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Julianne Shimer

University of New Hampshire - Main Campus

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Taking a Deeper Look into the Lives of Disadvantaged Children through Visual Content Analysis

—Julianne Shimer (Editor: Brigid C. Casellini)

Asking children to draw a picture of family life is a simple and efficient way to assess their mental health. Katz, Barnett, and Hershkowitz found that when children have to discuss traumatic experiences, drawing pictures gives them a sense of control, and helps them express their emotions more freely (2014). Children enjoy this activity, and are more at ease as compared to filling out a questionnaire or having a formal interview. Recently I had the opportunity to analyze the drawings of over 200 disadvantaged children when I joined a research project in Ireland called the Healthy Schools Programme (HSP).

As a senior nursing student at the University of New Hampshire, and as a person who is always asking "Why?," constantly digging for more information, I have always had a dual passion for helping those in need as well as finding answers to those "Why?" questions. I grew up knowing that one day I would travel the world. While at UNH, I discovered a program that would allow me to combine the three things that drive me: caring for others, conducting research, and travelling. With a Summer Undergraduate Research Fellowship (SURF) Abroad grant from the Hamel Center for Undergraduate Research, I spent nine weeks in summer 2014 at Trinity College in Dublin, Ireland. There, I conducted visual content analysis of children's drawings in an effort to understand the connection between depression and how children portray family life. I was challenged on a daily basis, conducting literature reviews, analyzing data, and researching visual content analysis.



The author at the Carrick-a-Rede Rope Bridge in Northern Ireland.

My UNH mentor, Dr. Carolyn Tobin, who spent most of her life in Ireland, guided me through the entire process, from writing my proposal to my time abroad. I was also able to live with her sister in a suburb of Dublin called Raheny. My host family consisted of a little sister aged seven, her mother, three students from Venezuela, Switzerland and Brazil, a King Charles cavalier named Rosie, and I cannot forget, chickens! I resided in a quiet neighborhood in walking distance from the beach. On weekdays, most of my time was spent at Trinity, getting to know the Ph.D. students and working on research. The weekends and evenings consisted of meeting up with my housemates and other friends to explore Dublin, or partake in day trips all over Ireland. These activities helped me grow as a student, and most of all as a researcher. I was able to face many fears, such as traveling alone, and overcame the daunting task of working side by side with professional researchers. Successfully conquering these tasks helped me to gain a sense of confidence I was never quite able to reach before, as well as a sense of fulfillment and a fueled passion to continue to follow my academic and professional dreams.

The Healthy Schools Programme

The Healthy Schools Programme (HSP) is funded by the Childhood Development Initiative (CDI); both organizations are based in Ireland. The CDI develops early intervention and prevention programs in disadvantaged areas to improve the overall outcomes of the children living there. The specific aim of the HSP is to improve the health and well-being of the children attending disadvantaged schools, as well as to increase their access to primary care services (Lahiff as cited in Comiskey O'Sullivan, Quirke, Wynne, Kelly, & McGilloway, 2012).

The schools chosen to be included in the HSP were in Tallaght West, a section of Dublin considered to be socially and economically deprived with above average crime rates. It has high unemployment rates, high numbers of local authority housing projects, and many social problems (Axford, Little, Duffy, Haran, & Zappone, 2004). A 2002 report by the Childhood Development Initiative and the Dartington Social Research Unit states that one in ten residents were unemployed, and one in three was a single-parent household. Both of these statistics were twice the national average (Axford et al., 2004).



The Trinity College Campus located in the heart of Dublin.

When the Healthy Schools Programme was initiated in 2009, the HSP team gathered baseline health data from the students through several methods: the KIDSCREEN Questionnaire, the Children's Depression Inventory, the Health Related Behaviour Questionnaire, and the Strength and Difficulties Questionnaire. Data included information such as depression levels, obesity, and school attendance. After the HSP team collected these baseline results, course coordinators began to run workshops on good health habits with parents, teachers, and students. Follow-ups were then done in Year 1, Year 2, and Year 4 to see if the workshops had had any positive or negative influence on the children's overall health. At the Year 4 follow-up, children were asked to draw pictures of their family lives. The HSP team collected 220 drawings and also conducted Childhood Depression Inventory surveys before I arrived in Ireland. This survey is appropriate for children aged seven to seventeen years and consists of ten items. This measure is psychometrically robust with good reliability and has been widely used for screening childhood depression. The survey takes approximately five to ten minutes for completion (Kovacs, 2003).

My foreign mentors, principal investigator Catherine Comiskey, and Ph.D. student Sonam Banka, were involved with the HSP. Luckily for me, they were both approachable and went out of their way to help me become part of their team. After corresponding through email before my departure for Ireland, it was decided that I would help analyze the drawings using visual content analysis to take a deeper look into children's perception of their environment and how this may be affected by other aspects of their health, such as depression.

Pictures Worth a Thousand Words

Bell, Leeuwen, and Jewitt describe visual content analysis as a, "systemic, observational method used for testing hypotheses" (2001). It allows for observations to be quantified and classified into categories. Unlike other modes for analyzing drawings, it does not analyze individual images using psychoanalysis. Instead it describes different areas of visual depiction. First, variables are defined that are independent of

each other; for example: gender, setting, or role. Next, values are defined that cover all areas within each category. For example: female or male; in a school, a house, or outside; and mom, dad, stepdad, or sister. Each value needs to be unambiguous so that it is easily definable.

We needed to test for inter-coder reliability when analyzing the drawings, and make sure that each coder understood each variable and value under the same definition. This is achieved by having a clear and precise definition of the variables and values. Drawings are given to the coders in a different order to avoid demand characteristics, meaning when both look at the same sample chronologically there is more of a chance that they will make similar judgments about each set. Inter-coder reliability is then calculated and should be 90% or above (Bell et al., 2001).

For the purposes of our study, a category system was set up. Each of us reviewed the individual drawings and identified large themes on the first reading. Then we compared lists and either (1) removed irrelevant codes, (2) merged codes that were similar, or (3) added onto each other's lists when one came across a new idea. To calculate inter-coder reliability, each of us analyzed the same randomly selected forty drawings (about 18% of the sample) independently. We each did twenty, and then waited a week and did twenty more to avoid intra-coder mistakes. There were a total of 43 variables, and for 43 variables multiplied by 40 drawings, a total of 1720 data points were reviewed. Out of all data points, seventy-eight had different values. This led to a percent agreement of 95% reliability. Examples of categories that were identified include who was present in the picture (such as peers, family, friends, or pets); setting (such as watching TV or playing outside); written text; use of color; and facial expression (such as happy or sad). Of the forty-three categories, twenty-six were excluded after analysis, as we found they did not pertain to the research question of this study. There were 222 drawings collected in total, however 2 were eliminated because they did not draw pictures of family life; the first was a bowl of fruit and the other was of a fairy.

The Childhood Depression Inventory scores were originally in six categories which I assigned to two classes: depressed and non-depressed. This allowed me to compare the drawings of children with and without depressive symptoms. I then used Statistical Package for the Social Sciences (SPSS) IBM version 22 for the quantitative analyses. We conducted a Fisher's Exact test to analyze the differences between depressed and non-depressed children, looking at specific categories of

Variable	Depressed Total N=22		Fisher's Exact	Non-Depressed Total N= 193	
	%	N		%	N
Use of Color	59.1	13	.823	55.2	107
Family Portrait	54.5	12	.022*	84	163
Mom	45.5	10	.001*	79.4	154
Dad	45.5	10	.107	63.9	124
Stepfather	4.5	1	.583	3.6	7
Stepmother	4.5	1	.194	0.5	1
Siblings	40.9	9	.002*	75.8	147
Separate Families	13.6	3	.008*	1	2
Self Portrait	9.1	2	.670	7.2	14
pets	18.2	4	.094	7.2	14
Playing with Technology	0	0	1.00	2.1	4
Playing with toys	4.5	1	.351	1.5	3
Playing Sports	9.1	2	.190	3.1	6
Playing with Friends or Siblings	13.6	3	.110	4.6	9
Happy Face	72.7	16	.513	91.2	177
Sad Face	22.7	5	.008*	6.2	12
Angry Face	9.1	2	.235	4.6	9
Neutral Face	9.1	2	.533	20.1	39

*p value <0.05 represents significance

Figure 1. The chart above compares characteristics of drawings in the depressed and non-depressed children. A Fisher's Exact test is used to determine if there are nonrandom associations between two categorical variables (see results in middle column).

children's drawings: family portrait, self-portrait, separate families, pets, mom, dad, stepmom, stepdad, sibling, happy face, sad face, angry face, neutral face, playing with technology, playing with friends, playing sports, playing with toys, and use of color. Fisher's Exact test is a statistical test used to determine if there are nonrandom associations between two categorical variables, in this case depressed versus non-depressed.

Our Discoveries

Our findings did demonstrate differences between the way depressed and non-depressed children illustrate and interpret their family life. Findings that were considered statistically significant had a p value of less than five percent. These included: mom being present, siblings being present, multiple or separate families, whether the drawing was a family portrait (versus a self-portrait or drawing of friends or pets), and if there were sad faces present. (See Figure 1)

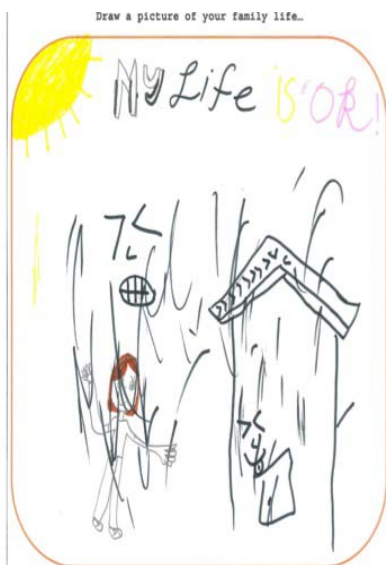


Figure 2: The pictures above illustrate the variability of drawings obtained when children were asked the same questions.

The statistics suggest that children with depressive symptoms drew more separate families and sad faces, while non-depressed children drew more mothers, siblings, and family portraits. We also found that the depressed group more frequently illustrated stepparents and self-portraits. Interestingly, a higher percentage of children in the depressed group used color. (See Figure 2)

This study has shown that valuable information can be found through visual content analysis. While similar results can be found through questionnaires or interviews, drawings are more enjoyable and less stressful for participants and still provide respectable insights.

Taking it All In

This research was important to me on many different levels. On a personal level, I was able to challenge myself both academically and emotionally. Traveling and living abroad was something a younger version of me would have been terrified to do, and probably seen as impossible. Doing my studies abroad in an English speaking country like Ireland felt like a safe move for me, because it was a big enough leap to challenge me to learn a new culture without being overwhelmed by a new language. However, the family I stayed with took in other students who were there to learn English. I learned that just about everyone who is not from an English speaking country is bilingual, trilingual, or more. As a result, I became more motivated than ever to learn a second language and have made a promise to myself to enroll in a language course after graduation.

One of my biggest regrets about being abroad was not getting to know the locals as much as I had anticipated. I became close with my housemates and socialized with all of their friends from the school they

attended. We would meet locals, but much of my time was spent traveling around Ireland with these friends. However this regret is two-sided, because in reality I don't think I would change it. I developed friendships with people from every corner of the Earth: Venezuela, Switzerland, Brazil, Italy, France, Germany, Saudi Arabia, and Russia. Our dinners would mostly consist of sharing the similarities and differences between our cultures, everything from the use of bidets, types of food, schooling systems, military, why women can't drive in Saudi Arabia, anything and everything. I not only learned about Ireland, but the entire world.

Professionally speaking, this experience was extremely valuable to me. I made connections in the global nursing world, gained research skills, and worked with other nursing professionals, all of which will help me succeed in graduate school and in becoming a nurse practitioner. Although the psychology aspect of nursing has always intrigued me, I feel that my interests in the future will be focused more on direct patient care and seeing outcomes of specific nursing interventions. Yet through this research, I learned that psychology and nursing are very closely related, and one avenue I may explore in the future is how a certain nursing intervention or environment would impact patients' emotional statuses.

Conducting research as a college student in Ireland truly was a life changing experience. I grew so much as a person, bringing back with me a new confidence that will help me face challenges that will inevitably come my way. I will carry all that I experienced and learned with me as I move forward into the next leg of my professional career.

Over the past two years I have been lucky enough to receive endless support from my professors and mentors. I would like to thank my mentor and professor, Dr. Carolyn Tobin, for helping me with my proposal over the winter break of 2013 through countless emails, phone calls, and meetings. You gave up so much of your time to make this happen and I will be forever grateful.

Thank you to my foreign mentors and teammates, Dr. Catherine Comiskey and Sonam Banka. You accepted me at Trinity College Dublin with open arms, you helped me to feel comfortable and were always there to encourage me to get me through my first research experience. I am so fortunate to be part of such an amazing team.

I want to thank my professor, Dr. Carol Williams-Barnard, for your words of encouragement, always breaking the big picture down to make the steps seem more manageable, and reminding me that you were always there if I needed help.

Thank you to Dr. Georgeann Murphy and the entire Hamel Center staff who helped guide me through the grant application process and then helped make the transition abroad go so smoothly. Words cannot express my appreciation for Mr. Dana Hamel and Mrs. Patricia Flowers. Your generous grant donations made it possible for me to follow my dreams, I will be forever thankful and hope to one day be able to help my fellow Wildcats partake in research abroad.

Lastly I would like to thank my professor, Dr. Cappiello. If it were not for your research class and the guest speakers who presented on their experiences of research and going abroad, I would have never had the courage to take the leap and apply for my grant.

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Author and Mentor Bios

Julianne Shimer, a native of Westford, Massachusetts, is a senior nursing major in the Honors-in-Major Program. Due to the difficulties of balancing coursework requirements with a desire to study abroad during the academic year, Julianne decided to take action and teamed up with her professor, Dr. Carolyn Tobin, to pursue a Summer Undergraduate Research Fellowship (SURF) Abroad in Ireland. Julianne learned a lot about the research process, especially the technical aspects, and "had fun working with the research team and making global connections." Having heard about *Inquiry* through the Hamel Center for Undergraduate Research, Julianne is excited to publish her research, and reports that the process has given her greater confidence in her writing abilities. Julianne looks forward to her future career as a nurse, and hopes to return to graduate school to become a nurse practitioner.

Prakashini Banka, a doctoral candidate at Trinity College, the University of Dublin, is specializing in child psychology/mental health and quantitative methodology. This was her first time mentoring an undergraduate researcher. Together with Julianne, she was involved in the data collection, entry, audit, and analyses of the Healthy Schools Programme project. "It has been a pleasure working with Julianne. She is quick at learning new methods and adapting to a new environment," said Banka. "Looking at children's drawings together with quantitative data is very interesting as it provides the additional qualitative aspect that numbers might miss when it comes to evaluating children's mental health."

Professor **Catherine Comiskey** is the head of the School of Nursing and Midwifery at Trinity College, part of the University of Dublin, Ireland. With over twenty years of research in statistics and mathematics applied to health care, Comiskey was a great fit as Julianne's foreign mentor. Comiskey stated that "Julianne was an exceptional mentee, her work and commitment was of the highest standard, she was a pleasure to mentor as she was eager and open to acquiring new knowledge and experiences." Professor Comiskey highly recommends travelling and working abroad at all stages of one's career because the insight gained from these experiences is invaluable.

Originally from Ireland, **Carolyn Tobin** is an assistant professor of nursing at the University of New Hampshire.

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