in Mexicali.

Example 1: “I want them to cover it like they did in Mexico…so that we don’t have so many illnesses…”

Example 2: “It needs to be covered so the contamination can end.”
Perceptions and Water Utilization Patterns

Water Utilization Pattern Results

In order to analyze and compare the water use patterns a template analysis of common patterns was constructed for drinking, cooking, bathing, and cleaning within each community. No significant differences were noted between Mexicali and Calexico residents in water use patterns. Among the residents of Calexico, California, the majority use tap water for bathing, cleaning, and washing. The tap water comes directly from their facets and is not prepared by boiling or filtering before its usage. For drinking and cooking all of the Calexico residents purchase jugs of purified water from local stores. Some Calexico residents also use tap water for cooking after it has been boiled. According to the City of Calexico website, the tap water supplied to the city is from the Colorado River and is treated in Calexico’s water treatment plant. Similarly, among the residents of Mexicali, Mexico, the majority use tap water for bathing, cleaning, and washing. The tap water also comes directly from the facet and with no preparation before its usage by boiling or filtering. For drinking and cooking Mexicali residents purchase jugs of purified water and some use tap water for cooking after it has been boiled.

Discussion

The purpose of this study was to examine the associated perceptions and water use patterns of Mexican families living along the New River in Calexico, California and Mexicali, Mexico. By examining the seven themes that emerged from the interviews, the themes that contrasted the most among the responses were of the improvements that have been completed on the New River. While Mexicali residents witnessed and were content with the improvements, Calexico residents were disappointed by the numerous unfulfilled promises government officials posed year after year, yet they hope to see improvements in the near future. Among the improvements, the majority of Calexico residents desire to see the river covered with a concrete tunnel as in Mexicali. Nonetheless, it is important to note that the current concrete tunnel cover in Mexicali and the future concrete tunnels that may be built in the remaining open sections of Mexicali and Calexico will not resolve the health and environmental hazards the river poses. Also, residents’ concerns with direct contact, mosquitoes and foul smell associated to the river will remain present due to breathing holes throughout the concrete tunnel. The breathing holes are 4 x 4 square feet openings that serve as vents for the river’s water to evaporate. Through the openings trash may enter or individuals may dispose waste that can lead to blockages that can then cause the river to overflow as already seen in Mexicali, Mexico.

Furthermore, the template analysis for the identification and comparison of water use patterns among both communities leads to the conclusion that the participating residents of Calexico and Mexicali do not use water from the New River for drinking, cooking, bathing or washing. By the residents not using the New River as a water source, it can also be concluded that the participating residents in both communities are aware of the river’s pollution and take the necessary precautions to prevent contact. However, though the participating residents in both communities do not

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use water from the river, they complain and associate health problems from living near it. One participant referred to the years of living near the New River as his “Calvary,” due to the participant’s many years of physical and emotional suffering. The participant claimed that every member of his family has health issues caused by the river’s contamination and feels guilty for having established his family’s home near the river. Further, the participant admitted to having resigned his desire to better the situation many years ago, but said that if he had youth and health he would continue fighting for the future generations of the area. Other Calexico participants associated their suffering of living near the river to being “pobre,” or poor. Further, participants of Calexico associated their “probeza” and Hispanic ethnicity with the un-kept promises from government officials.

This study’s findings of perceptions and water use patterns contributes to the knowledge that the participating adult residents in Calexico and Mexicali do not use the New River as a water source and consider it unsafe to touch or be near. These findings contrast to the available data from less than fifteen years ago which concludes and estimates that residents from Mexicali and Calexico use the river in their daily living. This contrast can be due to the growing awareness of the river’s contamination. This study’s findings also contribute to the manner in which local officials and health advocates can effectively intervene in the local cultures living along the New River. Future suggestions include a larger sample size, an analysis by participants’ socio-economic status and distance of residence from the river and a comparison analysis of perceptions among the different age groups in both communities.
References


Hsieh, H.-F., & Shannon, S.E. (2005). Three Approaches to Qualitative Content Analysis to Qualitative Health Research. 15.9.


Appendix 1

Interview Guide (Research # ____)

Por favor platíqueme del río.
(Please tell me about the New River.)

¿Cómo ha influido el río en su vida diaria?
(How has living by the New River influenced your daily life?)

¿En qué maneras usa usted el río? ¿Cuántas veces al día?
(In what ways do you use the New River? How often?)

¿De dónde viene su agua para tomar, para cocinar, para bañarse y para limpiar?
(Where do you obtain water for drinking, cooking, bathing, and cleaning?)

Por favor explique la manera en que usted prepara su agua antes de tomar, para cocinar, para bañar, y para limpiar.
(Please explain what you do to prepare water for drinking, cooking, bathing, and cleaning.)

¿Juegan sus niños cerca del río?
(Do your children play near or in the river?)

¿Dónde tira su basura?
(Where do you dispose your trash?)

¿A dónde va su drenaje?
(Where does your toilet sewage drain?)

¿Qué más quisiera decirme del río?
(What else would you like to tell me about the river?)
Boys in the Burbs: A Critical Analysis of The Boondocks

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While two out of three television programs are sitcoms, African Americans are underrepresented in these sitcoms, in literature on family interactions, and in media criticism. By using a critical analysis approach with a focus on genre studies of the animated sitcom series The Boondocks, the study examines the nature of characters’ roles and experiences as family within The Boondocks as well as what they reveal about the show as part of the sitcom genre and how they reflect broader changes in cultural values of African Americans today. The study aims to broaden understanding of the contemporary sitcom genre and African American family structure roles.

Genre Study

In television programming, certain genres target particular audiences, guiding the expectations of the audience by providing a framework. Despite the immense research available for film and literature, there is less research about specific genres in television. Scholars have used genre studies of film and literature to analyze television, but doing so does not account for the generic aspects that are unique to television (Mittell 3). This is a particular concern in analyzing sitcoms because the sitcom genre is solely in television.

A television critic does not seek to find the influence of television on the audience, instead focusing on the programming content, which allows a researcher to gain understanding about the program’s influence (O’Donnell 7). “Because television programming is a reasonably good mirror of American culture, television criticism can go beyond description and evaluation of a television program or series to a level of deeper cultural diagnosis” (O’Donnell 9). Many television programs incorporate current events and may reflect different cultural perspectives (O’Donnell 11).

Sitcoms

According to Richard Butsch, sitcoms make up a large portion of television programming (18). In the sitcom genre, the main convention is the focus on the
family in the household. In addition, two out of three times, the families in sitcoms are middle class as opposed to working class. The success of families in middle class sitcoms is flaunted, making a clear distinction from the working class. One example of this flaunting is the presence of a house cleaner or handy-man in middle class households (Butsch 19). The noticeable difference portrayed between middle class and working class is also shown in the plot. In working class sitcoms, the male protagonist character usually creates his own obstacles that his wife has to help him through. The humor in the plot comes from the male protagonist possessing characteristics that are culturally identified with women and children such as unintelligence, immaturity, and being overly emotional. The women and children in the working class sitcoms do not possess these characteristics (25). In contrast, in the middle class series, the male protagonists are intelligent and mature and handle the problems that arise in the family. Women are seen in a similar light; if a character is needed to play a “fool” for humor, it is the wife not the husband (Butsch 27). Recent examinations show shared responsibility in child rearing, as well as women in roles outside of the household (Douglas 99).

Another important aspect of a sitcom is the humor. Scharrer speculates that humor can be a way of illustrating positions of power. The person in a lower social position becomes the subject of humor created by the person in a higher position. This lower status can be created temporarily by the character doing something unintelligent. The increase in women producing sitcoms or the change in women’s position in society has caused sitcoms to have more moments where women are the creators of humor (Scharrer 26).

Taflinger provides a description of the sitcom family and their roles and relationships, including children between the ages of six to twelve. The conflict of the story normally comes from these children who are learning about the world. In sitcoms that have longevity, as the children grow older, younger children are added to the story. This is not a concern, however, in an animated series, such as The Simpsons, because animators can choose not to age the children. Although there is sibling rivalry, the family tends to have a loving relationship. In single parent sitcoms, the main character is the single parent with the children as supporting characters. The friends of the single parent, usually of the same sex as the parent, also provide emotional support for the family (Taflinger).

Various critical scholars describe the types of family roles in terms of the traditional nuclear family. The mother figure is the caregiver, nurturer, listener, and the most concerned of the family members about the “home.” The father figure is the authority figure who settles disputes, and is often the primary income earner. There are generally two types of children: the over achiever, bright or articulate, usually cooperative with parents, complicates parents’ lives by continually “looking for answers”; or the mischievous or not particularly smart child, who may try to confuse or “trick” parents, and complicates parents’ lives by requiring disciplinary actions. However, in contemporary sitcoms, the parent roles are not age or gender bound; child-aged characters may take on parental responsibilities (Taflinger; Kesler).
Boys in the Burbs

Narrative Structure

Early research suggested that sitcom structure had not changed over time. Scholars Newcomb, Grote, and March argue that the characters in sitcoms do not develop. For example in The Beverly Hillbillies, the family never adapt to their surroundings in Beverly Hills. However, sitcoms such as The Mary Tyler Moore Show, illustrated Mary, the main character, progressing as the show continued (Feuer 154).

Scholar Feuer points out that well-rounded characters are easier for viewers to identify with, while flat characters enable the audiences to focus more on the messages or themes in the show (154). Well-rounded characters are “temperamentally and motivationally complex, capable of change and of surprising the viewer” (Ekdom Vande Berg 99). A flat character is “not fully developed and lacks complexity” (Shaw 116).

Sitcom narratives tend to provide lessons on family life and illustrate interactions within the family. The father is usually a strong authoritative figure such as in The Cosby Show and Father Knows Best. Since children are central in sitcoms, their relationships are often the sitcom narrative’s focus. Over the years, confrontation between siblings has increased. For example, The Cosby Show portrays more confrontation than Leave it to Beaver did in the 1950s (Olson and Douglas 411-412).

While society’s perception of the ideal family has not changed, sitcoms have more flexibility in the family structure in sitcom, reflecting the actual structural differences in society. One example of this structural difference is a single parent household like in Gilmore Girls. As sitcoms evolved, there have been increases in the depiction of dysfunctional families such as in Roseanne or Married with Children. As the appearance of unconventional or dysfunctional families increased, plots focusing on broader social issues also increased. (Tueth 138-139)

African American Family Sitcoms

Historically, there are a limited number of sitcoms featuring African American families. The 1999-2000 television season introduced 26 new television sitcoms, none of which had an African American with a leading role. That led and Screen Actor Guide to report that African Americans make up only 13.8% of the acting roles on television (Johnson ii, 5).

The Cosby Show, with an all African American cast, provided a role model for African American families and communities at a time when there were not many positive portrayals of African Americans. However, The Cosby Show’s presentation of the Mother-Father-Child model did not reflect the culture, particularly in the African American community (Frazer and Frazer 163). According to the 2005 census, 33.1% of African American children lived with both parents. Four percent of African American children lived only with their father and 41.9% of African American children lived under the poverty level (Taylor, Jackson and Chatters). When considering cultural identification, one has to consider how the show represents the general population. This study will consider the portrayal of the African American family concerning cultural norms and the portrayal of family roles in terms of the sitcom genre.
Animated Sitcoms

The animated sitcoms have more freedom than live action sitcoms because they are not limited to human actors or of human technical abilities (Tueth 138-139). Sitcoms are highly popular, they are also more cost effective than other genres because they tend to use the same cast and the same set -- normally a home or work environment (O’Donnell 100). Animated sitcoms have more flexibility with characters and scene change because the creator’s imagination is their only limitation. Animated series are also able to have more flexibility with social acceptability precisely because the characters are animated (O’Donnell 112).

Animated sitcoms also have more of an emphasis on intertextual humor that incorporates references from society and culture (O’Donnell 111). Gournelos describes sitcoms as elements of oppositional culture. He says an animated sitcom series normally challenge culture by using allusive, responsive, or disruptive strategies. The allusive strategy looks at social norms and creates situations that allow the audience to view these norms in a new way in order to consider the accuracy or appropriateness of the social norm (Gournelos 20, 29). By incorporating elements of the established culture and altering them for a new purpose, the allusive strategy gives voice to subordinate, suppressed or subculture groups by illustrating the faults of social norms.

The responsive strategy is similar to the allusive strategy because this strategy also manipulates the way in which the norm is portrayed. However, the responsive strategy takes many different aspects of popular and contemporary culture to create this portrayal showing imperfections and limits (Gournelos 25, 29). The sharpest contrast between the allusive and responsive strategies is that the responsive strategy focuses on social norms and political policies related to change in the culture rather than the existing situation. The allusive strategy aims to clarify values, while the responsive strategy is intended as a change agent.

Finally, the disruptive strategy exposes inconsistencies within the culture and uses both the allusive and response strategy. However, its focus is not to “fix” the culture but to overthrow it and create an entirely new culture. The disruptive strategy understands that the cultural norm is so irrational that it must be abandoned and cannot be repaired (Gournelos 29).

The Boondocks

The text for this critical analysis is the animated sitcom The Boondocks, which airs on Cartoon Network’s late night programming called Adult Swim. The Boondocks series is a satire that grew from a comic strip created by Aaron McGruder, originally published in the University of Maryland’s Campus newspaper in 1996 (Rambsy II 649). In 1999, the comic strip became nationally syndicated in more than 160 newspapers (Rockler 399), and became an animated television series in 2005. Like the comic strip, the television show aims to uncover cultural stereotypes outside as well as within the African American community. The main storyline of the television show depicts two African American brothers living with their grandfather, their
legal guardian, after having moved from the south of Chicago to the suburb called Woodcrest (Rambsy II 649). The show has caused a lot of controversy, and even resulted in a couple of the episodes being banned (Brodesser-Akner 6).

The Boondocks’ controversial reputation is due to the fact that it is a satire of the African American culture and some of its leading figures. Some episodes criticized the BET network, portraying BET as trying to destroy its target audience, the black community. BET’s founder Robert Johnson was not happy about the attacks on BET and believed that McGruder should respect the network (Henderson). The current Chief Executive of BET, Debra Lee, and the past president of BET (from 2005 to 2008), Reginald Hudlin, were the two biggest targets of the episodes that were banned (Braxton). Ironically, despite criticism of him in the show, Hudlin helped The Boondocks become a television series (Henderson). Even Jayson Blair, who originally published The Boondocks comic strip (before becoming infamous for publishing plagiarized news articles), is not immune to scrutiny in the comic strip (Henderson).

In addition to too few African American sitcoms and even fewer African American animated sitcoms, it is even rarer to have a African American cast and creator. What makes The Boondocks different from other contemporary animated sitcoms is that it has a predominately African American cast and is created by an African American.

The American Television Writers reported that out of 839 writers, only 55 were African American. Thirty-three percent of these writers were working for two shows, Moesha and The Parkers. None of the African American writers worked for the four major networks, ABC, NBC, CBS, and Fox (Johnson 6). Another African American animated sitcom, the Cleavland Show (whose similarity to Family Guy could be contributed to having the same Caucasian creator) has the main character voiced by a Caucasian (Weinman).

This study examines the message about African American families portrayed by the popular show The Boondocks using a critical analytical approach based in genre studies and family communication. This research area was chosen specifically because there is little research about African American sitcoms and there is no research regarding African American animated sitcoms, so this study introduces that scholarship. The research questions ask: What does the nature of the characters’ roles and experiences as family within The Boondocks reveal about the show as part of the domestic sitcom genre? What types of themes will emerge from an analysis of those characters and their narratives? How do the experiences of the characters reflect broader changes in cultural values among African Americans today?

**Methodology**

This study is a critical analysis of The Boondocks animated television series as a text. The perspective used in the critical analysis is that of genre studies and sibling interaction. Given that there are only two complete seasons of the series, all of the episodes were examined.

**Texts:** The Boondocks series’ characters, their roles, relationships, and interactions, and the storylines were studied in order to gain more understanding about the family structure and the expression of African American culture.
**Materials:** Although some episodes are available online, the complete collection of Seasons One and Two of *The Boondocks* DVDs were obtained to ensure accessibility. In order to record systematic notes during the analysis of the episodes, three observational charts were created.

**Framework for Analysis:** In contrast to an empirical approach, the critical method is based on analysis and interpretation of content (Butler 425). In critical studies, rather than support being numerical or statistical, it is based on systematic observation and presentation of pertinent and worthy examples from the analysis (Butler 444, 428).

This study used the critical perspective of genre studies, specifically focused on sitcom genre. The genre study method calls for the artifact, in this case, *The Boondocks* to be compared to the sitcom genre as a whole (Ekdom Vande Berg 89). The study took a semantic and syntactic approach to genre study. Semantics looks at characteristics that define a genre, determining aspects such as character traits. Syntactic focuses on elements such as relationships within the narrative structure (Ekdm Vande Berg 94). The approach began by understanding the features and conventions of the sitcom genre. Key features were observed in *The Boondocks* in order to see how they fit into the sitcom genre as a whole. In addition, conclusions were made to explain the similarities and differences as well as their cultural implications (Turner and Sprague 274).

**Procedures:** The study analyzed each episode for the genre features related to character family roles, narrative structure, and sibling interactions. In order to systematically record these characteristics, the researcher reviewed each episode three times to examine each aspect separately.

**Character family roles:** The first generic feature the study looked at related to character was family roles. The researcher recorded the season and episode. As characters appeared during the episode, the researcher recorded the character’s name, listing any character that had a speaking part -- even if his or her name was not revealed. The researcher determined whether each character listed was a main, supporting or transient character based on his or her actions related to the storyline (Taflinger). A main character is instrumental to a plot of the episode as either the protagonist or antagonist. Usually, there are not many main characters because main characters have to be developed in order to connect with the audience. A supporting character is normally not the primary focus of the episode. However, they assist the main character in some way, enhancing the qualities of the main character. Unlike main and supporting characters, transient characters are numerous. Transient characters normally have a small role in the episode and are likely to be guest characters or guest stars in the episode. These character types were noted shorthand with “M” for the main character, “S” for the supporting character, and “T” for the transient character.

In addition, the researcher identified which characters fulfilled the particular family roles, normally fulfilled by the main characters: the mother figure recorded as “M”, the father figure was recorded as “F”, the over achieving child was recorded as “Child A”, and the mischief maker was recorded as “Child B”.

The researcher then determined whether the character was flat or round. A character was considered a flat character if he or she was predictable or behaved in a way that was stereotypical. For example, in Family Matters, Steve Urkel does not...
surprise the audience when he continues to cause accidents. The character would be considered round if the character learned something in the episodes or looked at a situation differently. For example, in The Simpsons, if Bart repents of his mischievous action, then he is showing development and therefore he would be considered round for the episode. During observation, the letter “F” represented flat characters and “R” represented round characters.

The researcher also determined if the character was the creator or subject of the humor in the episode because that can reveal the way that cultural values are upheld or devalued. If the character is the subject of the episode humor, he or she has less power and that suggests that those behaviors and the character performing them are actually devalued.

**Narrative Structure:** The researcher looked at the narrative to determine the relationship between certain character types, the disruption that began the storyline in the episode, and resolution of the storyline. The researcher documented the season and episode being analyzed, and noted the type of event that polluted the situation or caused a problem, creating the disruption. The researcher observed who the polluter was or who caused the problem. In addition, the researcher noted the reparations for the polluter’s action and who applied the punishment. The researcher also observed if the polluter had remorse for his or her actions (Eaton, 1981).

**Sibling interactions:** The study looked at sibling interactions based on a model of actual sibling interactions from a study by Mary Strom Larson. Larson’s model placed sibling communication into two categories: positive and negative interactions. Positive interactions were further placed into four other categories: informing, supporting, directing, and contributing. Negative interactions include two categories: opposing and attacking. In order to record these interactions, the study documented the season and episode, as well as the time during the episode that the interaction occurred, the type of interaction, and what the situation entailed.

**Overview:** Finally the researcher examined the series overall and determined if the characters are actually members of a “traditional family” unit or if they represent types or genders of the “traditional family” unit (Horowitz, 1984). The analysis considered what the central tension of the series was and what characters were responsible for maintaining that tension for comparison with the genre conventions in terms of culture and class (Eaton, 1981). Understanding the family system within The Boondocks allows it to be compared to the sitcom genre to determine whether there are particular distinctions in the African American animated sitcom and, therefore, gives more insight into the culture as a whole.

As a critical analysis, the study focused on forming observations for each of the criteria evaluated. The observations were reviewed within each of the genre features and sibling interaction to form conclusions about the characters. These conclusions were compared to the genre conventions and to norms in family communication. For example, if one of the regular main characters is depicted most often as a nurturer or caregiver, then that character will be compared to the conventional sitcom mother, despite the character’s gender, age, and biological relationship to the other characters. In the Results and Discussion below, examples from the series are cited by season number and episode number as S#E#.
Results/Discussion

Characters as Family: In The Boondocks, the family portrayal is centered on Huey, Riley, and Granddad, a biological family with a single parent family structure. The series also reflects the deviation from the stereotypical household that has occurred in the sitcom family structure over the years reflecting the increase in single parenting in society. Granddad is the guardian for Huey and Riley Freeman. He moved the brothers from the city of Chicago to the Woodcrest suburbs. The show does not provide information about Riley and Huey’s biological parents. In fact, the Freeman family has only talked to other family members twice in Season One and Two; it is as if moving to the suburbs cut the ties from the life they lived in Chicago. Granddad uses his retirement fund and Huey and Riley’s inheritance money.

While Granddad is the parental figure in the household in terms of age and biological relationship, he does not fulfill the mother role. Many times the role of the mother figure is portrayed by Huey. In “The Story of Thugnificent,” Huey listens to both sides and tries to settle the conflict between Granddad and the Lethal Interjection Crew (S2E5). Throughout the episode, Huey encourages Granddad to work out concerns with the new neighbor, Thugnificent, to no avail. It is when the situation becomes more intense that Huey steps in, holding a press conference explaining the plan to resolve the conflict. During this situation, Huey shows his compassion to protect the family despite their stubbornness. Huey is normally the voice of reason for the characters.

In “Granddad’s Fight” (S1E4), Huey listens to Granddad express how he feels about losing the fight to Stinkmeaner, who is blind. Huey tries to calm Granddad and even trains Granddad for the rematch with Stinkmeaner. Traditionally, the mother figure comforts. Not only does Huey comfort Riley and Granddad, but he also gives them guidance. Huey continues to show his maternal instincts by providing them support, even if they are troubled by an obstacle he warned them about. In “Guess Hoe’s Coming to Dinner” (S1E3), Granddad falls for a prostitute and stripper named Cristal that he met in the grocery store. Huey and Riley both try to tell him that she is a prostitute. However, Granddad is so caught up in his feelings for Cristal that he refuses to see it. When Cristal’s pimp comes to visit, Granddad finally has to face the truth. Despite the fact that Huey is unhappy with Cristal being in the house, Huey still tries to comfort Granddad when he is sad after Cristal leaves.

The gender flexibility of roles can be seen from the portrayal of Huey as the mother figure. Huey’s role as the mother is necessary because there is not a female character in the house. In fact, female characters are rarely portrayed on the sitcom. Jazmine Dubois, the brothers’ young neighbor, is the only female character who appears regularly. Women who do appear on the show are normally shown in a sexual manner, like Cristal. When Granddad looks for women as romantic partners, he emphasizes their looks. The only actual mother represented is Mrs. Dubois, who is part of an interracial couple. Mrs. Dubois is not shown parenting Jazmine; instead she is shown predominantly in her role as a wife. Her husband, Thomas Dubois, is shown parenting their daughter. The portrayal of male figures and the lack of female figures could be due to the majority of single mother households in the African American community as cited above. A satire sometimes puts a situation in a different context to
give a different perspective. Having so many portrayals of male characters allows the show to look at the cultural lack of African American male figures in a different way.

The role of father figure is fulfilled by both Granddad and by Huey. Granddad is frequently the disciplinarian in the household and in charge of the money; consequently, he is usually the father figure in the series. Granddad performs disciplinary actions in the form of a spanking, usually involving Riley. When Granddad leaves on a vacation in “Home Alone” Riley spends the food money and they are left to ration the food that is already in the house because Granddad, who is their source of money, is not there (S2E12). Granddad sets the rules and makes the final decisions, so he is generally shown as the traditional male role of a breadwinner and authoritarian figure.

Huey also plays the role of the father on four occasions. In “Let’s Nab Oprah,” Huey plays the authoritative figure for Riley (S1E11). In the beginning of the episode, Riley and Huey are fighting because Huey is trying to prevent Riley from leaving to visit Ed Wuncler III and Gin Rummy, whom Huey describes as international criminals. Granddad has let Riley convince him that Ed Wuncler III and Gin Rummy are not a bad influence. Later in the episode, when Huey suspects that they are up to something, he warns Riley, “I am going to take you down,” meaning if he finds out that Riley is a part of any criminal actions with them. The episode ends with Huey hitting Riley for participating in a plan to kidnap Oprah. Huey, in the disciplinarian role of the father, performs the type of punishment he has seen his grandfather model.

All three of the family members perform the role of the overachieving child at different times, depending on the actions of the plot and the roles fulfilled by the other characters. If Huey is not presented as a parental figure, then he is usually this type of child. Huey does not disobey Granddad the way Riley does. Huey only protests injustices, like when his friend Shabazz is on death row for a murder that he did not commit or when Huey decides to have a hunger strike until the BET Executives commit a Japanese suicide and BET is taken off the air.

Riley remains in a child’s role, and the majority of the time as the mischievous child. Riley always breaks the rules and curses profusely, even in front of his granddad. Riley is resentful that when the family was poor, Santa Claus did not bring them any presents. In “A Huey Freeman Christmas Story,” Riley explained to Jazmine that all he wanted were some rims and Santa Claus did not bring him that (S1E7). Riley decided to take matters into his own hands by going to the mall and attacking the Santa Claus. He promised to continue to attack Santa Claus until he, “Pay what he owe!”

The only time that Riley plays the role of the overachiever is around his role models such as Thugnificent and Gangstalicious. When Huey orchestrates a meeting between the Lethal Interjection Crew and Granddad to get them to reconcile as neighbors, Riley is on his best behavior, offering water and volunteers to make guacamole. In “Shinin’” Riley follows all the tests that Thugnificents gives him to get into the Lethal Interjection Crew, including driving a car and getting on top of it while it is in motion (S2E8).

There are also times where Granddad plays the role of a child, and he interacts with Riley as if they were siblings. When Granddad plays the child role, he does not exert his authority with Riley. For example, when Granddad gets into the fight with Stinkmeaner, Riley continues to make fun of Granddad and Huey, rather than his
granddad, eventually has to stop Riley’s teasing instead. In “...Or Die Trying,” the Freeman family and Jazmine sneak into the movie theater and bring outside food with them (S2E1). Huey and Jazmine both object to engaging in this behavior, but Granddad, who is supposed to be the parental figure, is the one responsible for sneaking the food into the movie. Riley later convinces Granddad to leave Jazmine so that they are not caught. This episode shows how Granddad can be as immature as Riley. When Granddad is in a child role, Huey is in a parental role.

In an animated series in which the character stays the same age such as The Boondocks, the growth of the character occurs differently or the character may not age at all. Therefore, whether a character is flat or round is determined according to complexity. Feuer points out that flat characters are easier to identify with and, therefore, can allow the audience to focus on the message. This explains the flat characters used in The Boondocks, as the satirical flat characters allow the message to be more apparent.

Huey is the only character that is consistently round in the sitcom. His revolutionary attitude is shown in “The Real” episode, in which Huey is being interviewed and says that he founded 23 black leftist organizations (S1E8). Huey also strongly voices his opinion in “A Huey Christmas Story,” in which the character of Jesus is black (S1E7). Nevertheless, the majority of Huey’s criticism is toward the black community, demonstrating complexity in his character.

As noted earlier, class and gender can affect the character who is the considered the “fool.” In terms of power within the characters’ relationships, Riley has considerable power as one of the biggest creators of humor. With Granddad being the subject of Riley’s humor, we see that Riley holds a lot of power in the relationship. Although Granddad frequently punishes Riley, normally Riley ends up getting what he wants. In “The Real,” Riley convinces Granddad to lie about being blind in order to be on the shows “Pimp My Ride” and “Extreme Make-Over” (S1E8).

Huey is the character least involved in the humor, even though he is the most prevalent character as the narrator, as well as his roundness setting him apart from the others. As a rounded character, Huey is a reflection of the fact that he usually provides a perspective for the satire rather than merely being a part of it. In this sense, Huey represents the correct mentality that McGruder values and sends the message that his mentality should be adopted in the black community. Although Huey does not usually contribute to the humor, he has the most power in the episodes because he normally points out the inaccuracies being portrayed.

In contrast, Riley and Granddad are often portrayed as stereotypes, representing the type of people that the humor upon whom the satire is based. For example, in “Thank You for Not Snitching” Riley represents the black community’s taboo against snitching (S2E3). The town of Woodcrest has experienced many robberies and Granddad supports not snitching, until his car is stolen. Riley knows who stole it but refuses to tell who it was. In this situation, Riley’s personality is part of the parody. Huey helps guide perspective by clarifying what is important or pointing out inconsistencies in their arguments.

There are two levels of humor in The Boondocks: the surface jokes as well as the humor within the satire. When Riley makes fun of Granddad, this is an example of humor within the episode. However, the humor that comes from the intertextual
messages may not be as clear. In the episode that was banned, “Hunger Strike,” Riley and Granddad make fun of Huey for taking a stance against BET and going on a hunger strike (S2E6). They even eat veggie burgers in an attempt to persuade Huey to abandon his strike. Although Huey does not direct humor back at his brother and grandfather, they are still the subject of the satire because they represent the wrong mentality and they make themselves the object of the humor.

Class and Narrative: The Boondocks represents a family of new money. Even though the Freeman family would be considered upper middle class, its recent move from the working class gives the family members a working class mentality. Therefore, they do not have a maid or handyman to show their success. In addition, Granddad, the prominent father figure, takes on characteristics of a working class father in the sense that many times he creates his own obstacles. As the mother figure, Huey has to help him get out of trouble, even though Huey, in terms of age is a child. This is consistent with the sitcom genre features of the father in the working class family.

The conflicts of The Boondocks are caused by the characters who play the roles of the children, which are predominantly Riley and Granddad. Riley is the main creator of the problems in The Boondocks. This coincides with the literature from Taflinger that the conflict of the sitcoms is normally caused by the children, who are still learning about the world. Riley is usually portrayed as the child who is streetwise but limited in his understanding of the world beyond the street, making him the character that normally causes the conflict. In “The Story of Cather Freeman,” Riley does not believe slavery existed. He argues, “Why would anyone work for free?” (S2E14) While he lacks knowledge of his cultural history, Riley is highly aware of cultural standards in the street such as not snitching, the importance of demanding respect, and the emphasis on having a lot of money.

Sibling Interactions: Riley and Huey are frequently together throughout the series. Many times they do not interact directly with each other but are in the scene or situation together. In “A Date with the Health Inspector,” the brothers are together the entire episode, but many times do not talk directly to each other (S1E5). They will say “we” when talking to others, acknowledging the brother’s presence; but mostly each talk to those around them or listen, while the other brother talks.

With regard to Larson’s model of sibling interaction, when Huey and Riley interact, the most frequent type of positive interaction between them is informing and sometimes supporting, with limited directing, and virtually no contributing. Normally, the positive interactions involve the brothers informing each other, including asking each other questions. In the “The Garden Party,” Granddad is yelling at them and telling them to have class. Riley then leans towards Huey and asks, “What’s class?” Many times Huey and Riley rely on each other for clarification (S1E1). The way they identify with each other usually occurs when they agree with one another. In episodes such as “A Date with the Health Inspector,” they work together to find out information about the X-box killer (S1E5).

Their negative interactions are typically opposing with substantial attacking.

It is common for the siblings to oppose each other. Their different perspective causes the brothers to try to change each other’s perspective. In “Guess Hoe’s Coming to Dinner,” Riley and Huey debate about whether all women are “hoes” (S1E3). Yet, the Freeman brothers are different in many ways, as they have different perspectives
on life and what should be valued.

In addition, the family rarely shows affection for one another. Riley believes anything close to affection with a man is an indication of homosexuality. In “…Or Die Trying,” the Freeman family sneaks into the movie theater with Jazmine Dubois (S2E1). While taking their seat, Huey assumes the next seat available seat, which is next to Riley. This causes dismay from Riley who moves two seats over saying, “Nigga you gay.” Riley uses this phrase frequently when any of occasions of male bonding or affection occurs. In “The Passion of Reverend Ruckus” (S1E15), Huey receives the same comment from Riley when leaving on a dangerous mission to free his friend Shabazz. Huey hugs Riley and tells him that he loves him. Riley’s behavior may represent an inability of black men to express affection. Granddad is rarely shown giving his grandchildren affection by hugging them, but is witnessed several times giving Riley a spanking.

Sibling rivalry exists not only in verbal disagreement, but also as expressed in physical violence. The violence provides entertainment because of the extreme nature of the physical altercations. In “Home Alone,” the Freeman brothers attack each other with a sword, frying pan, Airsoft gun, knife, and bar stool (S2E12). The physical violence in the show never solves anything, suggesting that violence cannot solve problems within the black community.

**Overview**

Comparison to the Genre: The Boondocks is consistent with the genre conventions in terms of family structure and roles, but not in terms of class and the use of humor. Similar to many recent sitcoms, The Boondocks family structure is not the traditional mother, father, and two children structure. The show supports the sitcom literature about children. The biological family includes Huey and Riley who are eight and ten, respectively, and therefore fit between the six and twelve age range identified by Taflinger. However, there is variation in family roles because Huey is typically the mother. The Granddad is sometimes a child, but this is still consistent with the convention that family roles are not age- or gender-bound.

The show is not consistent with the genre literature in respect to class. Although The Freeman’s are a middle class family, its mentality is of a working class family. This mentality carried over from when they lived in Chicago. As a result, there is no glamorization of the family’s current lifestyle by having a maid or handyman. This difference in not substantial enough to eliminate the show as a sitcom, but important if the goal is to show how elements of the show are specific to an African American narrative.

What separates African American sitcoms from other sitcoms is the emphasis on the experiences of African Americans. African American sitcoms enhance the potential for an African American to identify with characters. However, some televisions shows, such as Julia, have been criticized despite having a predominantly black cast, for not capturing the majority of African American experience. On the other hand, African American sitcoms, such as Good Times, are also criticized for portraying stereotypes (Douglas 141). The Boondocks provides many references and situations that the
African American community can identify with, such as references to movies that are popular in the black community such as, like Friday. But there seems to be a thin line between breaking down stereotypes and reinforcing stereotypes. The Boondocks is no exception in this battle. For some, the show addresses important issues not normally addressed in mainstream sitcoms, including some issues of race and misconceptions within the black community. Nevertheless, the show is highly criticized by other people for portrayals that some critics believe harm the community more than benefit it. For example, The Boondocks illustrated potential problems present in the culture such as the reliance on violence for solving problems, the attraction of African American youth to gangsters, and the lack of self-awareness of the African American culture, as well as the general lack of focus on education.

The satirical messages in The Boondocks use responsive strategies. The Freeman family brings its inner-city mentality to the suburb of Woodcrest. The new context in which the Freeman family is placed allows for manipulation of the depictions of norms, essentially allowing the show to look at race relationships from a different perspective. Like the allusive strategy, the show depicts inconsistencies in race relations. However, it goes a step further in order to be a change agent, which is consistent with the responsive strategy. The show does not go as far as the disruptive strategy would suggest regarding the system’s overthrow, as it depicts improvements in race relationships while also illustrating areas of current tensions. The Boondocks recognizes improvement in race relations but also illustrates further improvements are still necessary.

The father figure of, Granddad, is the subject of a lot of humor and allows Riley to get himself into self-created problems. Granddad represents the older generation and Riley represents the younger generation of African American culture. Creator Aaron McGruder is illustrating that the older generation, is not instilling important values into the new generation. Despite Granddad’s broader perspective of the world, he does not adequately show Riley this perception. This depiction represents the fact that the younger generation is overshadowing much of the hard work and progress made by the older generation in the Civil Rights movement. Without understanding by the younger generation, there seems to be a lack of respect as seen in Riley’s lack of respect for Granddad. This lack of understanding hurts Riley because his limited perspective causes him to be ignorant in many ways. Ultimately, the younger generation’s lack of understanding results in a lack of self-respect and ignorance.

Further Research: The results of the study are specific to the critical perspectives utilized in this analysis, genre study, and family interactions. This study is limited as an overall generic analysis of African American animated sitcoms in that there is currently only one text of this type. While this study included both seasons of episodes that existed at the beginning of the study, the third season is currently airing. So, further research could include season three. Repeating this study with The Boondocks season three could prove beneficial because new interpretations could be constructed.

Conducting the study with another critical perspective would expect to reveal other views of The Boondocks that would provide complementary information. This study’s primary focus was on the family relationships within The Boondocks. Analyzing The Boondocks with the emphasis on culture through critical perspectives such as Feminist Criticism and Cultural Studies would be valuable with analyzing the
limited portrayals of African American sitcoms. This study also was concerned with the content of the series but further investigation of the influence of the show through critical approaches such as Reception Theory or Reader Response could help with the debate about enforcing stereotypes.
Bibliography


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