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Improving Health Education Engagement for First-Grade Students

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Abstract

The purpose of this study is to determine how to improve student engagement in health education. The participants for the Capstone Project included 22 first-grade students in a Title 1 public elementary school located in the California Central Coast. The researcher considered three options to implement at the community partner school: Knowledge in Action strategies, a physical education specialist, and health promoting school methods. The researcher implemented Knowledge in Action methods in the classroom for a lesson about the cardiovascular system. It was found that Knowledge in Action was an effective method to engage first-grade students in health education topics. 16 out of the 22 students that participated were considered to have met the lesson objectives. The author will working towards her Master's degree and will be doing further research on how to improve health education for elementary school students.

Keywords: Knowledge in Action, health education, skills-based learning, first-grade students

Improving Health Education Engagement for First-Grade Students

For the purposes of this research, health education will be considered the well-rounded education of mental, physical, and nutritional health, as well as other related topics (American Public Health Association, 1947). The incorporation of all of these subjects within health education is vital to supporting students in understanding their bodies. Students should be able to learn what they need to be nourished to ensure the highest quality of life possible. In order to mitigate the concerning rates of child and adult obesity, education must inspire healthy lifestyle practices by effectively teaching students in health education (Faguy, 2016). By truly engaging students, they will better learn health education content and be more motivated to perform to the best of their abilities. This improved quality of education will result in students taking the lessons learned with them into everyday life.

What is Health Education?

The goal of health education should be to establish healthy lifestyle behaviors that will continue into adulthood, in order to promote a higher quality of life (American Public Health Association, 1947). It is clear to both parents and teachers that many children today are suffering from environments that do not support healthy lifestyles (Patino-Fernandez, Hernandez, Villa, & Delamater, 2013). Seventeen percent of children in the United States are obese; thus they are likely to live a lower quality of life as a result of the health implications connected with the obesity, such as cardiovascular disease, hypertension, and diabetes (Faguy, 2016; Ogden, Carroll, Lawman, 2016). These health implications will place a financial impact as well as limitations on the person's physical abilities, thus impacting their quality of life.

Health education in public schools is currently failing. Half of obese children are statistically expected to be obese as an adult, and students do not understand why they should be doing physical fitness testing (Faguy, 2016; Hopple, Graham 1995). Specifically it is seen that 34% of fifth grade students in a Monterey County school are categorized as “needs improvement- health risk” for body composition (*California Department of Education, 2019*). “Needs improvement- health risk” is the lowest possible score a student can receive for California Fitness Testing. These are only some of the many symptoms produced from the lack of effective health education in public schools.

Health education should teach students that they can be active in ways they find enjoyable while also supporting their health (Hopple & Graham, 1995). Students who are more physically active show higher rates of health-related fitness knowledge (Thompson & Hannon, 2012). This relationship between health-related fitness knowledge and physical activity is important to be mindful of as when one increases, the other will likely increase as well. Health education should leave students aware of the impacts that their decisions make on their bodies, and of the importance of living a healthy balanced lifestyle. The current system of health education is not effectively teaching students such vital lessons.

How Do We Engage Students in Health Education?

Student engagement can be measured by their achievement on different forms of physical or content examinations, interviews, or their performance on physical fitness testing (Hopple, Graham 1995; Jarani, Grøntved, Muca, Spahi, Qefalia, Ushtelenca, Kasa, Caporossi, & Gallotta, 2016; Thompson & Hannon, 2013). When considering options to engage students, these methods of measurement should be considered to determine if the chosen options are working as desired.

Typically in elementary schools, multiple subject teachers also teach their students physical education (PE), although they may not be the best qualified or may not feel qualified to teach these vital lessons (Pan, Chou, & Hu, 2013). Specialist PE teachers and multiple subject teachers who are more confident in their abilities to teach health education have been much more successful than those with a lower self-efficacy or level of preparation (Pan, Chou, & Hu, 2013; Starc & Strel, 2012). Pan, Chou, and Hu (2013) recommend that schools provide additional training and workshops in order to better prepare multiple-subject teachers to teach physical education. This illustrates that our current regime of preparing teachers to teach health education is not sufficient for all teachers to provide the most engaging health and fitness education possible.

Lesson plan structures that include knowledge or skill-based activities have shown to be more engaging for students in health or fitness education (Clift and Jensen, 2008; Hodges, Kulinna, Mars, Lee, 2016). Tasks such as running laps leave students cognitively bored. But providing them with a physical activity that also cognitively challenges them, such as an obstacle course that includes content questions, will engage them more. Students need a health education that is well thought out by professionals that allows the students to see the knowledge they learn in conjunction with their physical activity.

How to Engage First-Grade Students in Health Education?

Traditional methods of teaching health education to first-grade students include timed runs or health lectures (Hopple & Graham, 1995). It has been seen that games and exercise are more effective strategies in engaging first-grade students in physical education, as shown by improvement in various health and fitness level indicators such as improvement in physical

performance over time (Jarani, Grøntved, Muca, Spahi, Qefalia, Ushtelenca, Kasa, Caporossi, & Gallotta, 2016). Students are under-stimulated by traditional methods, and they must be provided with structured lessons and opportunities that will inspire a healthy lifestyle (Balsevich, 2005; Hopple, Graham 1995). Thus, first-grade students need a health education that incorporates games or activities that involve health related fitness skills, and schools need to develop away from non-stimulatory physical activities such as running laps.

Recommendations to Engage First-Grade Students in Health Education

Three options to better engage first-grade students in health education will be considered for implementation. The criteria used for evaluation of options will be cost, timeliness, and effectiveness.

The cost factor will be based on how much additional money or funding the option requires; which may include but is not limited to: teacher training, specialist staff salary, or cost of new curriculum materials. A score of 3 would indicate that the option could be implemented a minimal cost. A score of 2 would mean that the option would require a median cost compared to the other options, while a score of 1 would be a high monetary cost option.

Timeliness is determined by how much time it would take to implement the option, this may include time required to create new curriculum, hire additional faculty, or time required to see results. A timeliness score of 3 would mean that the option could be implemented almost immediately. An option that would take less than a full academic year to implement shall be rated as a 2. A rating of a 1 would be an option that requires considerably more time to implement than the other options.

Effectiveness is determined the level of engagement students show in health education lessons. This can be measured by improvement over time in performance of physical fitness testing, student surveys, or level of participation. An option that that is scored with a 3 for effectiveness demonstrates overwhelmingly positive results from implementation. A score of 2 in effectiveness would indicate positive results from the option, but results are not practically guaranteed. A score of 1 indicates that there is no definite example of implementation that would claim the option would ensure improvement.

Table 1. Options for Implementation and Criteria Based on Cost, Timeliness, & Effectiveness

Option	Cost	Timeliness	Effectiveness
Knowledge in Action	3	3	2
PE Specialist	1	2	3
Health Promoting School	2	1	1

A score of 3 is most favorable. A score of 1 is least favorable.

Knowledge in action.

One option to consider when working to improve the engagement of students in health education is the Knowledge in Action (KIA) teaching methodology (Thompson & Hannon, 2012). The KIA strategy stems from Project Based Learning, and inspires students to want to learn more so that they can perform better. Students learn content and then are able to apply that knowledge in the activity. This strategy was implemented at a large suburban school district in Arizona, with five implementation schools and five comparison schools, which showed that students benefit from engaging in physical activity while learning academic content (Hodges, Kulinna, Mars & Lee, 2016). This option would not require very high costs or time for

preparation as it will only require time for new curriculum development and can be done at zero cost by reusing already owned equipment so it shall score 3 for both respectively.

An example of a KIA activity would be having students do some physical activity then taking their heart rate as part of a human body lesson. This not only allows students to physically exert themselves, but also learn how to take their heart rate and what that measurement means in relation to their cardiovascular health. Compared to the test class, students in KIA scored 3% higher on their post-test evaluation (Hodges, Kulinna, Mars, Lee, 2016). This improvement in performance demonstrates that this option has a beneficial impact on student's learning and knowledge retention thus it is scored a 2 for effectiveness.

Physical education specialist.

Having a specialist teach a health education lesson for the class or holding a training session for multiple subject teachers to learn more on how to teach health education is the second option that will be considered. Multiple-subject teachers are teaching their class's health and physical education, and are underprepared to teach these vital lessons. According to Starc and Strel (2012), students are more successful and show more improvement in physical education when taught by a specialist teacher. When compared to the control group, the test group showed more improvement in all forms of fitness indicators including flexibility, running speed, and other fitness indicators (Starc & Strel, 2012). This significant improvement is much more direct in comparison with the KIA implementation and more definitive than the Health Promoting School so it will be scored a 3 for effectiveness. The cost for this option is much higher than the other options as physical education teachers are paid a yearly wage of \$42,000 to \$56,000, thus it is scored a 1 for cost (Gill, 2012). The time required to hire a specialist (or

multiple) is much longer than the time required to write KIA curriculum, but less than the recalibration of an entire school's vision and mission so it shall be scored a 2 for timeliness.

Health promoting school.

The final option this research paper will consider to improve health education is to implement the strategies behind Health Promoting Schools (HPS). HPSs are schools that teach practical and conceptual links to health, academics, and participation values by embedding these values in the curriculum (Clift and Jensen, 2008). HPSs prioritize health education and use it as an opportunity to empower students by allowing students to take control of their health through knowledge and practice (Clift and Jensen, 2008). Though this option could promote the engagement of health education for students, it is not feasible for the author to implement enough curriculum throughout the community partner school inspired by HPSs within the timeframe of research. This option requires the most amount of time as it would be a school wide redevelopment of curriculum and mission thus it is scored a 1 for time. As well, this option lacks direct case study examples to demonstrate improvement in student engagement in health education so it will also receive a score of 1 for effectiveness. Lastly, this option does not have the large upfront cost as a PE specialist does, but is not cost free as redevelopment of the curriculum will likely result in purchase of new school materials so it will be scored a 2 for cost.

Which Option Will Be Implemented?

The option to better engage students in health education that will be implemented into a classroom is the use of a Knowledge in Action lesson plan that will integrate physical activity and nutritional education. This option will be chosen as it is the most viable when considering time and resources of the author. This lesson will teach Health Related Fitness Knowledge

(HRFK), by engaging students with the use of knowledge and skill-based activities, while incorporating nutritional lessons.

Project

The need for improved health education is seen by current students who are obese are likely to be obese as an adult, in addition to students not understanding the need for physical fitness testing (Faguy, 2016; Hopple, Graham 1995). In order to improve health education, three options have been considered for implementation. The strategy that will be implemented is Knowledge in Action, which teaches students through the use of skills-based activities (Hodges, Kulinna, Mars & Lee, 2016).

The lesson plan implemented used the 5-E lesson plan structure, using KIA pedagogy. The lesson utilized circuit style activities for students to explore different aspects of the cardiovascular system, in addition to student led discussions guided by the teacher and a quick write to determine whether students met the objective of the lesson. Of the 20 quick writes submitted for summative assessment, 16 were considered to have met the objective. With these results, the implementation of Knowledge in Action pedagogy effectively engaged the students in health education.

Context

The school site in which the lesson will be implemented is in Monterey County with 70% of its population being socioeconomically disadvantaged (Monterey Peninsula Unified School District, 2018). It is important to consider that those who are socioeconomically disadvantaged, such as the majority of students at this school, are more likely to struggle with metabolic health issues such as obesity, diabetes, or heart disease (Faguy, 2016). The school is a Title 1 school, meaning that it receives federal funding in addition to state funding in order to better support the

high concentration of students in poverty at the school. This is significant to consider as the majority of students at the implementation site are socioeconomically disadvantaged and thus at a higher risk for childhood obesity.

According to the school's SARC, only 66% of fifth-grade students passed four or more of the six California fitness standards (Monterey Peninsula Unified School District, 2018). Students under grade five are not tested for fitness standards, so there is no information on the fitness performance of first-graders at the school. From the California Department of Education's Physical Fitness report, 34% of fifth grade students at the school site are at "health risk" based on their body composition, while 26% of that same group are categorized that they "need improvement" (California Department of Education, 2019).

The class the author will be working with is a first-grade class with twenty two full time students, with five special education students that come in at various times of the day. Currently, the class has physical education (PE) class Monday through Friday and collaborates with the other first and second-grade classes on campus. During these lessons there are almost one hundred students outside participating in PE. The physical education schedule is as follows: Monday Mile, Tag Tuesday, Sport Wednesday, Capture the Flag Thursday, and Free Play Friday. While the class has monthly nutrition lessons from an outside party that discussion balanced diets using resources such as MyPlate.

Design

The author designed and taught a lesson plan to the first-grade students about the cardiovascular system that integrates content with real world application based on Knowledge in Action strategies. The goal of this lesson implementation is to identify whether the use of

Knowledge in Action pedagogy to teach health education effectively engages first-grade students. The lesson plan structure was based on the 5-E instructional model, with an objective for students to write about their heart rates, “noting its relationship to blood, overall health, or physical performance” (Appendix A). To begin to transition the students’ focus from the previous lesson, the teacher engages students in the new topic by asking questions related to student experiences to the cardiovascular system. The lesson plan incorporated KIA strategies as the Explore stage of the lesson allowed students to raise their heart rates through physical activity, and then measure it themselves. As well, it provided more opportunities for learning and critical thinking with the incorporation of books such as *¿Es Roja Mi Sangre?* and *Why Do I Run?*. Students applied the knowledge they know to take their heart rate and determine the significance of the measurement as seen by their responses in the discussion after the circuit activity. The discussion allowed the teacher to determine whether students were grasping the focus of the lesson, and adjust the direction of conversation if necessary. The final quick write served as the summative assessment for students, in order to determine whether or not the objective had been achieved. While the final elaboration discussion is intended to leave students wanting to know more about their cardiovascular system and thinking about potential answers to further questions.

Implementation

The author and teacher are the same person for the purposes of this paper. The lesson plan took approximately one hour to complete. The lesson began with students on the carpet for discussion. The teacher began the lesson by asking students questions about experiences they have had relating to their heart rate, exercising, or heart health in general. The teacher then wrote

down notes of what was said on the whiteboard. After this discussion ended, the students were separated into five groups of four to five students and moved one group to each of the stations. The five stations included: jump ropes, hula hoops, books, a song video, and taking heart rates, all taking place outside. The instructor monitored the heart rate station in which they gave simple directions to students how they can take their heart rate then did so as a group. Three other adults monitored other stations with the book station being unmonitored. About two minutes were spent at each station, with additional transition time. After five rotations, students were directed back inside the classroom to sit at the carpet for further discussion. The lesson plan in Appendix A shows example questions, that the teacher likely asked but may actual questions may have been adjusted based on conversation. At this point, the teacher asked questions such as “do you think your heart rate is very fast or slow when you are sleeping? Why?” see Appendix A for further question examples. After this discussion, students were directed towards their desks to begin a quick write. Students were provided the sentence starter “My heart rate shows...” and instructed to write whatever they thought their heart showed and what it meant. Students were given about 7 minutes to only write, then were given two minutes to draw something to accompany their sentence(s). The author then collected the students’ papers and finished with a brief series of questions to encourage further thought about cardiovascular such as “why is it important we make our heart strong, and what are some ways we can do that?” see Appendix A for further question examples. Due to time constraints this conversation was cut short, and only two questions were asked.

Results

The lesson plan with the author introducing herself to the students though she has worked in the classroom before. She began the lesson with a discussion to engage students in the content, see Appendix A for example questions asked. Students showed previous knowledge in the topic, explaining that they sweat, their heart beats, and how their lungs feel when they exercise.

During the explore portion of the lesson, students were very receptive to the stations. Throughout the rotations students shared that they enjoyed all of the stations except the reading station, even requesting to do the entire circuit over again. Students actively participated in the hula hoops and jump roping stations, and danced along to music videos about the heart (see Appendix A). The author monitored the heart rate taking station, during which many students struggled to focus long enough to count their pulse for a whole minute. With the minimal instruction following the “explore” style of the 5-E model, it was clear students struggled to find their pulse as well.

After the circuits, students returned to the carpet to now explain some of the connections made during the explore stage. The instructor asked questions to inspire their thoughts (see Appendix A), which led to students answering with more details as to what their heart rate is, and why it matters. As well, at this point many students made the connection that doing exercises such as jump ropes and hula hoops are significant to making their hearts “stronger”.

The elaborate exercise of the model was a quick write that would also serve as a summative assessment. When students were given the task to do a quick write, they struggled at first with getting started. The classroom teacher saw this and provided them all with a sentence starter, this proved itself to be very helpful. Many students were concerned with spelling rather

than content, which is to be expected of this age group. Overall, every student in the class turned in a quick write and only two papers had only written the sentence starter.

Of the 20 quick-writes submitted, 16 were considered to have met the objective. To have met the objective, students must have written a sentence that begins with “My heart rate shows...” then finish the sentence noting the heart rate relationship to health, physical activity, or what the heart does (Appendix A). Of the submissions that meet the objective, there was a range as whether it just met the objective, or was nearly exemplary. An example of a quick that just met the objective, can be seen below.

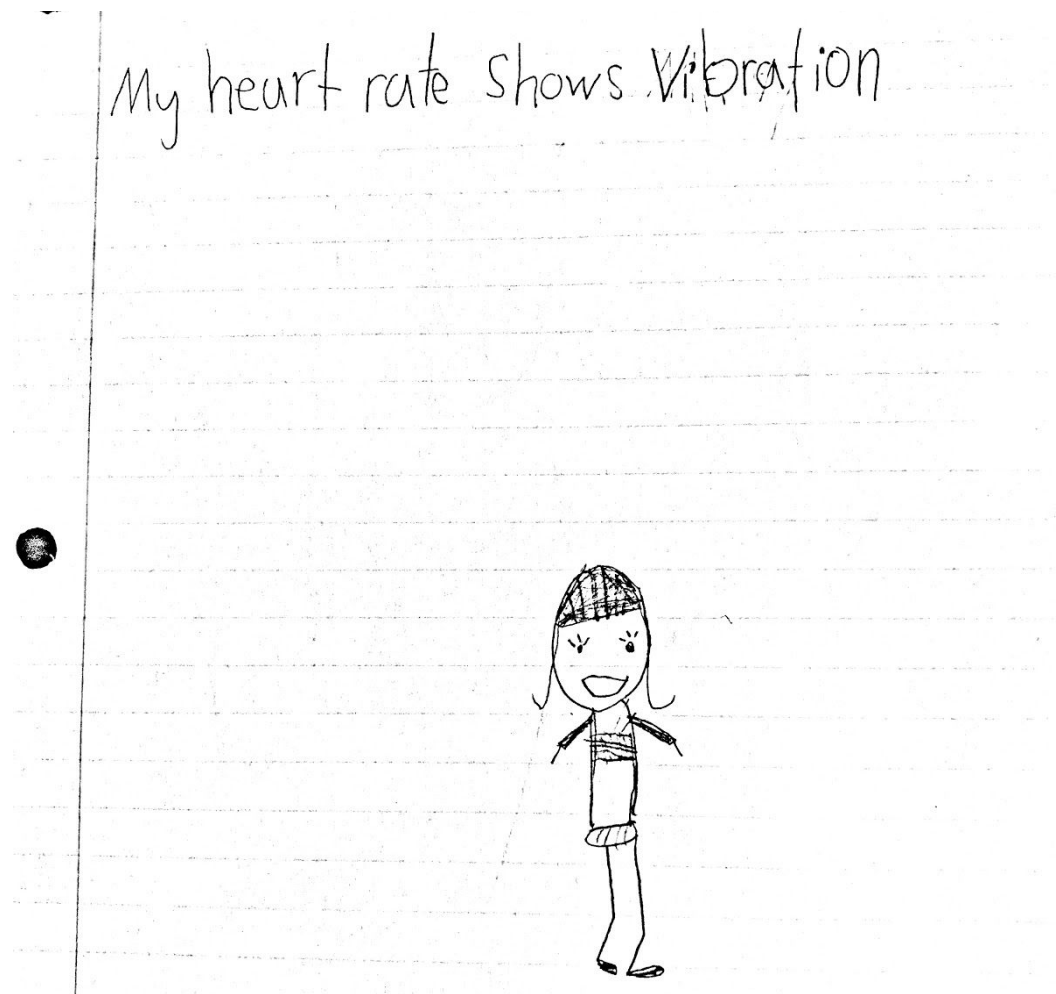


Figure 1. Average student quick write submission.

This student mentioned that their heart rate shows “vibration” though not the most accurate word, it could be understood that the student intends the feeling of blood pumping through their chest, wrist, or neck when they feel their heartbeat or pulse.

The quick write below is a submission that would be considered above average, but not exemplary. This student mentioned that heart rates are an indicator of a strong heart, but lacks the depth of understanding what the heart does for the body to be exemplary.

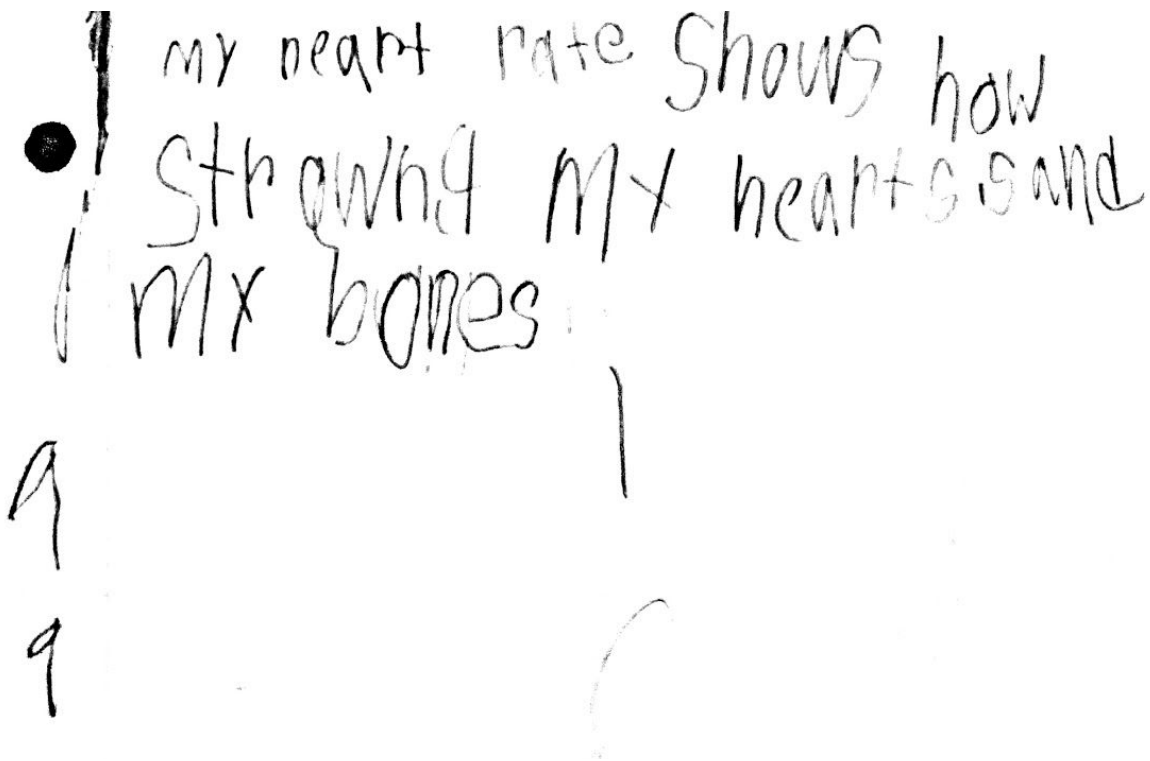


Figure 2. Above average student quick write submission.

While quick writes that were considered exemplary made a detailed observation in addition to meeting the objective standards. Nine submissions were considered to be exemplary quick writes, as seen by the next example:

My heart rate shows
My blood pumps

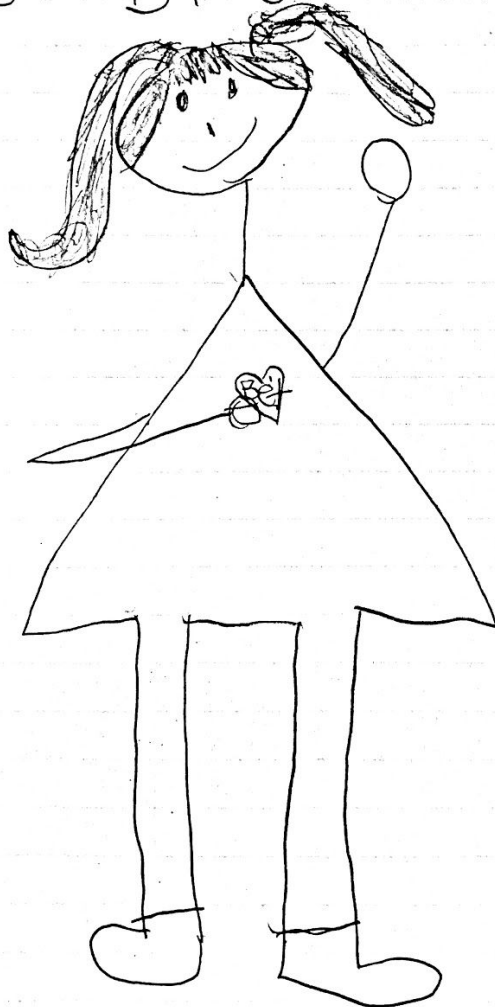


Figure 3. Exemplary quick write student submission.

The student who wrote this made the connection between the fact that the heart rate shows blood pumping throughout the body, which demonstrates a deeper understanding of the cardiovascular system.

Of the 20 submissions, three were unfinished by only writing the sentence starter provided or was illegible as seen below.

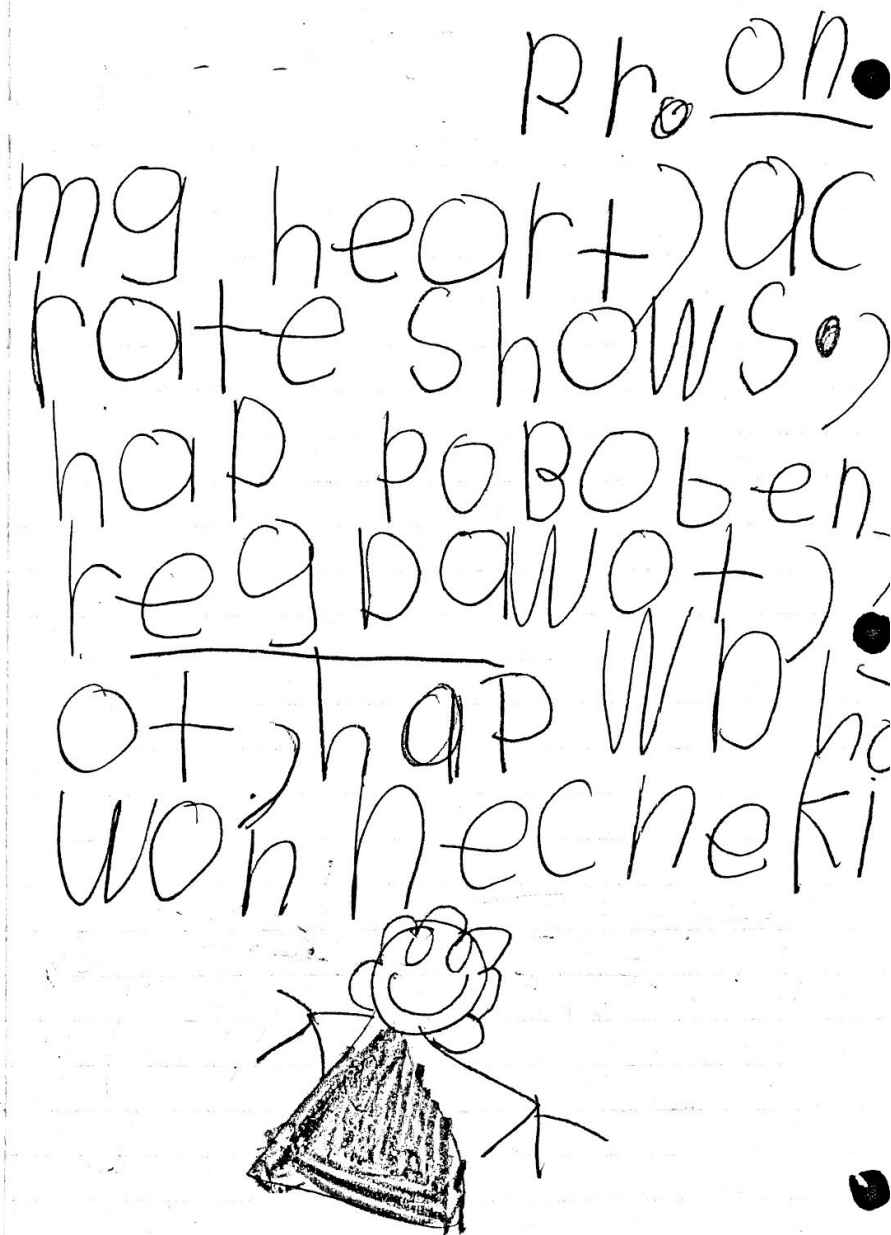


Figure 4. Illegible student quick write submission.

After five minutes of writing, students were told if they finished their sentence they could draw something related to what they have learned today. A majority of students who chose to draw drew people doing physical activity and/or outlined their hearts.

Following the quick write, the instructor asked students of the importance of a healthy heart and what else they would like to learn about the heart and asked students to elaborate on what they have learned so far. Students provided answers similar to the “explain” portion of the lesson. The instructor had intended to have this discussion be longer, but due to time constraints she was not able to ask additional questions to encourage further learning on the topic.

Evaluation

The project has shown itself successful as it was clear the students enjoyed the lesson and were engaged in the integration of physical activity while learning about health related topics. Many students asked when the author would be teaching again, or if they could do another circuit round. As well, students demonstrated engagement through learning as seen by their quick write submissions.

The main challenge of the project was the author not having enough time to get to know students before lesson implementation, this is due to the time constraints of the project. The author worked in the classroom three times before lesson implementation but would have benefited from knowing all the students’ names and personalities to better instruct the lesson. In addition, it was clear that without much instruction per the 5-E lesson plan model, students struggled to find their pulse to count their heart rate. The author asked students what number they counted at the end of the minute and a majority of numbers were not realistic representations of their heart rates. Students also struggled focusing long enough to count their pulse the whole minute, as seen when students would get distracted watching students at other stations.

Reflection

The researcher implemented a Knowledge in Action (KIA) lesson plan in order to determine if it would improve student engagement in health education. The Capstone Project was primarily limited by time constraints, and the researcher suggests that those interested in further research of the project to have at least one full academic year for research and implementation. The researcher plans to do further research on how to improve student engagement in health education while doing research for the Master's degree. It has been found that first grade students are engaged by Knowledge in Action formatted lessons.

Discussion

When KIA has been tested before, students improved by 3% on their post-test evaluation (Hodges, Kulinna, Mars, Lee, 2016). Similar positive results were demonstrated when the researcher implemented a KIA lesson plan and a majority of students met the lesson objective. In both the Capstone Project and other KIA implementation testing, students have shown positive results after the lesson (Hodges, Kulinna, Mars, Lee, 2016; Jarani, Grøntved, Muca, Spahi, Qefalia, Ushtelenca, Kasa, Caporossi, & Gallotta, 2016).

Successes of the project include: student participation in lesson activities, student receptiveness, and a majority of students meeting the lesson objective. A majority of students chose to participate all lesson activities by contributing to discussion, engaging with the circuit activities, and doing a quick write. The students were very receptive to the lesson, many students asked when they would be able to do the circuit activity again or when the researcher would be returning for another lesson. The biggest success of the project was that 16 of the 22 student quick writes were considered to have met the objective. This demonstrates that the lesson had

effectively fostered an environment for students to develop their knowledge on health education, particularly about the cardiovascular system. Overall, it was clear that students were interested in the subject matter and were engaged by lesson plan format.

Challenges for the researcher regarding lesson implementation were preparation time before the lesson, not knowing every student's name very well, and having students too spread out when doing circuit activities outside. The researcher lost some time in being able to prepare for the lesson beforehand because she did not know the location of the materials and the teacher was instructing the class thus was not able to tell them where it was. In addition, the researcher had spent four hours in the classroom to get to know the students of class before the lesson implementation, though this time was not enough to know all of the students names which contributed to the researcher being less effective in instruction. Lastly, the location of the circuit activities were considerably spread out which negatively contributed because the researcher was not able to well monitor the rest of the class while instructing the heart rate activity.

The primary limitations of this project were due to time constraints of different forms. Time was a factor in terms of project deadlines, school breaks, and time required to see results. Deadlines for the project in combination with the community partner's two-week long Spring break contributed to the limitations of the project. In addition, to see measurable health results of the project would require several years by teaching KIA lessons to the same group of students over one to five years.

Recommendation

In result of the time constraints mentioned previously, it is recommended that those who are interested in further research on the subject implement the lesson plan more. The researcher

suggests to either use the same lesson plan with several first-grade classrooms, or to create several lesson plans utilizing KIA methods and teach them throughout the year to the same class. This is so the long-term effects of this method of lesson plan can be measured with a variety of students. More conclusive results on KIA implementation was found with ten implementation and ten control classes, this allowed researchers to compare the effects of KIA against students of the same school without KIA lessons (Hodges, Kulinna, Mars, Lee, 2016) With either long-term KIA curriculum implementation or widespread single-lesson implementation, the researcher suggests at least one full academic year to research, schedule, and implement the lessons to provide enough measurable data to determine whether the KIA strategies are an effective method to improve student engagement in health education.

For further research, it is also recommended that the researcher incorporate some form of pre-assessment for students to determine their knowledge on the health education subject before the lesson. Pre-assessment can be applied to provide more comprehensive data on student engagement and effectiveness on the lesson. Some examples of pre-assessment that can be applied include: physical or content examinations, interviews, or their performance on physical fitness testing (Hopple, Graham 1995; Jarani, Grøntved, Muca, Spahi, Qefalia, Ushtelenca, Kasa, Caporossi, & Gallotta, 2016; Thompson & Hannon, 2013). This will make it clear to determine whether the students learned from the lesson itself and are not applying previous knowledge.

Future Plans

The researcher will be doing graduate research and plans to research further how to better engage students in health education. The researcher is interested in research particularly what methods best engage students in health education, they now have done research that shows KIA

strategies are an effective option. The researcher may re-implement the project for a longer period of time to better determine effectiveness. After graduate school, the researcher plans to begin her teaching career. As a teacher, she will be implementing KIA not only for health education but also for other subjects to develop practical skills for students.

Conclusion

Seventeen percent of children in the United States are obese and those children who are obese now, are more than likely to be obese into adulthood (Faguy, 2016). There is a clear need for health education that better engages students to participate in a healthy lifestyle. Of the three options considered, KIA was chosen for implementation. KIA methodology strategically engages students through topic interest, ability to apply content learned, and skills-based activities (Hodges, Kulinna, Mars & Lee, 2016). The researcher implemented a lesson plan utilizing KIA strategies in order to determine if it would be an effective method to engage students in health education.

After implementation, the lesson was deemed a success as students were very receptive to the lesson, as they actively participated and showed interest in the lesson activities. As well, out of the 20 quick writes that were submitted by students, 16 were considered to have met the objective. This demonstrates the students were engaged in the lesson and able to apply concepts learned from the lesson. The researcher does suggest for future research of the project to do a form of pre and post-assessment to accurately determine lesson impacts on students' understanding. The researcher has determined that the implementation of a Knowledge in Action lesson plan is an effective method to improve first-grade student engagement in health education.

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APPENDICES

APPENDIX A
LESSON PLAN

5-E Lesson Plan: Knowledge in Action - What Is Our Heart Rate?

Total lesson time: approximately 1 hour

Objective: Students will write their heart rate is, noting aspects in its relationship to blood, overall health, or physical performance.

Standards Alignment: California Health Education Standards - 1.2G: Identify anatomical names of major internal and external body parts. 1.3G: Identify a variety of behaviors that promote healthy growth and development.

Differentiated instruction: 3 ways to address learning needs

1. Books provided in different languages
2. Providing books at a variety of reading levels
3. Students will be able to collaborate on their quick write if they choose to

LESSON

Materials Required: Jump ropes (5), hula hoops (5), books about the human heart (5), timer (1), whiteboard (1), whiteboard marker (1), technology to watch a Youtube video, paper and pencils for the whole class.

Engage: (5-10 minutes) Teacher will begin the lesson by introducing themselves to students, questions such as: What happens to your body when you are running? What does it feel like when you're tired from running? What does your body do? What does our heart do, what is its job? The teacher is anticipating to hear answers such as out of breath, feeling heartbeat in chest, sweating, etc, then asking students why do they think certain reactions happen. Then transition to the explore section, the teacher will ask students if they have ever taken their heart rate before, and show a brief overview how to take their heart rate.

Explore: (15 minutes) Teacher will give students materials to explore different forms of active play/health in the form of a circuit or centers. The class of twenty-two students will be separated into 5 groups, these groups are the class's groups they use for centers regularly. Students will receive a short explanation about the activities for each center, materials provided at each circuit, and where to transition to next. Each group of students will spend 1 minute and 30 seconds to 2 minutes at each station then transition to the next in the sequence. These centers will be held outside.

Station 1: students will take their heart rates by placing two fingers on their neck, and having an adult tell them when one minute starts. Then they will report their heart rate to the adult managing the station.

Station 2: Students will have the opportunity to explore playing with jump ropes. Students are encouraged to use the jump rope to their preference whether it is jump roping in groups, double dutch, individually, or anything else that is safe and appropriate.

Station 3: Students will be given hula hoops, and given the same directions as they were for jump ropes. They are able to choose whatever form of activity with the hula hoop they like, as long as it is safe and appropriate.

Station 4: Students will watch a short video titled "[Heart - Thump Thump, Heart Beat](#)" and "[Thumping Heart](#)" ("Thumping Heart", 2018) that is about one minute long. This video will be shared in order to interest students in the heart as well as begin processing different things the heart does.

Station 5: Students will be given several books about the cardiovascular system to explore. The books provided are:

Boing! by Sean Taylor

¿Es Roja Mi Sangre? by Anita Ganeri

My Amazing Body by Pat Thomas

Human Organs by Kristi Lew

Why Do I Run? By Angela Royston

Explain: (5-10 minutes) Students will then come together at the carpet to have a discussion, making conclusions based on their experience during the stations part of the lesson. The teacher will begin the discussion asking “What information does our heart rate show? What is it that we’re feeling when we feel our heart rate? For the groups that took their heart rate first, would you say it was very slow or fast? What about for the groups that did it after using the jump ropes? During this time the teacher will also be using the whiteboard to take notes of student contributions, in order to give them a visual representation of the conversation.

Elaborate: (7-12 minutes) Students move from carpet to their desks at this point. At this time students will engage in a quick write in which they best explain what their heart rate is. They will be able to use words and pictures with labels as well. Students will have 5-10 minutes to do their quick write, and then will transition into the evaluate section of the lesson by sharing out what they wrote.

Evaluate: (5 minutes) The students will continue discussions by sharing what they wrote for their quick writes to the person next to them then to the entire class. The teacher will then ask questions that will encourage students to think into further depth about the cardiovascular

system. For formative assessment the teacher will be guiding the students and their answers throughout the various discussions throughout the lesson. The summative assessment will be the quick write students will turn in to determine whether or not they understand what their heart rate is. Some questions the teacher will ask at the end include: why do you think our heart rate changes? What was something new you discovered today? Can we make our hearts stronger by practice, why should we? The teacher will end the lesson reminding students their heart is a muscle, so it's important to keep it strong! Exercise and being active help keep their heart healthy.

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APPENDIX B
STUDENT QUICK WRITES

• my heart rate shows how
stretched my heart is and
my bones.

9

9

•

9

9

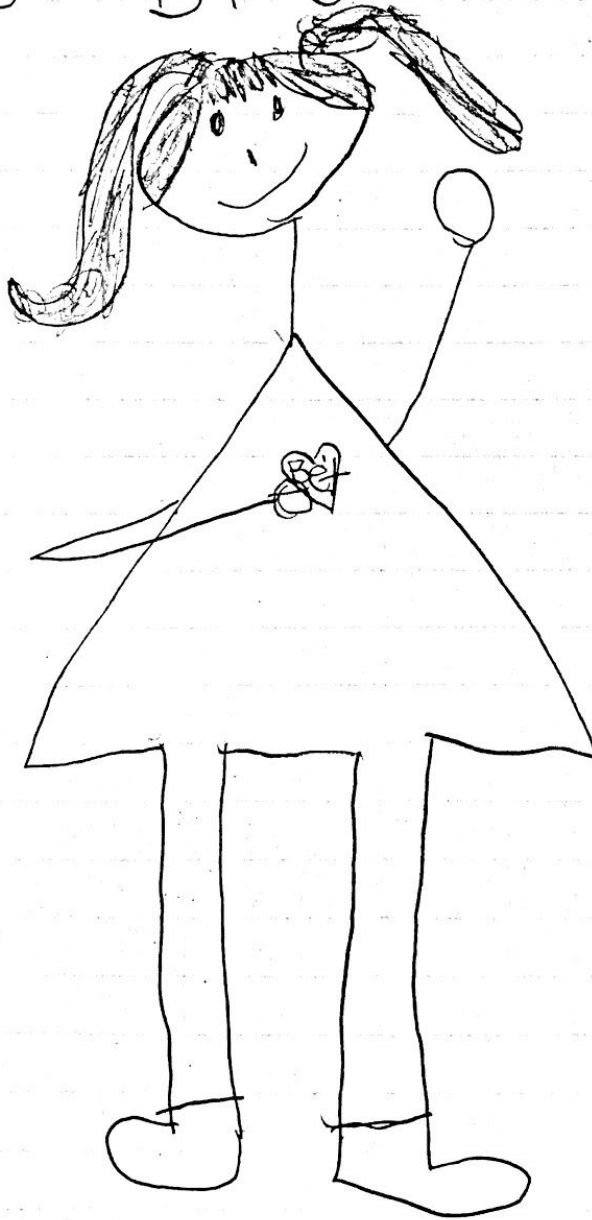
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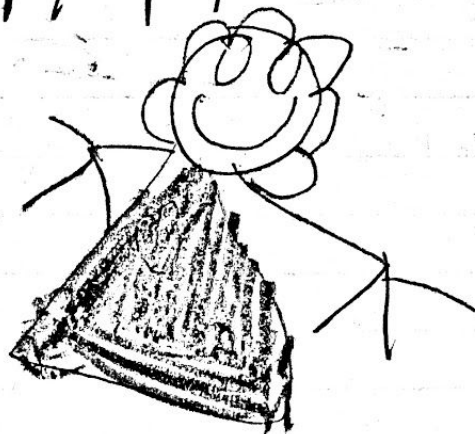
My heart rate shows vibration



My heart rate shows
My blood pumps

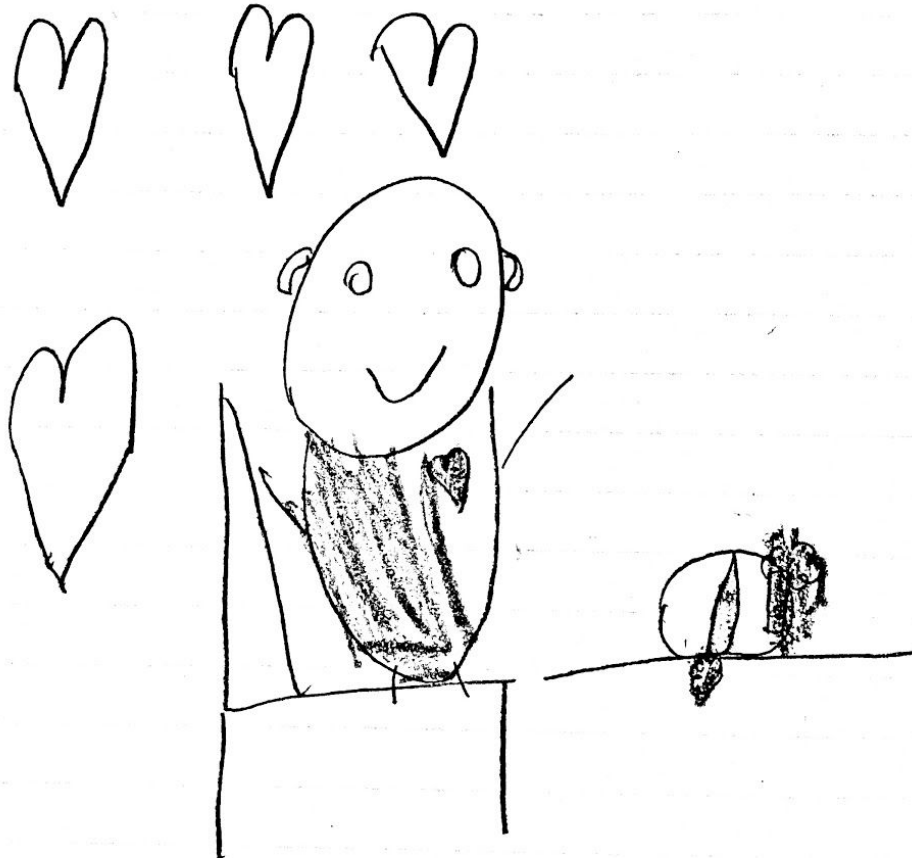


Phon.
my heart) ac
rate shows
hap poboben
reg dawot)
ot hap wlo he
won hecheki

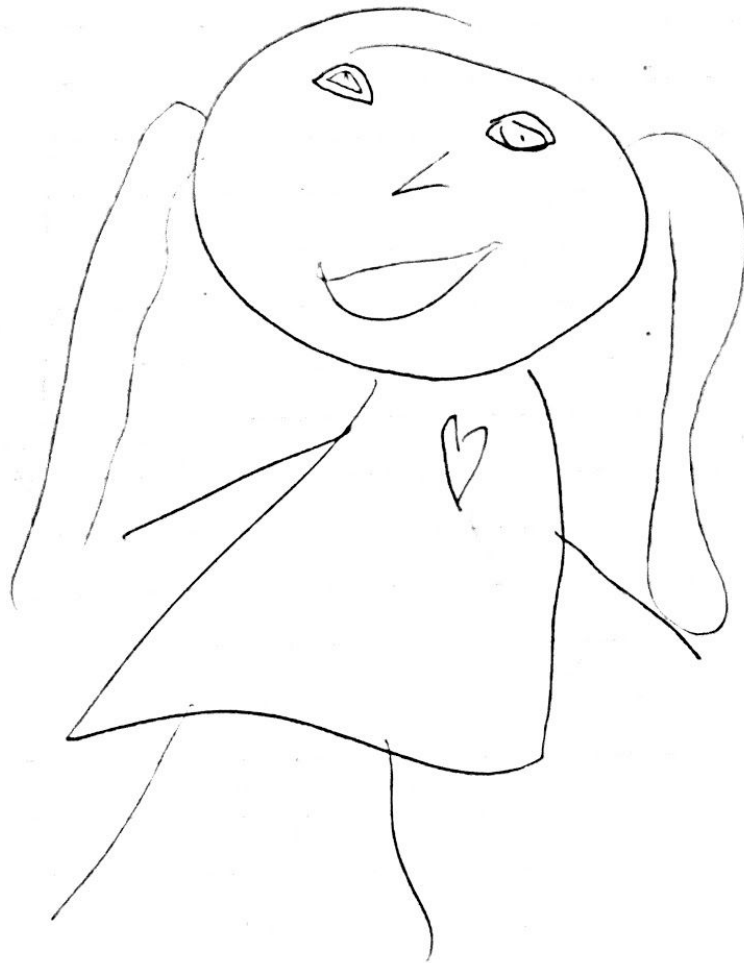


My heart rate shows
that my heart works
hard.

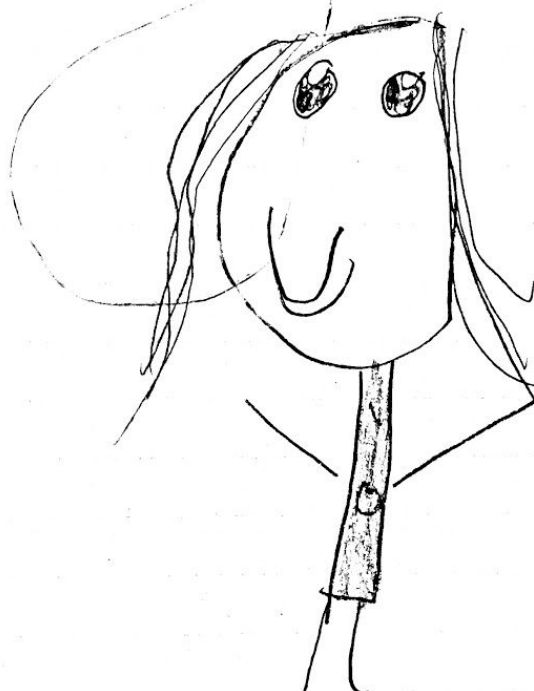
my heart rate shows how healthy I am!



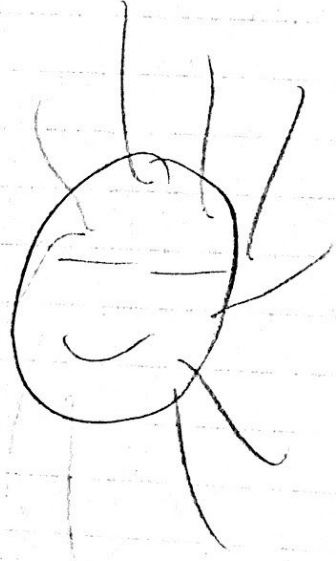
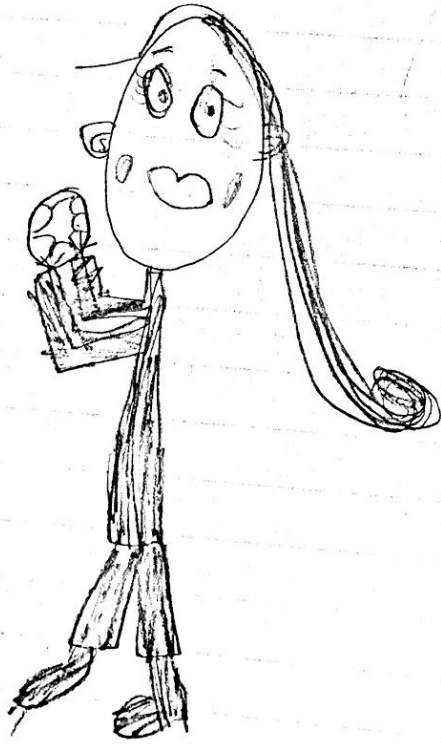
my hearte rate shows
how my hearte rate shows
how my heart is fast



My heart rate shows how much
you run.



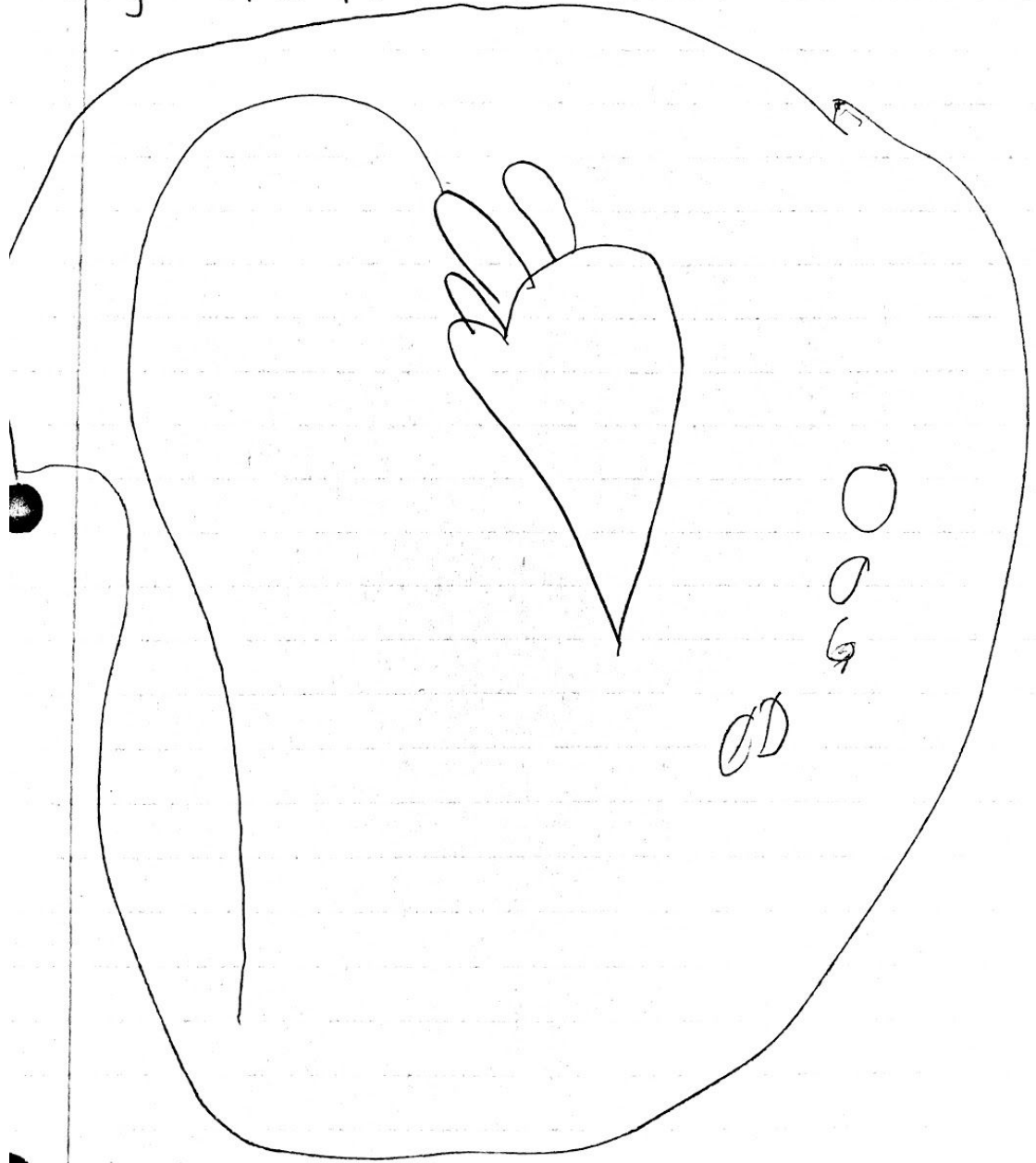
My heart rate shows
jump rope helps are heart!



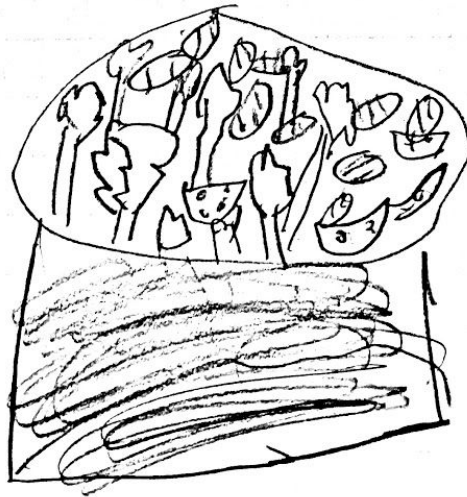
My heart rate shows
if I am working out
enough.



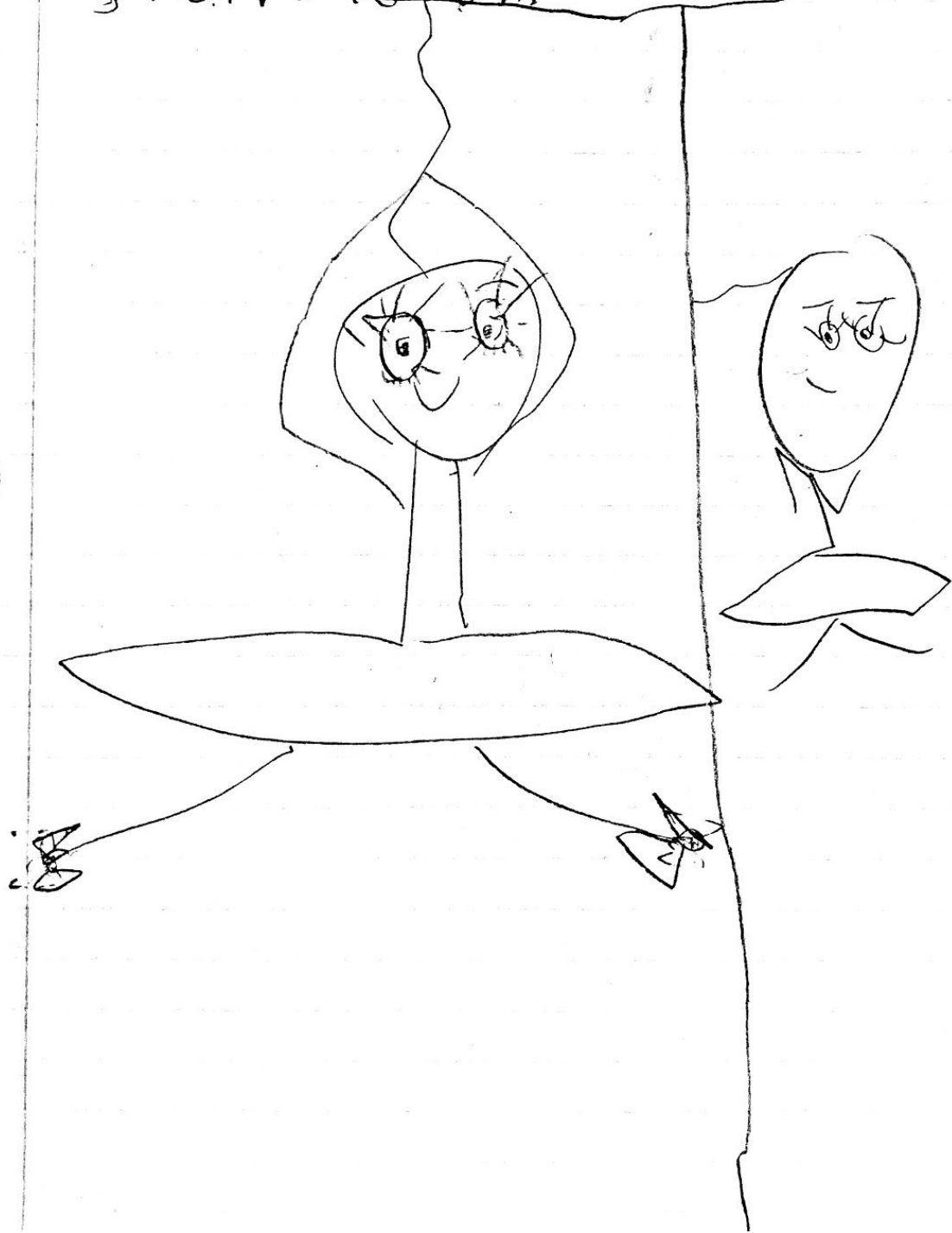
my heart rate shows pums blud through
your vein



my heart my strength
my heart rate shows if I
im exercising my heart can get stronger
and stronger so it can grow.

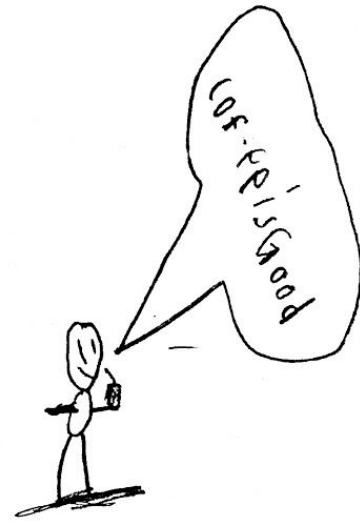


my heart rate
shows to rub



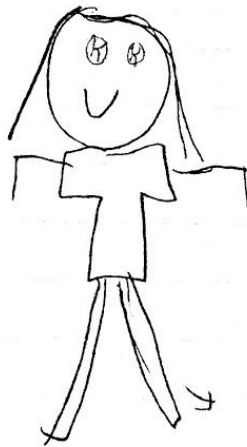
My heart rate shows are bone because
are bone is strong because are bone get
are hands are muscle

my heart rate show
+hati drink coffe. Starbucks



my heart rate show muscle

My heart rate shows that it is getting
Bigger.



My hearing aide
show states of food.
how vibration



My heart rate is



MY HEART RATES DOWN ~~UP~~

