

Enhancement of empathy in children through interventions

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Abstract

This is a quasi-experimental study; a four-month intervention-program designed to boost the empathetic attitude in public school students of Pakistan. The empathy towards bullying was assessed in experimental (199) and control (184) groups. The study had three phases. In the first phase the students were engaged in different activities to foster empathy which established that empathetic score of students increased and the score of bullying tendencies decreased after the use of interventions. The activity began with a story, followed by a group discussion, highlighting the different aspects of human feelings, emotions and behaviors, alongside encouraging children to give their feedback. In the second phase 98 students were selected from treated group, boys (N= 53) and girls (N= 45). Six more interventions were applied including reciting stories, question-answer sessions related to stories, followed by asking about the lessons students learnt from these stories. These conversations ended on brief lectures of trainers about empathy guided by the researcher during the training of trainers. After completion of this session, in the third phase, for qualitative assessment selected students from treated group were asked to write a story about empathy. The study found that the boys and girls grasped the concept of empathy differently. For boys described empathy as being helpful while girls as a means of getting happiness; but both did not associate empathy with kindness. Also, the boys believed that parents are the first to notice changes in their personality while girls think its their teachers. Moreover, for adopting the attitude of empathy, unlike boys, girls showed more collective rather than personalized approach.

Keywords: School-Going Children; Empathetic Attitude; Bullying Tendencies; Intervention; written stories.

1. Introduction

Empathy is considered a precursor of moral development, and it has been demonstrated that more empathic children show less aggression, more helping and other prosocial behavior, and a more advanced type of moral judgment (Mehrabian, Young, & Sato, 1988; Van IJzendoorn, 1997). Empathy can be observed when a child witnesses pain or sadness in another person, and reacts to the victim's distress (Zahn-Waxler, Robinson, & Emde, 1992; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). The child may become distressed herself/himself and might take action to alleviate the victim's distress (Eisenberg & Miller, 1987).

Empathic ability is functionally dependent on several basic processes, including the ability to perceive visual cues accurately within interpersonal contexts (Minter et al. 1992, Dyck et al. 2004). As a

result, children's inability to perceive visual or other sensory cues accurately limits their ability to decode and label the emotional expressions of other people, a key component in the ability to understand the experience of others. Davis (1983) found that students who were more empathic donated more money to a medical charity than less empathic students, and Penner et al. (1995) found that college students who scored high on a test of empathy were more likely to do volunteer work. In fact, volunteering is increasingly common among adolescents, particularly among those from more privileged social classes, likely because they have more opportunities for civic engagement and identity exploration (Syvertsen, Wray-Lake, Flanagan, Osgood, & Briddell, 2011). Piliavin and Callero developed role identity theory to explain Altruism, stating that people who frequently give blood, donate to charity, or do volunteer work integrate these activities into their self-conception. As the roles of "volunteer," "charitable donor," or "blood donor" become an integral part of their identity, they persistently seek out opportunities to engage in these activities (Callero, 1985; Charng, Piliavin, & Callero 1988; Piliavin, 1989; Lee, Piliavin, & Call1999).

The researchers claim that low levels of empathy were associated with high levels of physical, verbal, and indirect aggression in preadolescents (Kaukiainen & colleagues, 1999), and empathic individuals avoid violent media content (Hoffner, 2004). However, viewing televised bullying models leads children to imitate aggressive behavior immediately after exposure (Huesmann, 2007), and exposure to television violence in childhood is associated with subsequent increases in adult bullying (Huesmann, 1986; Huesmann, Moise-Titus, Podolski, & Eron, 2003).

Crick, Bigbee, and Howes (1996) argue that social aggression was the most frequently cited angry behavior for girls' interactions, whereas physical aggression was the most frequently cited angry behavior for boys' interactions. Scholars have argued that socially aggressive strategies are more often used in girls' peer interactions because such tactics are effective in harming social goals (e.g., maintaining relationships) that are most important to girls (Crick & Grotpeter, 1995). In a number of studies, girls are found to display more subtle forms of aggression at significantly higher levels than boys are (Crick & Grotpeter, 1995; Galen & Underwood, 1997). Similarly, children who perform poorly in school are more physically aggressive (Huesmann, 1986) and watch more violent television (Comstock & Paik, 1991) than do children with higher intellectual ability.

The present study focuses on the development of empathy, and mitigating the bullying tendencies using a specially-prepared empathy program, with an aim to foster this skill in school children because empathy helps children accept and process their feelings so that they can see the world from others' perspectives. Empathy wires the brain for higher cognitive processes, rather than lower brain functions (Bailey, 2000).

Teaching empathy is important because we are at a time where there is much aggression, fighting, uncertainty, intolerance and terrorism in Pakistan. In uncertain times as people are facing today, children must be taught skills that will help them to face the challenges of life with strength and resilience. The development of empathy in children is an effort to building healthy personalities which can face the challenges of life successfully and have the skill to make healthy adjustments in life, working not only for their own improvement but also towards the welfare of others; thus contributing towards the development of our society.

2. Methods

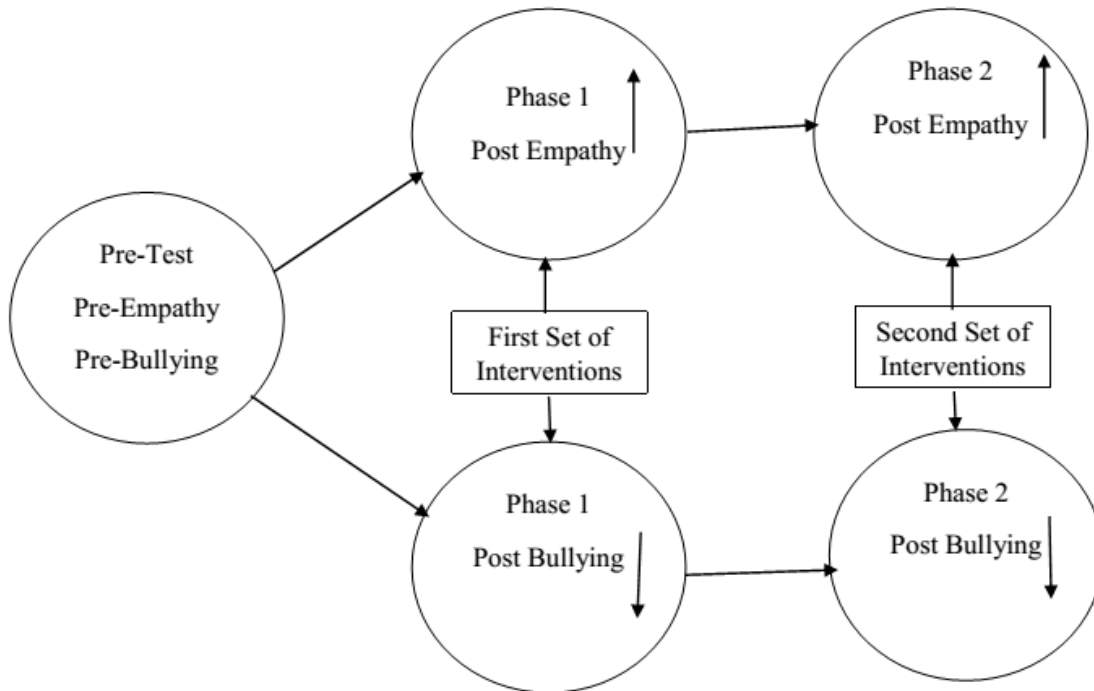
The two schools Pilot School for Boys, and Muhammadiyah Girls School of city Lahore in the province of Punjab in Pakistan were selected on the basis of convenience of researcher and willingness of the Principals to conduct research in their respective schools. As the intervention program spreads over 4 months, the program needs specially assigned slot in the school time table. Both schools (Pilot School for Boys, and Muhammadiyah Girls School) represent children from the same socioeconomic class. The subjects of the research were students of classes 6 and 7 (eight sections, $N= 384$). Class 6 and 7 had been selected because children at this age (11 – 15 years) are developing independent thought (Piaget, 1985) and have started to identify and understand the underlying rules of the workings of the different aspects of human life. As the foundation of independent thinking has been laid down, children are capable of understanding abstract reasoning (Piaget, 1974) as is needed to understand moral questions.

Procedure

Four sections of students were selected for the *Control* group and other four were as *Treated* group. A Pre-Test and Two Post-Tests (Phase 1 & Phase 2) were conducted for treated group. The treated group was engaged in different activities (adapted from Caselman (2007), Shapiro (2008), and Breakstone et al., (2009) to foster development of empathy. The activity was begun with a story, followed by a group discussion, highlighting the different aspects of human feelings, emotions and behaviors, alongside encouraging children to give feedback.

The intervention program was taken place twice a week. The posttests were given at the end of the research period in Phase 1 and Phase 2. A total of 26 lessons was given to treated group. No intervention was used by researcher for controlled group. For assessing the level of empathy, 'A questionnaire to assess Cognitive and Affective Empathy in Children' by Carsten Zoll and Sibylle Enz (Zoll & Enz, 2010) is used (with permission) in this study. Each item's response was collected using a 5-point scale ranging from "I strongly disagree" to I "strongly agree". A score of 1 was assigned to those who answered "I strongly disagree", 2 to "I somewhat disagree", 3 to "I don't agree or disagree", 4 to "I somewhat agree", and 5 to "I strongly agree". Scores from twenty two items were combined to create an index of Empathy (Cronbach's Alpha $\alpha=. 715$, $M=91.17$, $SD= 9.422$ See appendix A). To assess aggressive tendencies (Bullying), The *Bullying Prevalence Questionnaire (BPQ)*' by Rigby and Phillips Slee (Rigby & Salee, 1993) (modified) is blended with the questionnaire. Each item's response was collected using a 4-point scale ranging from "Never" to "Very Often". A score of 1 was assigned to those who answered "Never", 2 to "Once in a while", 3 to "Pretty Often", and 4 to "Very often". Scores from fourteen items were combined to create an index of Bullying (Cronbach's Alpha $\alpha=. 737$, $M=28.14$, $SD= 7.340$ See appendix A). Posttest is conducted after using the intervention to check the effectiveness of interventions in the entire experiment. Gender was measured as, Boys and Girls; Treated Group (Boy=26.6%, Girl=25.7%, Total= 51.8%) and Control Group (Boy=24.7%, Girl=23.4%, Total= 48.2%) See appendix B.

Exhibit 1. Proposed Model of Enhancement of Empathy and Detraction in Bullying



The Exhibit.1

The exhibit 1 explains that the present study was conducted into two phases; In *Phase 1*, thirteen different interventions were introduced to augment, and grasp the locus of empathy amid the students and reduce the level of bullying among students. Two sets of interventions “*And more to do*” and “*For you to do*” were hosted that consist of five, and two interventions respectively, while others were entailed to one intervention each. Responses of each item of the intervention were tallied under different categories which an item characterized. A 10- item test “*Reading Your Empathy*” Level was constructed ranging four-point scale (Poor, Fair, Good, and Excellent) to check the empathy score of student during the class lecture while an 8-item test “*Empathy Grade Card*” was designed extending four-point scale (Poor, so-so, Good, and Excellent) to check the empathy level of student during interpersonal communication.

In *Phase 2*, thirteen different interventions were introduced to augment, and grasp the locus of empathy amid the students and reduce the level of bullying among students. Two sets of interventions “*And more to do*” and “*Empathetic Statements*” were hosted that consist of three interventions respectively, while others were entail to one intervention each. Responses of each item of the intervention are tallied under different categories which an item characterized. The interventions of “*Reading Your Empathy*”, “*Empathy Grade Card*”, and “*World without Empathy*” were conducted along with the Interventions of “*Feeling family*”, “*Feeling word search*”, “*How others feel?*”, “*Reading Body Language*” and “*Rating your empathy listening*”.

Quantitative Analysis and Discussion

Table 1:

Overall score of empathy and bullying between controlled and treated group in phase 1 pre, phase 1 post, and phase 2 post times

	Statistics					
	Phase 1 Total	Phase 1 Total	Phase 1 Total	Phase 1 Total	Phase 2 Total	Phase 2 Total
	Pre Empathy	Pre Bullying	Post Empathy	Post Bullying	Post Empathy	Post Bullying
Valid N	384	384	384	384	384	384
Missing	0	0	0	0	0	0
Mean	91.17	28.14	93.32	27.22	96.00	26.36
Std. Deviation	9.422	7.340	8.582	8.748	8.633	8.072

The table 1 reports that the overall score of empathy ($N= 384$, $M= 91.17$, $SD = 9.422$) was increased in phase 1 post empathy test ($N= 384$, $M = 93.32$, $SD = 8.582$), and phase 2 post empathy test ($N= 384$, $M = 96.00$, $SD = 8.633$), however, the overall score of bullying ($N= 384$, $M = 28.14$, $SD = 7.340$) was decreased in phase 1 post bullying test ($N= 384$, $M = 27.22$, $SD = 8.748$) and phase 2 post bullying test ($N= 384$, $M = 26.36$, $SD = 8.072$). It shows that intervention program significantly affected on the level of empathy and bullying after the use of interventions.

Pre-Test Scores

Table 2a

The empathy and bullying scores of controlled and treated group in phase 1 pre test

			Group Statistics			
Group of the Student			N	Mean	Std. Deviation	Std. Error Mean
Phase 1	Total	Pre Controlled	185	91.72	8.314	.611
Empathy		Treated	199	90.66	10.341	.733
Phase 1	Total	Pre Controlled	185	28.26	7.062	.519
Bullying		Treated	199	28.03	7.606	.539
Phase 1	Total	Post Controlled	185	90.91	9.440	.694
Empathy		Treated	199	95.55	7.015	.497
Phase 1	Total	Post Controlled	185	27.99	8.516	.626
Bullying		Treated	199	26.51	8.920	.632
Phase 2	Total	Post Controlled	185	90.82	9.400	.691
Empathy		Treated	199	100.82	3.681	.261
Phase 2	Total	Post Controlled	185	27.88	8.486	.624
Bullying		Treated	199	24.95	7.415	.526

The table 2a reports that there was no significant difference in phase 1 pre empathy scores for controlled group ($N= 185$, $M = 91.72$, $SD = 8.314$) and treated group ($N= 199$, $M= 90.66$, $SD = 10.341$; $t(382) = 1.097$, $p = .273$ (two-tailed). The magnitude of the differences in the means (means difference = 1.056, 95% CI: -.836 to -2.947) was very small (eta squared = .003). The table further accounts that there was no significant difference in phase 1 pre bullying scores for controlled group ($N= 185$, $M = 28.26$, $SD = 7.062$) and treated group ($N= 199$, $M= 28.03$, $SD = 7.606$; $t(382) = .319$, $p = .750$ (two-tailed). The magnitude of the differences in the means (means difference = .240, 95% CI: -1.236 to 1.715) was very

small (eta squared = .002).

Phase 1 Post-test Scores

Table 2b

The empathy and bullying scores of controlled and treated group in phase 1 post times after interventions

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Phase 1 Total Pre Empathy	Equal variances assumed	8.860	.003	1.097	382	.273	1.056	.962	-.836	2.947
	Equal variances not assumed			1.106	374.332	.269	1.056	.954	-.821	2.932
Phase 1 Total Pre Bullying	Equal variances assumed	1.085	.298	.319	382	.750	.240	.751	-1.236	1.715
	Equal variances not assumed			.320	382.000	.749	.240	.749	-1.232	1.711
Phase 1 Total Post Empathy	Equal variances assumed	17.457	.000	-5.498	382	.000	-4.645	.845	-6.306	-2.984
	Equal variances not assumed			-5.440	338.500	.000	-4.645	.854	-6.324	-2.965
Phase 1 Total Post Bullying	Equal variances assumed	.966	.326	1.668	382	.096	1.487	.891	-.266	3.240
	Equal variances not assumed			1.671	381.726	.096	1.487	.890	-.263	3.237

The table 2b accounts that there was significant difference in phase 1 post empathy scores for controlled

group ($M = 90.91, SD = 9.440$) and treated group ($M = 95.55, SD = 7.015; t(388.50) = -5.440, p = .000$ (two-tailed). The magnitude of the differences in the means (means difference = -4.645 , 95% CI: -6.324 to -2.965) was medium (eta squared = $.07$). According to Cohen (1988), Eta value showed the medium effects of interventions used in Phase 1 on the scores of empathy, but the bullying scores were not statistically significant in Phase 1 posttest, controlled group ($M = 27.99, SD = 8.516$) and treated group $M = 26.51, SD = 8.920; t(382) = 1.668, p = .096$ (two-tailed). The magnitude of the differences in the means (means difference = 1.487 , 95% CI: $-.266$ to 3.240) was very small (eta squared = $.007$).

Phase 2 Post-test Scores

Table 2c

The empathy and bullying scores of controlled and treated group in phase 2 post times after interventions

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Phase 2 Total Post Empathy	Equal variances assumed	123.806	.000	-13.916	382	.000	-10.008	.719	-11.422	-8.594
	Equal variances not assumed			-13.548	235.750	.000	-10.008	.739	-11.463	-8.553
Phase 2 Total Post Bullying	Equal variances assumed	1.526	.217	3.605	382	.000	2.926	.812	1.330	4.522
	Equal variances not assumed			3.587	366.380	.000	2.926	.816	1.322	4.531

The table 2c further elaborates that there was also significant difference in phase 2 post empathy scores for controlled group ($M = 90.82, SD = 9.400$) and treated group ($M = 100.82, SD = 3.681; t(235.75) = -13.548, p = .000$ (two-tailed). The magnitude of the differences in the means (means difference = -10.008 , 95% CI: -11.463 to -8.553) was large (eta squared = $.32$). According to Cohen (1988), Eta Value shows the large effect of group differences on Phase 2 post empathy scores in the students after using the interventions in phase 2. Consequently, there was significant difference in phase 2 post bullying scores for controlled group

($M = 27.88, SD = 8.486$) and treated group $M = 24.95, SD = 7.415; t(366.38) = 3.587, p = .000$ (two-tailed). The magnitude of the differences in the means (means difference = 2.126, 95% CI: 1.322 to 4.531) was small (eta squared = .03). The table reports that there was small effect of group differences on phase 2 post bullying score in the students after using the interventions.

Qualitative Analysis and Discussion

In present study, for getting qualitative data 98 (50%) students were selected out of 199 from treated group, boys ($N = 53$) and girls ($N = 45$). Six more interventions were applied consisting of reciting stories, question-answer meetings related to stories, and followed by asking about the lessons students learnt from these stories. These conversations ended by brief lectures of trainers about empathy which were guided by researcher during the training of trainers. After completion of this session, students were asked to write a story about empathy. They were also instructed to give the output in answers of the questions about leaning, adoption, and the feelings after the adoption of empathy. They were also asked to write about the change people felt in their personalities after adopting the attitude of empathy.

Exhibit. 2

Exhibit. 2. Stories of Empathy written by Boys

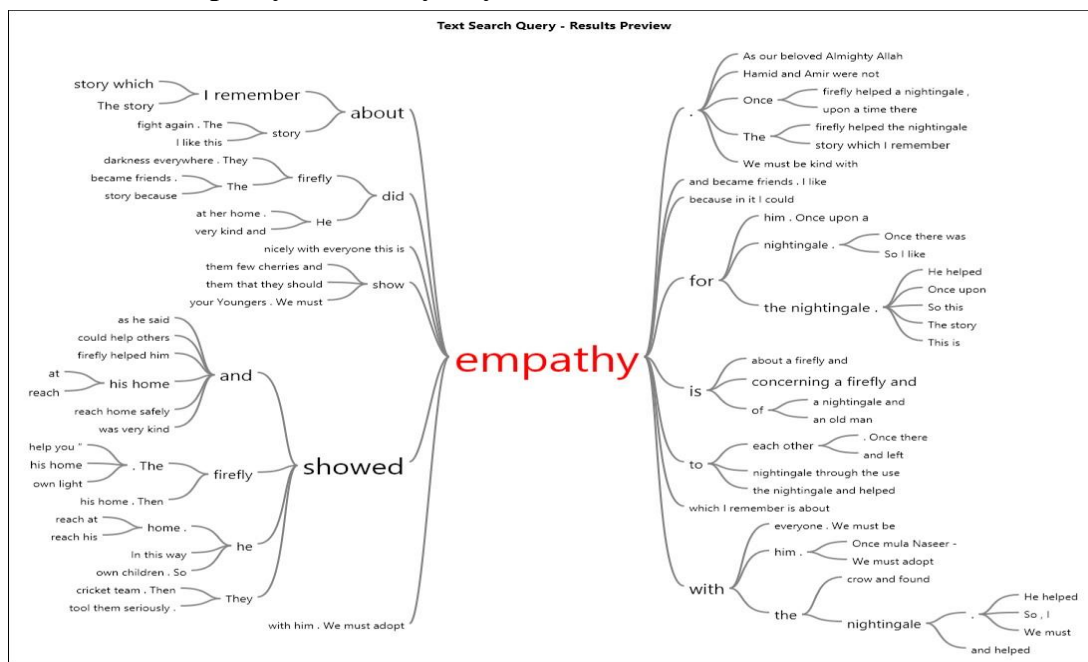
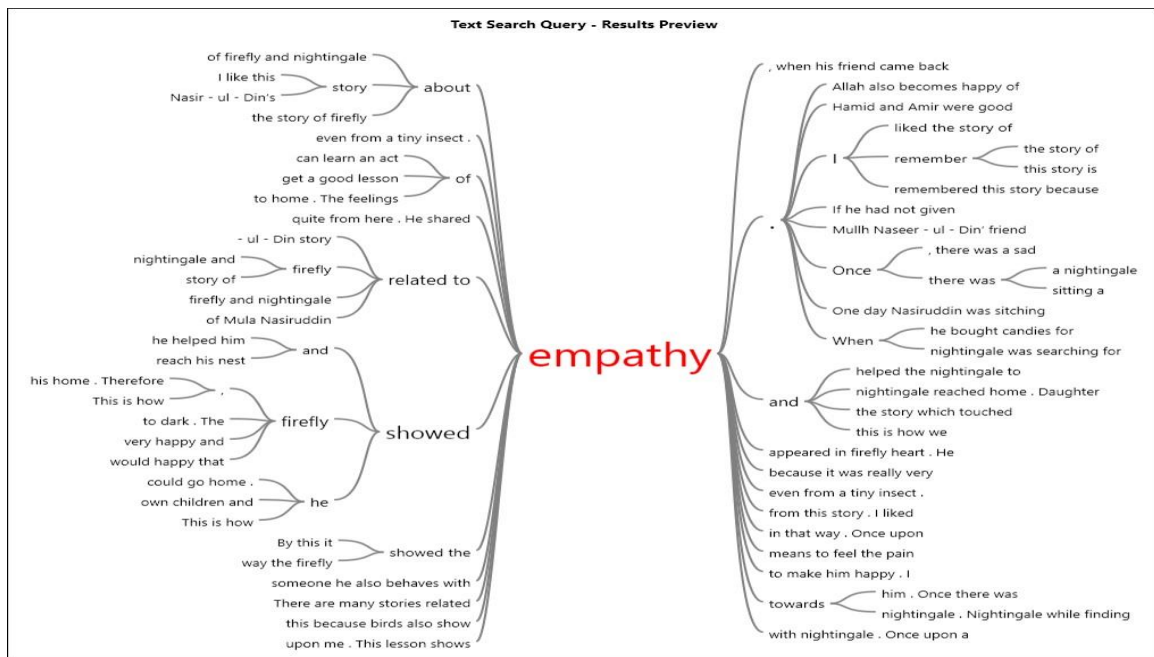


Exhibit. 3

Exhibit. 3. Stories of Empathy written by Girls



The Exhibit 2 shows that the stories of empathy written by boys created two main nodes, most of the boy students assembled starting node “showed”, and “about” with ending “dot (.)”, “for”, and “with”. They mostly understood empathy in the context of “helped”. Conversely, the Exhibit 3 shows that the stories of empathy written by girls produced three main nodes, most of the girl students amassed starting node “related to”, “showed”, and “about” ending with “dot (.)”, and “and” but having more variations of “once”, “when”, “I”. As compared to boys, they acquired clearer understanding of empathy. They got the understanding of “to feel the pain”, “to make him happy”, and “even from a tiny insect”. The data of stories of girls showed that girl students understood the empathy in broader context.

Exhibit. 4

Exhibit 4. Learning of Empathy in Boys

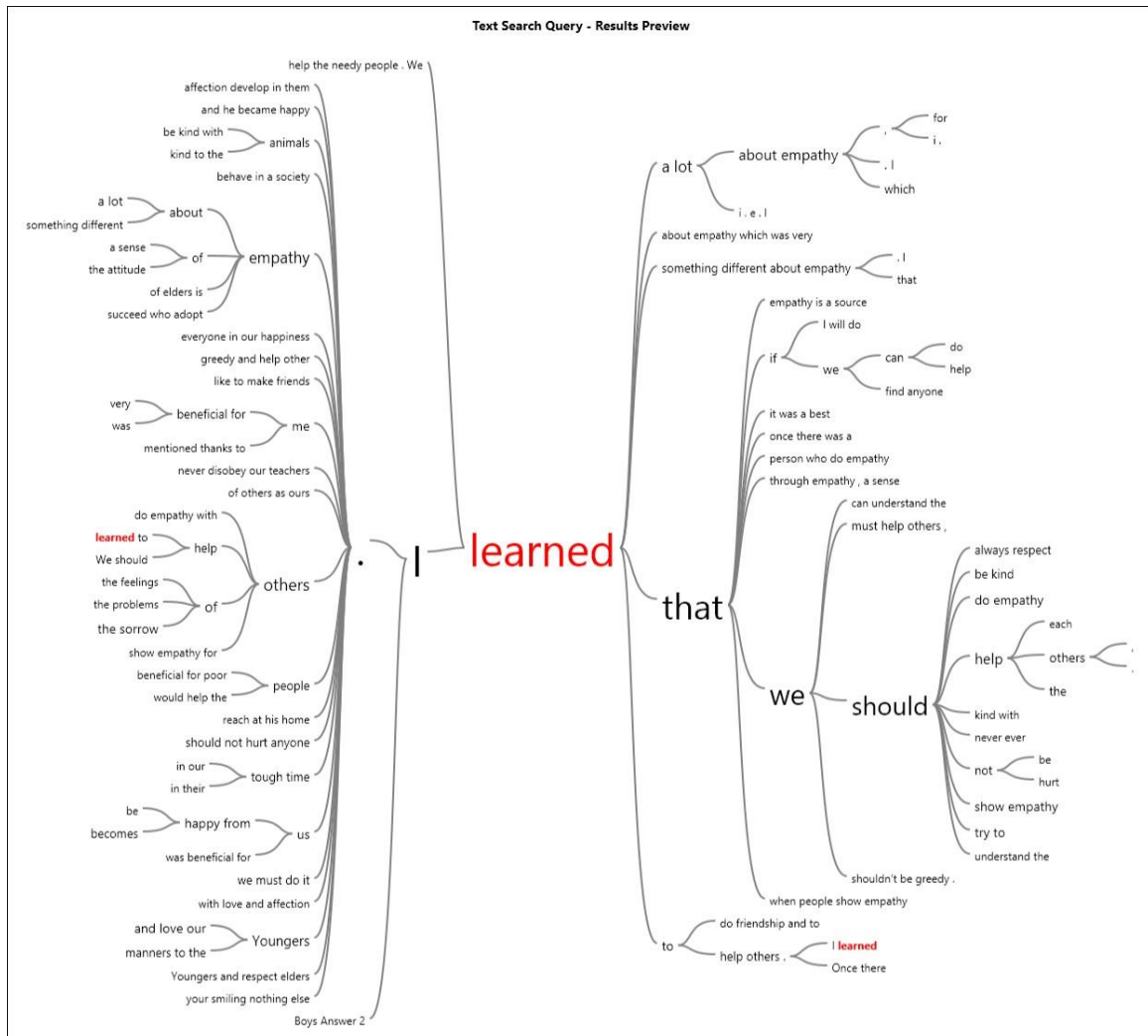
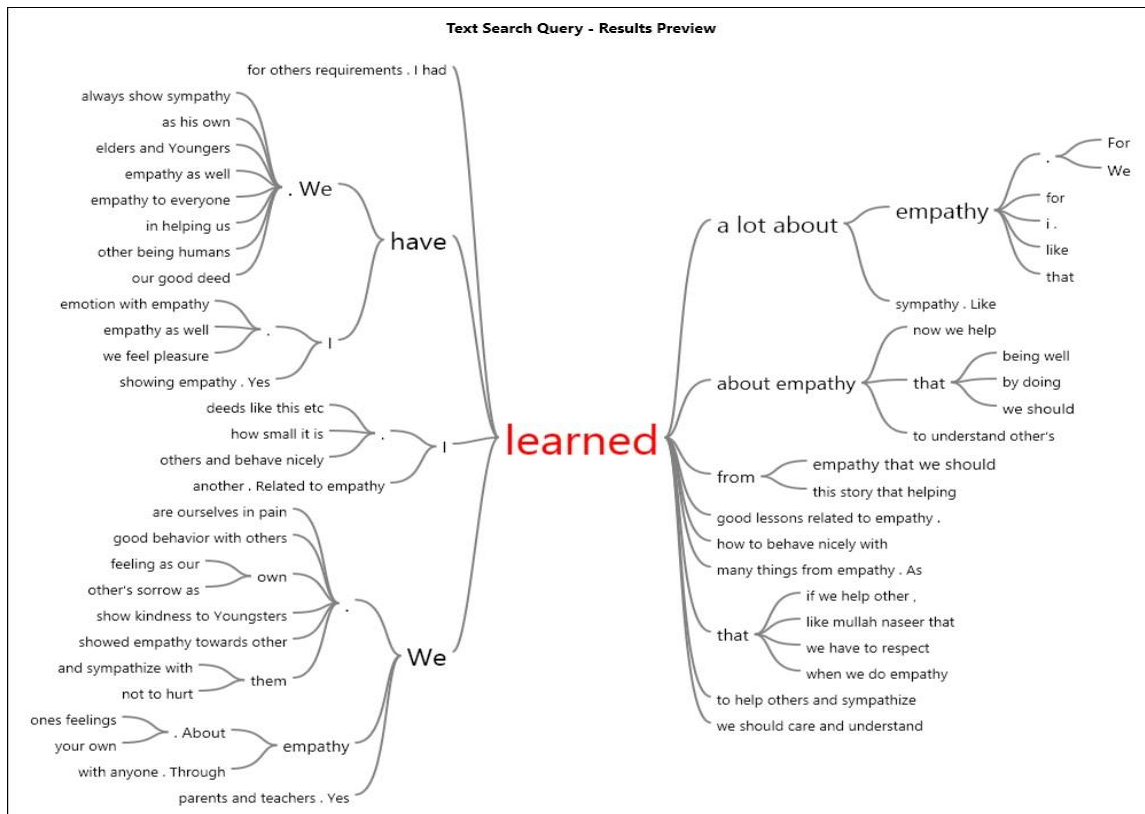


Exhibit. 5

Exhibit 5. Learning of Empathy in Girls



The Exhibit 4 shows that the learning of empathy in boys formed one main node, most of the boy students amassed node “I learned that we should” with ending “always respect”, “be kind or kind with”, “do empathy”, “help others”, “not hurt”, and “understand”. Whereas, the Exhibit 5 shows that the learning of empathy in girls fashioned three main nodes, most of the girl students accumulated starting node “we have learned”, “I learned”, and “we learned” ending with “a lot about empathy”, “about empathy”, “from empathy”, “good lessons related to empathy”, “how to behave nicely”, “to help other” and “should care and understand”. As compared to boys, they learned more understanding of empathy. They got the understanding of “to feel the pain”, “to make him happy”, and from the interventions of empathy. The usage of pronoun “we” shows that they had more collective approach and less personalized as compared to boy students.

Exhibit. 6

Exhibit. 6. Adoption of Empathy by Boys

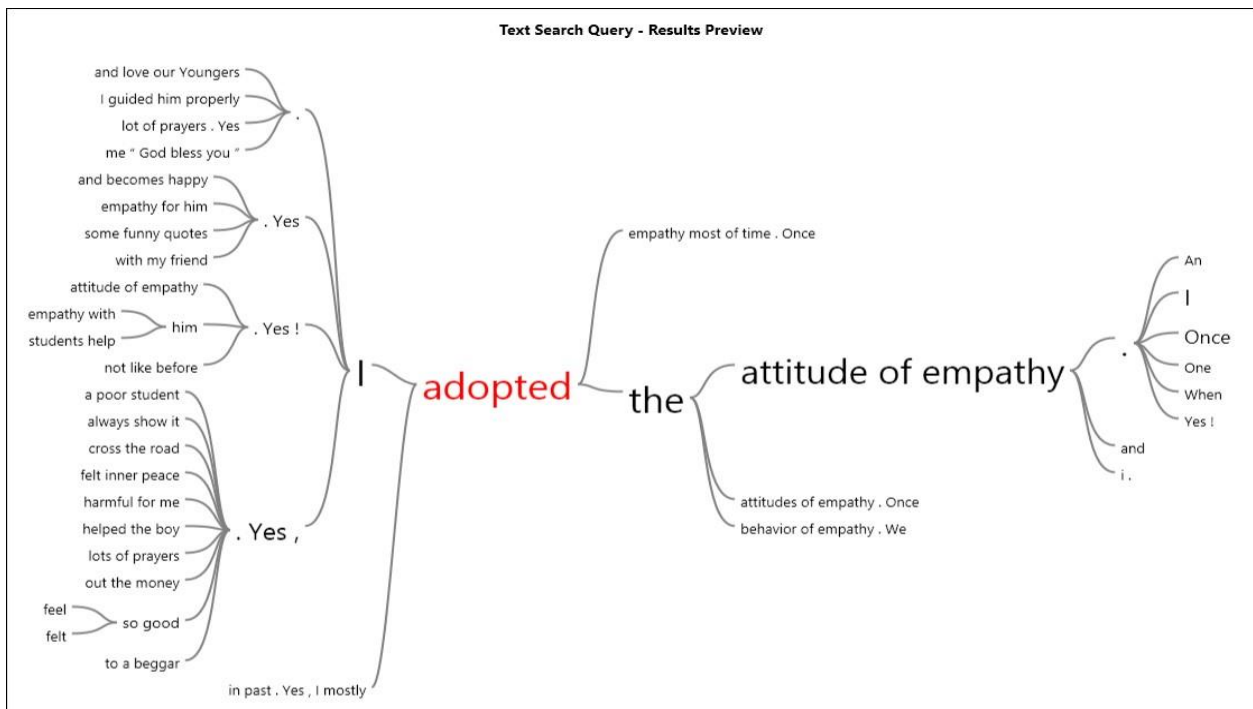
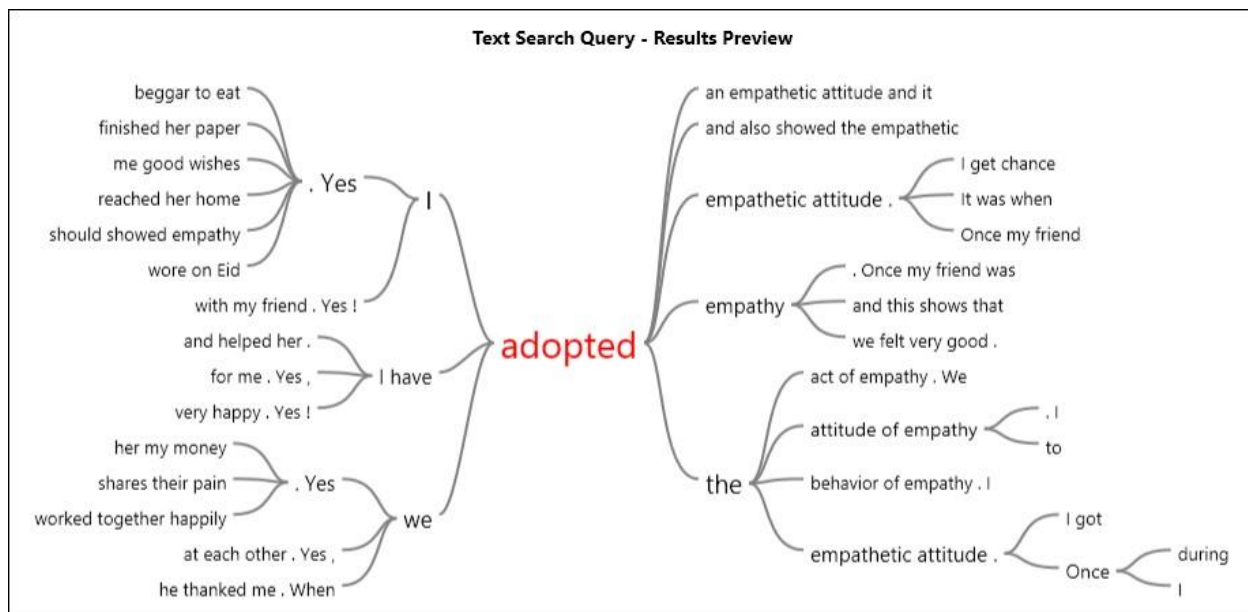


Exhibit. 7

Exhibit. 7. Adoption of Empathy by Girls



The Exhibit 6 shows that the adoption of empathy in boys shaped one main node, most of the boy students accrued node “I adopted the attitude of empathy” with ending more personalized pronoun like “I”. While on the other hand, the Exhibit 7 shows that the adoption of empathy in girls wrought three main nodes, most of the girl students congregated starting node “I adopted”, “I have adopted”, and “we adopted” ending with “empathetic attitude”, “empathy”, and “the act of empathy”. As compared to boys, they again were less personalized and had collective approach while adopting the attitude of empathy.

Exhibit. 8

Exhibit. 8. Feelings after adoption of empathy in Boys

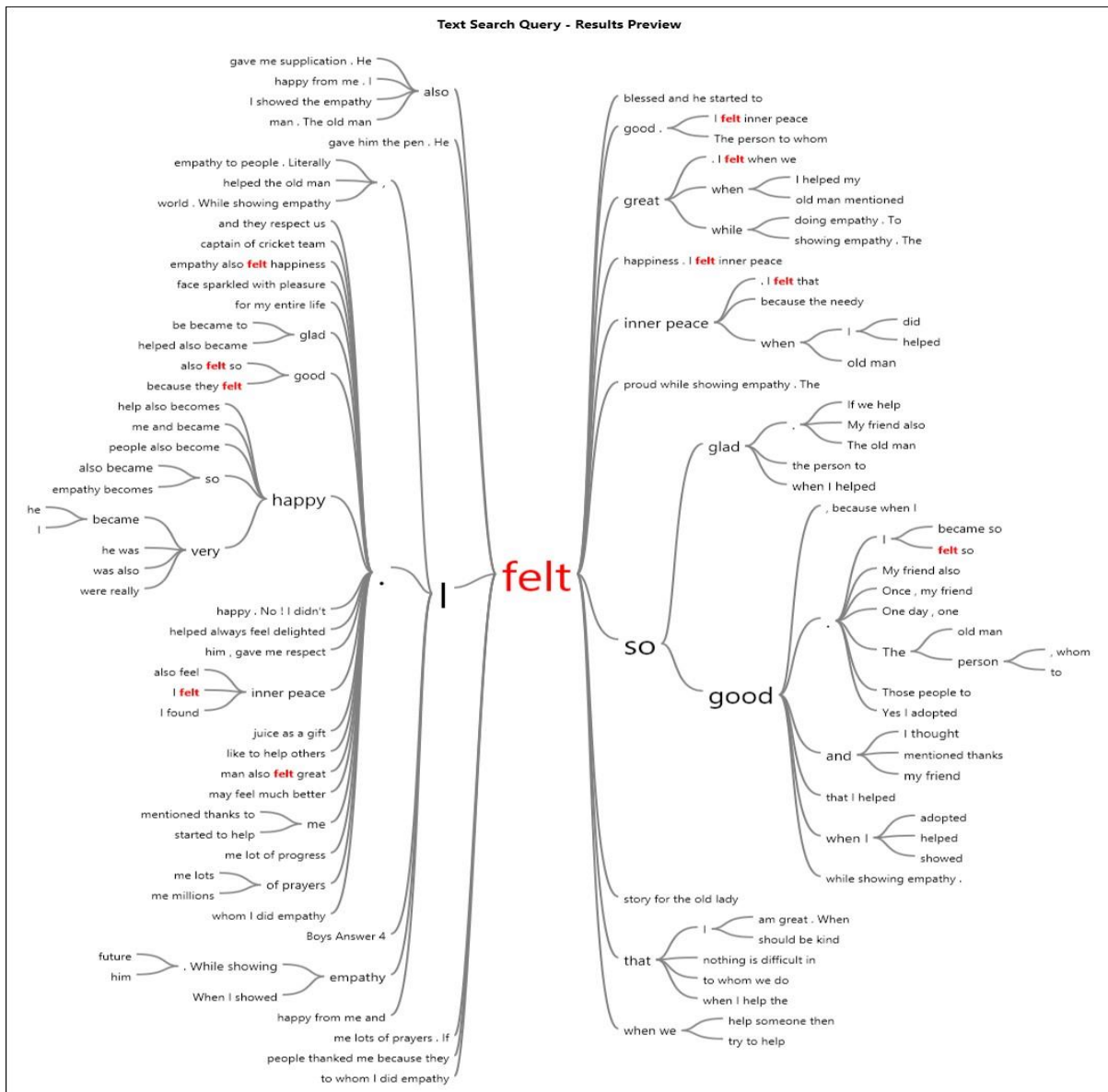
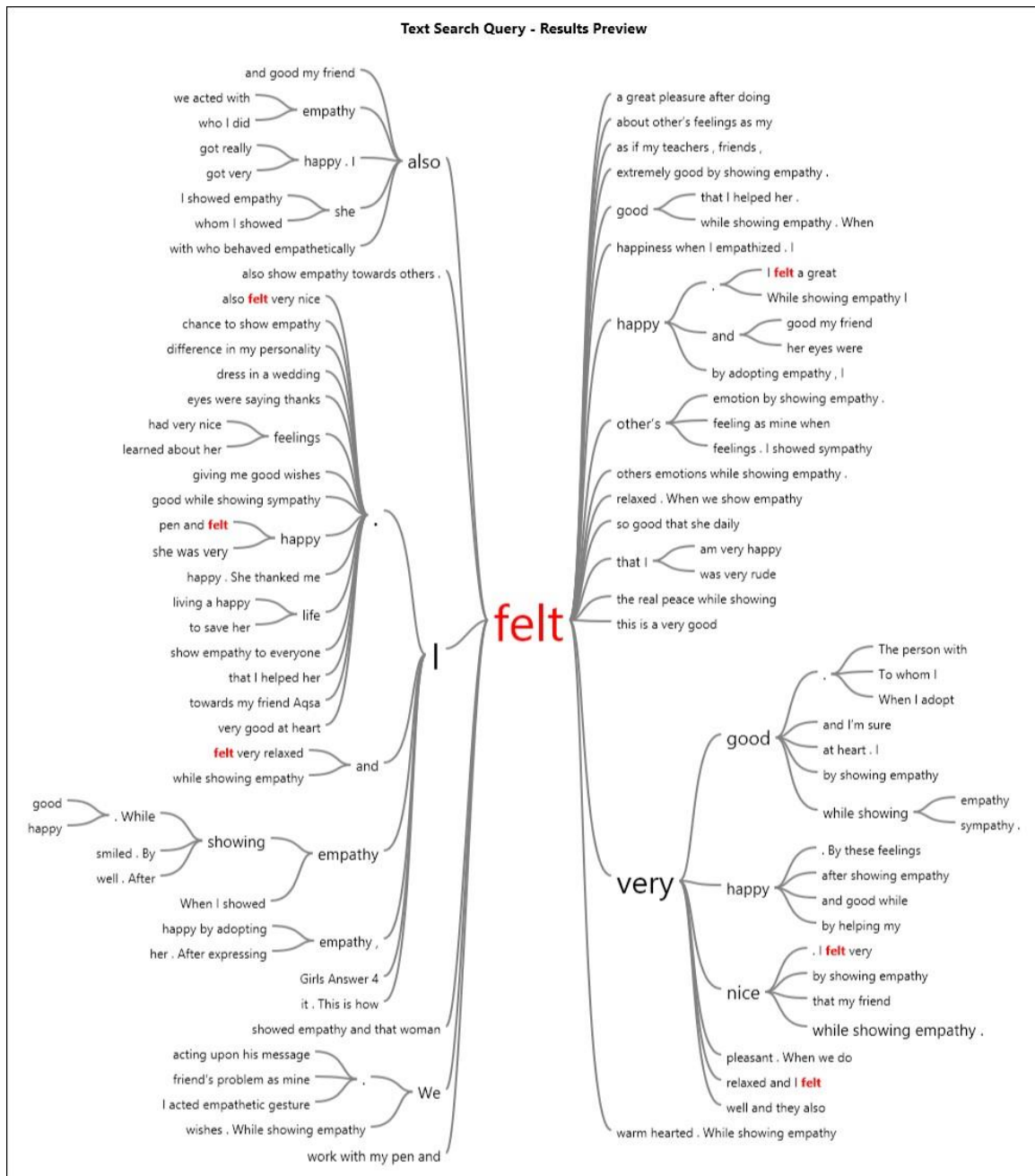


Exhibit. 9

Exhibit 9. Feelings after adoption of empathy in Girls



The Exhibit 8 shows that the feelings after the adoption of empathy in boys furnished one main node, most of the boy students flocked nodes as “I felt so good” with ending like “blessed”, “good”, “great”, “happiness”, “inner peace”, “proud”, and “glad”. While on the other hand, the Exhibit 9 shows that the feelings after the adoption of empathy in girls also twisted one main node, most of the girl students clustered node “I felt” with ending like “good”, “happy”, “nice”, “pleasant”, “relaxed”, “well”, and “warm hearted”, “good”. The Exhibit 8 and Exhibit 9 show that as for as the feelings of boys and girls concerned both had the same feelings with nominal variations.

Exhibit. 12

Exhibit 12. Relationship between Empathy and feelings of boys after interventions

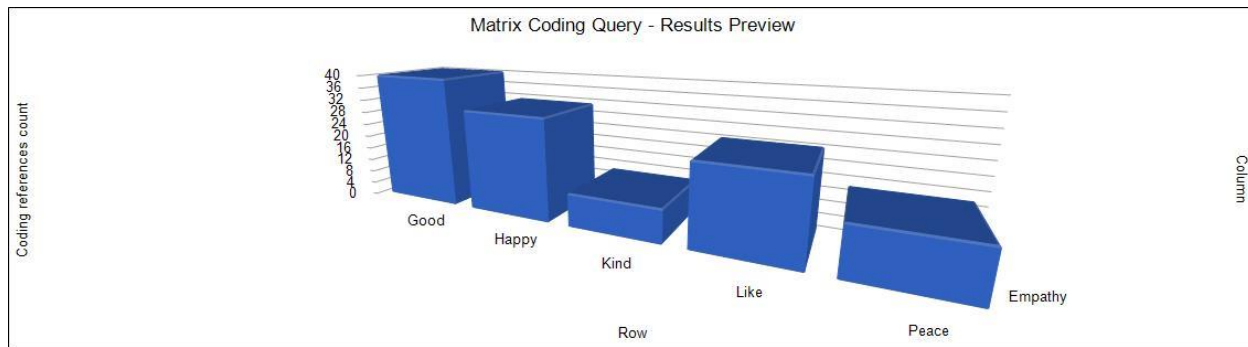
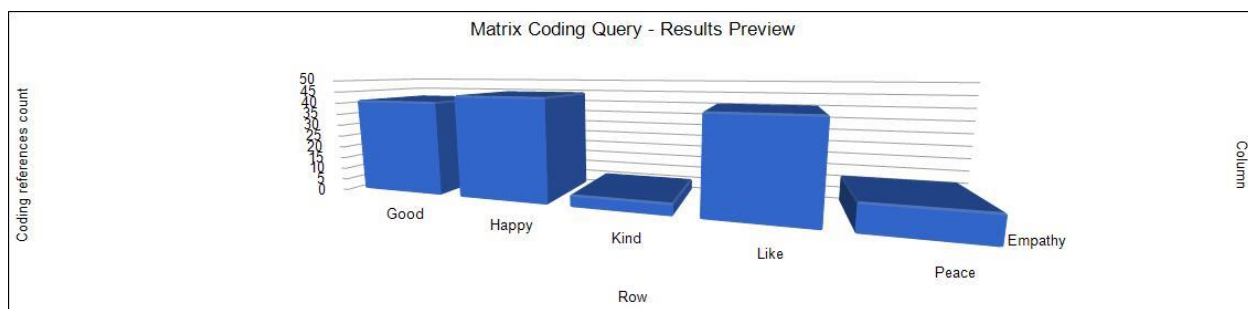


Exhibit. 13

Exhibit 13. Relationship between Empathy and feelings of girls after interventions



The Exhibit 12 shows that the most of boy students felt “good” while performing and showing the attitude of empathy. The feelings of “good” overwhelmed and followed by the feelings of “happiness” and “likeness”. The empathy had least attachment with the feelings of “kindness”.

Exhibit 13 shows that the most of girl students felt “happy” while performing and showing the attitude of empathy. The feelings of “happiness” overwhelmed and followed by the feelings of “good” and “likeness”. In girls students the empathy had also least attachment with the feelings of “kindness”.

There is the difference in the thinking of boys and girls, most of the boys considered “good” to show the attitude of empathy and girls considered that they embraced the feelings of happiness after performing the act of empathy.

Exhibit. 14

Exhibit 14. Change in boy students observed by others

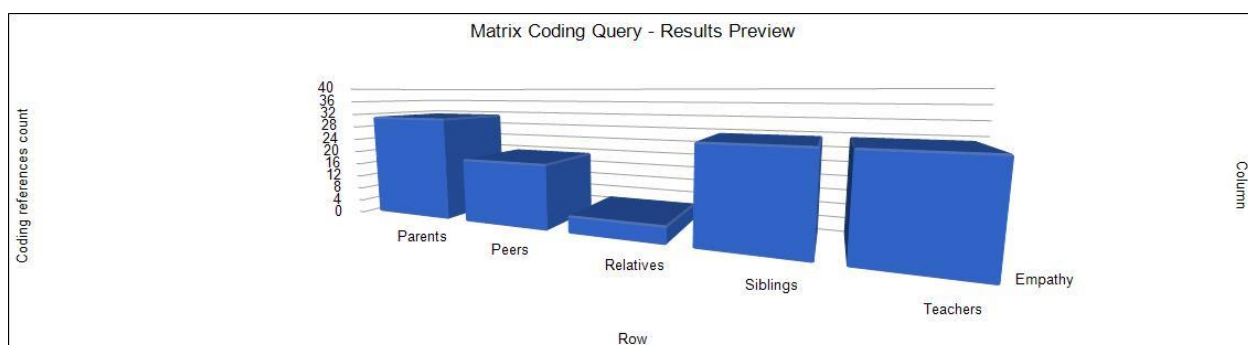
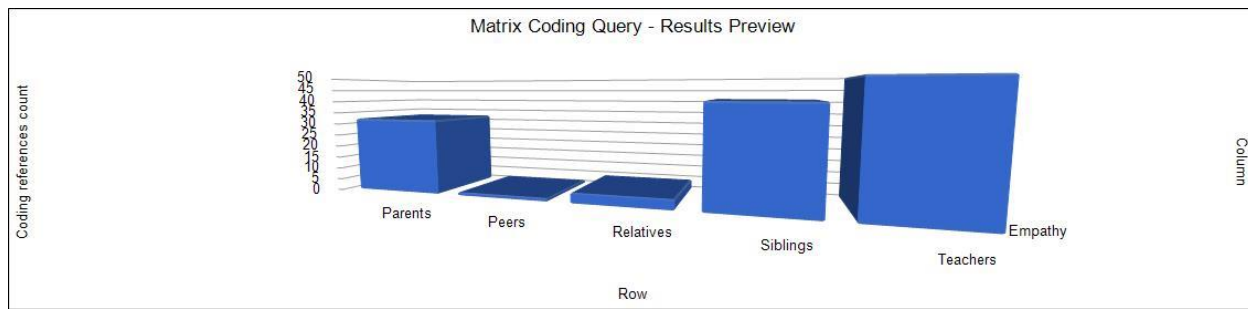


Exhibit. 15

Exhibit 15. Change in girl students observed by others



The Exhibit 14 shows that the intervention program developed a significant change in the personalities of boy students and that change was mostly observed by the parents of the students, followed by siblings and teachers, and then peers. Their relatives least felt the change in boys’ personalities.

The Exhibit 15 shows that the intervention program developed a significant change in the personalities of girl students and that change was mostly observed by the teachers of the students, followed by siblings and parents, and then their relatives. Their peers least felt the change in girls’ personalities.

There is the difference in the thinking of boys and girls, most of the boys considered that the change in their personalities was mostly observed by their parents but girls thought that that change was mostly observed by their teachers. The present research predicted that parents and teachers are the most significant elements to monitor the change in the personalities of the students after the usage of interventions program.

5. Conclusion, Heading Level-1.

The present study concludes that the intervention program designed to boost the empathy attitude and enhancing interpersonal skills in public school-going students of Pakistan attained positively results. The findings revealed the inverse relationship between empathetic attitude and bullying behavior. The study demonstrated that in both Phases (Phase I and Phase II) as compared to controlled group, empathetic score was enhanced and bullying tendencies were decreased in treated group. Although in Phase I of study the interventions affected more significantly on empathetic attitude and interpersonal skills as compared to bullying tendencies, but in Phase II, the designed interventions got more significant result and considerably affected to enhance the empathetic scores of students and further decreased the bullying score of students. The study also settled that overall the bullying score was higher in boy students as compared to girl students which supports the existing research on bullying tendencies in boys and girls.

The study further determined that as compared to boy students, girl students preferred to speak in a pleasant way even though someone got angry with them and had less association with violent content of media which also supports the study of Hoffner (2004) which suggests that empathic individuals avoid violent media content. Having much empathetic feelings and showing less bullying tendencies it was also learned in this experiential study inspired by Kolb (1984), that girl students had less tendency to talk about their feelings with their family members and they preferred to share their feelings with their friends but the Phase II verified that after the usage of interventions, there was a shift in girl students’ attitudes, girl students now talked more about their feelings with their mothers, fathers, brothers, and sisters rather than teachers,

friends, and other family members and they were recognizing more words of happiness, sacredness, anger, and sadness, which means that the interventions improved their level of recognition feelings.

The Qualitative analysis of stories written by students after interventions established that girl students understood the empathy in broader context. As compared to boys, they learned more understanding of empathy. They got the understanding of “to feel the pain”, “to make him happy”. The usage of pronoun “we” showed that they had more collective approach and less personalized as compared to boy students. As for as the feelings of boys and girls that developed about empathy both had the same feelings with nominal variations. There is the difference in the thinking of boys and girls, most of the boys considered “good” to show the attitude of empathy and girls considered that they embraced the feelings of “happiness” after performing the act of empathy. Most of the boys considered that the change in their personalities was mostly observed by their parents but girls thought that that change was mostly observed by their teachers. The present research predicted that parents and teachers are the most significant elements to monitor the change in the personalities of the students after the usage of interventions program. The relationship between attitude of empathy and feelings was very strong in boys. Although the intervention program increased more empathy level in girl students but thread was lost when we compared it with the range of attitude of empathy and feelings and even within the feelings as compared to boy students.

6. Acknowledgement

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7. References

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*Appendix 1***Reliability Analysis**

No.	Variables	No. of Items	Cronbach's Alpha	Mean	SD
1	Empathy Scale	22	.715	M=91.17	SD= 9.422
2	Bullying Scale	14	.737	M=28.14	SD= 7.340

Appendix 2

Gender of the Student		Gender of the Student		Total
		Boy	Girl	
Group of the Student	Controlled	95 24.7%	90 23.4%	185 48.2%
	Treated	102 26.6%	97 25.3%	199 51.8%
Total		197 51.3%	187 48.7%	384 100.0%

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