

# DOCUMENTARY-MAKING AS CHALLENGE-BASED LEARNING

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## Abstract

During Term 4 of 2015, 26 ten year-old, Year 5 pupils from Christ Church Grammar School, (CCGS) Western Australia, created a documentary on the World Water Crisis to determine if this would enhance their understanding of environmental sustainability and the importance of global citizenship. Using the challenge based learning model of inquiry, the boys researched, scripted, acted, filmed and edited a 22-minute documentary, which was then premiered to the school community. The goal was to encourage the participants to use a wide range of 21<sup>st</sup> century learning skills throughout the documentary-making process. Environmental sustainability and global citizenship are two topics included in the Australian Year 5 Geography Curriculum. It does not, however address how we, as global citizens, can contribute to ensuring that our world is cared for now and into the future.

The current World Water Crisis is addressed in the United Nations Sustainable Development Goal # 6: *Ensure access to water and sanitation for all*. With Perth being one of the driest inhabited capital cities in the world, it was logical to explore the topic of water scarcity. The boys created the documentary over the course of six full-day workshops. Qualitative data were collected at various stages of the project. The research findings overwhelmingly indicated that the boys' knowledge and understanding of environmental sustainability was enhanced through the creation of the documentary. The finished product was a collaborative effort, reflecting hours of curiosity-driven research, with a clear goal of sharing their efforts to the global community. Data coded into themes from the boys' responses demonstrated a wide range of 21<sup>st</sup> Century learning skills, which were enhanced during the research. Furthermore, the project also reaffirmed how effective learning can be when the boundaries of an everyday classroom routine are replaced, and where *real* learning takes place quite effortlessly. The conclusion of the

project suggests when students are truly engaged with the subject and empowered to learn, they do so.

## **Introduction**

The 2015/2016 IBSC topic, *Boys as Global Citizens* was an exciting and broadly based topic to research, blending many areas of learning in the curriculum. Guided by the the 2015 UN Sustainable Development Goals, I selected the topic of water scarcity as it offered endless opportunities to demonstrate student awareness of global citizenship and the importance of understanding environmental sustainability. At the 2015 IBSC Conference, Dr. Ian McCallum inspired my research question in noting, “*when teachers educate boys on environmental issues, always provide them with hope and confidence to create a solution.*” He expressed concern about the depletion of our world’s resources, but impressed upon the audience that it was up to our future generations to help solve the problem. An outcome of his challenge became my action research question: “***How might the creation of a documentary on the global water crisis enhance Year 5 boys’ understanding of environmental sustainability?***”

The topic of water is relevant to the boys of CCGS as Perth is Australia’s driest major city. Alarming, in the last 15 years, the water run-off into our dams has dropped to one-sixth of what it used to be. Thankfully, through our use of dams, artesian water basins and desalination plants we have access to clean drinking water, but what of developing countries? Considerable research suggests that global warming is contributing to many changes in how water is used on our planet. These local, national and global issues were used as examples of the water challenges around the world to which the boys related and understood.

The World Water Council’s definition of the world water crisis is, “having too little water to satisfy our needs globally and the limited access to clean sanitation in many developing countries.” Environmental sustainability, in broader terms is, “the maintenance of the factors and practices that contribute to the quality of environment on a long-term basis.” This definition was explored by the participants before and after the research to compare and complement their understandings of the topic.

Challenge-based learning, the chosen model of inquiry for the documentary-making is a structured model whereby the students determine the challenges they will research. Students are encouraged to use the Internet and innovative technologies to enable involvement with the wider community for reflection or comment. Their challenge was centred around a “big idea” of global significance to create an artifact completed by a group. Throughout the project, the use of 21<sup>st</sup> century learning skills were employed, confirming Dixon’s (2015) view that these skills are, “increasingly important, both alone and in collaboration with others,” and “learning must be rooted in the refinement of new abilities and skills.” (p.106).

## **Literature Review**

After observing my class of 26, Year 5 boys throughout the first semester of the year it became obvious that I needed to choose a research topic and instructional teaching method to cover a variety of important criteria and for it to be an enjoyable learning experience for all participants. Michael Thompson and Teresa Barker (2008) outline the learning needs of 10 and 11 year-old boys suggesting that, “they are at an exciting age where they define themselves by the things that they love, the things that they do in an active way, and the things that will inspire respect in other boys” (p.194). Furthermore, they describe boys at this age as, “purposeful, proud and persevering” (p.195). The aforementioned statement concurs with my lived experience of how boys respond to the world and how accepting they are to new experiences. Thompson and Barker also comment on the changes in cognitive development in Year 5, stating that, “their knowledge base expands and also their ability to remember things. They know so much about the world that gives them reference points on which they can draw when they encounter new information.” (p.200).

It is for this reason that I chose the global topic of the World Water Crisis. The boys were able to draw upon their local knowledge on this issue, as Perth experienced yet another dry winter, and, hopefully, apply this knowledge on a global level.

For the boys to understand the importance of the issue, Skytt (2004) suggests global education to be, “one investment in the future that schools should consider supporting” (p.37). Curran and

Weatherbee (2014) further suggest that “Global citizenship, a phrase we use to describe the way students interact with the world and the positive impact they make is of the utmost importance” (p.34). For me, teaching the notion of global citizenship to my boys has what Reichert and Hawley (2010) describe as “transitivity.” They advocate that teaching units of work that boys are interested in and can relate to has a transitive factor that, “leads to understanding and mastery” (p.xxi). The next piece in the challenge-based learning puzzle was to choose the best “transitive” teaching and learning method to enhance my boys’ understanding of environmental sustainability by making a world water crisis documentary.

Johnson and Laurence (2009) cite John Dewey (1938) as the first educator to argue that teaching practice should bring students together to work on real problems using real resources. Versions of this idea have been adapted over many years as problem-based learning, project-based learning, and contextual teaching and learning. The capacity of these models to embed transitivity in learning and be very open-ended for 10 year-old boys, appealed to me. Johnson and Laurence (2005) identify challenge-based learning as offering many of the benefits of project-based learning with the emphasis of using technology to implement solutions to a problem or what challenge-based learners call “The Big Idea”. Using one “big idea” or “problem” to investigate, the boys are encouraged to use a wide variety of 21st Century learning skills to present their findings and reflections, not just to the class but to the wider community. Johnson and Laurence (2009) believe that, “a unique feature of challenge-based learning is that problems are tied to an idea of global importance” (p.8). Using the challenge-based learning framework, the project would have a global element, use 21st century learning skills, collaborate and connect with people around the world, while also delivering a “transitive” element to their learning.

Movie-making is nothing new in education, although we now teach in a digital age that enables young students to create something quite remarkable using an iPad and a suite of Apple applications. The decision to choose documentary-making as the vehicle to drive this action research project came to me after observing the ease with which my Year 5 boys could create an iMovie in the space of a 50-minute period. Making a documentary together as a whole class

would be a task that I hoped would appeal to their creative and inquisitive minds. Rosalind Cooper (2009) completed an action research project on Critical Documentary Making and found it to be a, “pedagogically rich classroom activity” (p.94.) Furthermore, Cooper (2009) observed collaborative learning and peer tutoring, improved self-esteem and increased awareness of active citizenship, while also catering for alternative learning styles and creativity. This article gave me the confidence to launch into the world of documentary-making using the challenge-based learning framework.

The Global Water Crisis is real and according to the 2015 Millennium Development Goals Report for 2015, “Water scarcity affects more than 40% of the global population and is projected to rise” (p.55). Water scarcity affects every continent. Manzoor (2011) believes that the “water crisis is a serious human issue that exists when supply of water is less than demand” (p. 34.) He highlights the many causes of water scarcity and also the importance of groundwater supplies. Not surprisingly, there is a direct correlation between poverty and countries where clean water is hard to find. A salient point made by Manzoor is that, “two-thirds of the world population will face serious problems from the shortage of drinking water by 2025” (p.41). This shortage will have a huge impact on our food security as 70% of all potable water usage is for agricultural purposes. While Perth is desalinating our sea water at great financial cost, poor countries in Africa and Asia are the major victims of the world water crisis. It was interesting to read Manzoor’s solutions to the water crisis and how we all can contribute towards reducing water scarcity by our actions both locally and globally. These recommendations on how to stop or slow down water scarcity on our planet were included in the documentary.

Stringer (2007), in an introduction to action research, outlines the necessary research tools, and also how to approach an inquiry. Using a systematic process described as the “action research spiral” (p.69) the three important and distinct stages of “planning”, “implementing” and “evaluating” encouraged me to chose the methodology as it allowed me to participate in the research in a hands-on way, rather than being purely an observer (Stringer, 2014). It also helped me to adapt strategies, change and re-direct where necessary, to ensure that the research question was being answered through the challenge-based learning framework. Imperative to the research

process, were the steps involved in the designing, data collection, analysing, formulating solutions and reporting processes. Throughout the project, I discussed with the boys the action research spiral and how their project was also mirroring the work I was doing. The boys were interested in collecting their own data after the premiere of their documentary, to measure how their work impacted on the viewer's understanding of the World Water Crisis. The process of my unfolding action research empowered both me as the educator and also the boys.

## **Research Context**

Christ Church Grammar School is an Independent Anglican day and boarding school for boys from Pre-Primary to Year 12. The school is non-selective and is located in Claremont, a high socio-economic suburb of Perth, Western Australia. Christ Church was established in 1910 and is situated on the Swan River.

Christ Church Grammar School's mission statement of; "*Boys educated to know, to do, to live with others and to be*" encapsulates what the school values most in terms of how boys learn. All facets of teaching and learning at CCGS are centred around this mission statement, which is then taught through the CCGS Phases of Learning. The Year 5 and 6 Phase of Learning is "Enquiry with Initiative" where the learning becomes more inquiry-based with the boys' taking greater responsibility and ownership for their own learning, thus demonstrating initiative.

The project consisted of my class of 26 Year 5 boys all of whom are 10 years of age. I chose this group because:

- I would have daily contact with the participants and could introduce the action easily in timetabled class time
- The participants had completed a camp prior to the research that covered much of the content related to environmental sustainability, thus providing them with a solid knowledge base before the action research could be implemented

- The research question would allow me to trial challenge-based learning, which involves inquiry and collaboration using 21st century skills.

All 26 boys participated in the action research with written permission granted from their parents/guardians. Anonymity was maintained throughout the action research with the boys being referred to as ‘the participants’ during the data collection process. No reference was made to any individual throughout the filming of the documentary.

## **The Action**

The action research commenced in Term 3 2015 with a three-hour weekend workshop. During this time the boys split into groups and discussed the topics to be covered in the documentary. The filming environment was ideal as they had the entire campus to roam and create. Their scenes were shared through a Google Drive folder for the group to view and discuss. It was necessary to re-direct their enthusiasm at times to keep the content within the topic. Resource materials, books and websites were available to them to ensure they had correct information. The workshop was then shared with the class on the following Monday, with scenes discussed and ordered into chapters of content. Each boy had a role of either actor, editor, garage-band creator, script-writer, researcher or audio recorder. Two additional Saturday workshops followed, with boys attending before or after winter sport commitments. Editing the documentary was the biggest challenge of the project as it was time-consuming and involved fewer participants. A tight-knit team of four boys worked tirelessly to join the movie together and layer sound and voice recording to the scenes. The end result was a high quality documentary on the World Water Crisis that was premiered to the school community. A questionnaire given to audience members provided the boys with feedback on their documentary. The screening was a success and the feedback was highly positive.

## **Data Collection**

Qualitative data were used throughout the action research as they provided greater flexibility to investigate and explore the research question. My research focused on how the boys could

demonstrate their understanding of a major environmental issue in the form of a documentary. This involved combining a range of qualitative research strategies to analyse the research question that Stringer (2007) describes as the “look” phase (p. 101) of data collection.

The data collection did not take place until the boys were immersed in the content and information relevant to the World Water Crisis. They were shown examples of documentaries and then performed an assembly item to the Preparatory School on the water crisis theme. This gave the boys a starting point to generate discussion and form ideas of how they could create their own documentary. From there, the boys were asked to complete a Google Forms survey, which asked them to provide definitions, understandings, thoughts and ideas related to the World Water Crisis. The important topic of environmental sustainability was also explicitly surveyed as this understanding was fundamental to the research question. A similar survey at the end of the research measured how the project enhanced their understanding.

Throughout the research, the boys were given access to their own Water Blog site using a password connected to their *Google Drive* account. It was used to record their ideas, knowledge, feelings and frustrations during the process of making the documentary. They also used this site to post attribute-free images, personal photos and video recordings to be shared and used with the class. This enabled file sharing and collaborative group work, while also making the process easier for editing. It provided me with rich data that could be used and coded later in the next stage of the research spiral. I found the Water Blog to be the most valuable form of data collection as the participants were honest in their responses as only I had access to their site. Anecdotal notes were also written in my own Water Blog to record ideas and observations made during the workshops.

The boys’ ideas and concerns were also voice recorded at important stages of the research; the eight participants having attended all three of the weekend workshops. While the participants filmed their documentary scenes, I also filmed the participants and took photographs to observe how they were responding to the workshops. As the facilitator of the research, this was important, as the class needed structure and re-direction at various stages.



## **Data Analysis**

The qualitative data collected at various stages of the project were analysed by comparing the surveys, interview transcripts and blog postings both prior to the research and at its completion. This enabled me to analyse the extent to which the boys developed an awareness of the broader issues relating to the World Water Crisis and their understanding of environmental sustainability.

The analysis began with reading and reviewing all of the aforementioned data. They were then classified and coded into emerging themes, unitizing the information. Triangulation of data combined these research methods to establish reliability and validity of these themes. The importance of collecting a range of qualitative data cannot be understated, as each strategy contributed to the “units of meaning” (Stringer 2014, p.101) to be categorised. The emerging phenomena were then placed into categories and sub-categories using “cover terms” (after Spradley, p.104) to describe the information in each. The coding provided a framework of concepts which then guided me further into the research from the “look” to the “think” phase of the action research spiral.

## **Discussion of Results.**

After combining and analysing the qualitative data, five key themes emerged as a result of my action research. By creating a documentary on the World Water Crisis, the boys’ understanding of environmental sustainability was enhanced, while also tapping into other positive learning outcomes throughout the process:

1. Increased knowledge and empathy for global and environmental issues
2. Positive attitude to Challenge-based learning
3. Learning engagement through creativity and collaboration
4. Improved digital literacy
5. Attainment of 21<sup>st</sup> century learning skills

### *1. Increased knowledge of global and environmental issues*

Prior to the intervention, the boys' understanding of environmental sustainability and global citizenship was limited to personal experience and the work we had undertaken from the Earthkeeper Camp in Term 1. This provided them with a solid foundation of some issues related to the environment, but not on a global level. Responses from the pre-action research questionnaire revealed that only 8 of the 26 participants could define key words such as "environmental sustainability" and "global citizenship," with Boy M stating, "I didn't even know that there was a World Water Crisis happening right now," and Boy P admitting, "There is a lot of bad stuff happening to our environment but not here in Perth." During the intervention, I observed that the boys were becoming more sophisticated in their understanding of global environmental issues, both in their written and oral communication. This was evident by observing how well the script writing team worked together to tease out the structure of the documentary with 18 of 26 participants providing an idea that made the final cut.

I facilitated the boys' acquisition of knowledge by providing them guest speakers to give them another perspective using 'real world' examples. A local hydrologist explained the important role that water plays in the environment and why it must be carefully managed. Boy C, "liked the way that Mr H has visited so many countries that have water quality issues," and Boy F suggested that, "we should include some photos of him talking to us for the doco in a section about how we can fix the crisis". After inviting a retired S.A.S soldier with 25 years of combat experience to speak to the class, the response was overwhelmingly positive with most participants expressing that it was their favourite 90 minutes of the year. Boy F reflected on the experience stating, "his stories of collecting water to survive are similar to how some African people live every day."

As their knowledge and understanding of these issues increased, so did their yearning to find out more answers as to why there is a World Water Crisis. The floodgates opened and, before they knew it, the documentary grew from 5 minutes to 22 minutes, as each time an image was sourced, a piece of script had to be written to accompany it. Boy C from the editing team wrote

in his water blog, “I feel like I have travelled around the world on my iPad,” and Boy D stating to the class during a reflection lesson, “I’ve learnt so much without realising that I’m working”. Reichert and Hawley (2009) refer this outcome of effective learning as “*transitive*” (p xxi) whereby the boys have understood content and theory through mastery. The act of documentary-making carried a “*transitive* factor” that was especially effective with boys.

The most accurate measure of their understanding of global environmental issues was evident in the post-documentary questionnaire, with 25 of 26 participants clearly able to articulate facts and details about the World Water Crisis and their solutions to the problem. I particularly liked Boy J’s definition of a global citizen; “A global citizen is a human that is special for loving and caring about the earth. Global citizenship is having an understanding about everything in the world and trying to fix all of the Earth’s problems to help mankind stay for longer. Global citizens are the best type of humans.”

The boys’ knowledge of global and environmental issues was broadened throughout the documentary-making process, with some topics demonstrating a very mature outlook for 10 year-old boys. Empathy towards others in the world was demonstrated often in class during planning meetings. They dedicated a chapter on the role of women in third world countries being disadvantaged due to the gender-role attached to collecting water. Young girls in African countries often do not have the same education due to the time taken away from schooling. Boy C expressed his anger to me in an interview stating, “To think that a girl isn’t educated because she has to collect water is sad.” This led to further discussions about how lucky we are to live where we do and how Perth has water due to desalination even though we are one of the driest inhabited capital cities in the world.

While the key focus of this project was on Global Citizenship, there were other pleasing outcomes from my action research:

## 2. *Positive attitude to challenge-based learning*

Once the intervention started on the first Saturday workshop, I observed the boys' attitudes to the project shift from passive learners to active learners. Using the challenge-based learning open inquiry model, the boys' mindset on how to learn changed. Reichert and Hawley (2009) advocate that open inquiry is an "effective methodology for teaching boys as it gives them 'energising' autonomy and self confidence." (p. 70). Furthermore, Reichert and Hawley also state that, "vigorous creation of products was especially effective with boys." (p. 12.) The anecdotal dialogue recorded during these workshops demonstrated to me a positive attitude to challenge-based learning. When asked if the participants would like to take part in a similar challenge-based learning project in the future, 22 of the 26 participants agreed with Boy E stating, "I like learning interesting topics over a long period of time." The task of creating a product was important to them as they were motivated by the feedback from the viewing audience on a local and global level.

## 3. *Learning engagement through creativity and collaboration*

A high level of motivated engagement was apparent throughout most of the stages of the project. The boys were required to think creatively to produce a finished product that would ultimately educate and inspire others about the World Water Crisis. Most importantly, their understanding of environmental sustainability and global citizenship was enhanced due to the documentary-making process.

Another interesting phenomenon I noticed during the intervention was that the learning went beyond the classroom. The boys were immersed in the topic to the point that scenes were filmed out of school hours and without prompting. Dixon, (2015) describes this as '*discretionary effort*'. This is when we do things that we are not required to do and controlled completely by the individual. Boys collaborated on their ideas by meeting up at various points in their own time to shoot scenes such as the local shopping centre, river or beach. '*Discretionary effort*' was happening without their knowledge, but with a positive outcome.

#### *4. Improved digital literacy*

The success of the action research was due to the fact that all boys had an iPad, iPhone or MacBook Pro computer, thus making it easy to access data. Challenge-based learning relied on the use of these *tools* and easy-to-use software to enhance digital literacy, while also becoming a learning tool to achieve an end goal. Most of the boys had a good working knowledge of how to use the products, but having a purpose to push their skills further to try new applications of the software, such as the green screen, was important. Their digital literacy improved due to the project and this was evident in the final product.

#### *5. Attainment of 21<sup>st</sup> Century learning skills*

Our school is always encouraging teachers to seek teaching and learning opportunities that enhance 21<sup>st</sup> century learning skills. I purposefully chose challenge-based learning for this research to see if it delivered the slew of skills this kind of teaching advocates. The evidence confirms that the boys were engaged in the topic and had enough knowledge and confidence to create a documentary on the World Water Crisis. The action research was a success due to the range of 21<sup>st</sup> century learning skills that were enhanced or employed during the learning process. These skills would be less likely to be achieved if traditional teaching methods were used.

### **Conclusion**

The boys' understanding of global environmental issues was enhanced by creating the documentary. Together they made an amazing product that can be viewed by anyone in the world who has access to a computer. Connecting class work to the real world gave them a focus and an understanding that environmental sustainability is both a local and global issue. The flow-on effect of this action research from the participants continued to grow with many of the boys arriving at my doorstep with newspaper articles and water facts that could be edited and included into the final cut. They emailed me (and each other) website links, articles and images that related to the topic and also engaged in rich discussions on climate change and water-related environmental issues. Reichert and Hawley (2009) describe boys as relational learners. "They

can be touched by lessons that appeal to their social conscience and moral responsibility, revealing their strong connections to their communities and the world in general” (p. 198).

### ***Implications for Future Practice***

As a result of the success of this research and the positive outcome the boys had from taking part in it, I would most certainly undertake another challenge-based learning project. My research will inform the CCGS staff using my example of how challenge-based learning works in a classroom, and I will encourage my colleagues to plan and trial at least one topic in their classroom. Explanations of how topics of environmental significance can be integrated into an existing program in any year level will be part of a presentation to staff.

### **Reflection Statement**

The process of action research encouraged me to try something new and different in the classroom. My Team Advisor - Bruce Collins encouraged me find a project that would challenge my abilities rather than falling back into my ‘safe zone’. Reflecting on his own project confirmed he was still passionate about it and enjoyed speaking with others about *his* journey. I now feel very much the same way as considerable time, reading and reflecting is absorbed into making it work. Bruce is a brilliant educator who has guided me throughout the process all the way from Pretoria! Finally, I would like to thank Garth Wynne - the former Headmaster at Christ Church Grammar School, for supporting my initial application and also Maria Hodges, my action research mentor, for her invaluable feedback and encouragement.

I am incredibly proud of my class of Year 5 boys as they were given a very tough challenge which involved their weekends and much of their spare time before and after school. Their finished project is superb and represents the depth of understanding these boys gained when connected with a topic. As a consequence, I also noticed that the project bonded the group in many ways. They were proud to be documentary-makers and became walking advocates for the global goals. I questioned my sanity many times when the project was expanding along with their never-ending script. There were many hurdles during the project but we were determined to

complete the documentary by the set premiere date. As a result, the documentary has now been sent to the Western Australian Minister for Water and the CEO of Global Goals Australia who were both equally impressed. The boys worked together to show how we can all be global citizens by caring for our environment. At the IBSC Conference last year, Archbishop Desmond Tutu articulated this thought beautifully with his concluding statement; “Dream boys, dream that our world will be a better place. Be idealistic. Go on boys, ...dream.” I agree with Desmond.

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