

Case Study E: You know more after going on a visit

Social sciences

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Introduction

The LEOTC provider is a catalyst for extra information and personal insight. [Linda, teacher]

This case study is based on a Year 7 and 8 class visit to a museum. The visit was part of a three-day camp in a town several hundred kilometres from the school. Linda, the teacher, and Robyn, the education officer had corresponded and spoken to each other about possible outcomes before the visit, and they met for the first time when Linda brought her students to the museum. The case study explores the involvement of the class before, during and after their museum visit. It focuses on the idea that museum visits contribute to enhancing students' learning of specific knowledge. Although all the students had visited museums before, for 16 of the 19 students, this was their first class visit to a museum and their first to this particular museum. Two of the students had previously visited this museum with another class from another school.

The class of 19 was from a state, co-educational, Year 1–8 country school with a roll of 78 and a decile rating of 5. Linda was a Scale A teacher with a Diploma in Teaching and a Bachelor of Education. She had taught for 18 years across class levels Years 3–8. Of the students in this class, 10 were girls and nine boys. Seven students were identified as Māori, one as Welsh and 11 as Pakeha New Zealanders. At the time of the research the students were 11 and 12 years old. Linda described her class as a mixed-ability class.

Before the visit

Teacher views and planning

Goals and rationale

Though Linda had previously taken students on school camps, this was the first time she had used an LEOTC museum visit as part of an activities programme. She explained:

This time we're going to a whole lot of different venues away from the campsite where we're actually staying and so therefore we're trying to put more of an educational focus on to the camp. It's not just the outdoor activities. You know sometimes when you go to camp it's just for the experience of being away from home and doing that obstacle course and that orienteering course and that bush walk, whereas this is a little bit different. We're little country kids going off into a town that can offer us quite a few different experiences.

Linda had defined some overall goals for the visit. The children would encounter experiences outside their home environment, and their general knowledge would improve:

It's going to give the students experiences outside their little intimate home environment. I mean some of these kids, the biggest thing they do is go shopping at X (a nearby shopping centre). They don't have a lot of general knowledge. It is really poor and for some of these kids they'll now be able to locate Y (the museum town) on a map. They'll have some really good general information and some pictorial images in their heads of what Y is all about. It's going so that they broaden their general knowledge if for nothing else.

She had also defined more specific learning goals, especially those related to learning about earthquakes, and the effects they have on people's lives:

I want them to be able to describe what's happened to the physical environment in terms of like the countryside but also the buildings and the streets. I want them to be able to know what the repercussions of a civil emergency are. It's not just the tumbling down of the buildings but it's going to be the loss of clean drinking water or water full stop. It's going to be loss of electricity. It's going to be the loss of perhaps outside agencies being able to come to their rescue for some time because roads are damaged and slips have caused the roads to become impassable. I want them to basically know what the repercussions are right across the board, emotionally for people, for families, loss of loved ones, the terror involved in wanting to know where your mum was because you knew she was up at the hospital and the hospital has collapsed.

However, it was not just learning about the past that was important. Linda also wanted the students to be able to apply the lessons learned to their own lives, so that they would be better prepared for a similar event:

Yeah, but I want them to also then take that knowledge and maybe consider what we can do in the way of preparation for an earthquake in our own environment. What are the things that are going to happen when an earthquake happens and what can we do to make ourselves safer?

She identified the curriculum areas that she would be targeting which included social studies, visual arts, science and English:

We are going to be looking at social studies in terms of how the past has influenced the present and the art deco part is going to end up being a visual arts focus. With the earthquake it will be a science focus, you know, how the tectonic plates work, that sort of aspect of it. Also with English I want them to be able to take all that information and be able to write a narrative as if they were living in Town Y at the time of the earthquake. And therefore, to do that well they're going to have to have that breadth of knowledge to be able to make it realistic.

Although Linda targeted a number of curriculum areas, she was clear about her objectives:

I want them to know specifically about this earthquake and how it impacted on that town, because it had huge social and physical implications.

Although other programmes were offered at the museum Linda chose the earthquake programme because she thought that it was a motivating topic, and that by visiting the museum the students would see first-hand the effects of the disaster:

I think it will be neat that they're actually going to visit the town where we will be studying, you know, what actually occurred here. I think that will be amazing rather than just learning about it in isolation from 500 kilometres away. The actual topic itself is very motivating. 'Disaster' - it lends itself to all sorts of things, doesn't it, you know. There's the drama and the tragedy and heroic rescue attempts and the personal stories and even just the physical environment.

Role of education officer

Linda spoke about the purpose of her preparation activities, and the role of the education officer. The education officer was viewed as a person with specialist skills and knowledge, and as someone who would build on Linda's 'before' classroom experiences:

Well, in a way the discussion this afternoon and any discussion in reading we do in the next two days are going to be the initial catalysts. The EO will reinforce that. I think she'll also be a catalyst and I think she'll be the detail person. She will hopefully provide lots of extra information that's not generally available to us in publications and videos and what have you, and then, yeah, and I'm hoping that she'll give us a lot more personal insights from it as well.

Moreover, Linda expected that the detail and insights provided by the visit and the education officer would have a significant impact on the students' learning:

Because hopefully, we'll see lots of pictures and artefacts and hear stories and you know of the things that occurred, more so than what I can. The artefacts and the pictures are just going to put a reality on it. It's going to, you know, if you see these broken photographs of a lovely portrait, family portrait, or seeing images of buildings that are no longer in existence and have been replaced by other things. I think that that will have a big impact you know.

Teacher preparation

As preparation for the visit, Linda had gathered resources for the students, researched the history and effects of the earthquake on town Y, researched earthquakes in general and spoken with Robyn, the education officer:

I've planned the lessons that I wish to take. Well I planned the whole unit actually.

Her unit plan included identifying the achievement objectives and learning outcomes. Because of the complexities involved with planning across more than one curriculum area, she had examined all of the appropriate documents:

It's made me look at the documents because it's got to be educationally purposeful. It's not just a fun thing.

Her liaison role with Robyn and her personal research were important aspects in her preparation:

I have spoken to Robyn and that's given me a better understanding of the topic myself. I've also read up about it, so I know more.

Her planning included pre-visit activities for the students. Her comments indicate the importance she placed on her role to ensure that the students gain maximum benefit from LEOTC:

We're going to discuss what exactly a disaster is, so they can define what a disaster is. I'm going to ask them to see if they can list as many disasters that they know of, past and present. I want them to be able to differentiate between a manmade and a natural disaster, and then perhaps list different types of those. I want them to be able to determine who helps in a disaster and I want them to use that knowledge to plan how we can prepare for a disaster and what actually happens during an earthquake.

Teacher expectations

Linda had anticipated some of the activities that the students would be engaged with at the museum, based on her discussions with Robyn:

She'll greet us and we'll go into the educational classroom that they've got there and she will talk to the students initially for however long. Then I think from my understanding they have actually got a task sheet to help the students go around and find the answers in the museum. It's sort of follow-up work based on what she's been talking to them about.

However, she was not going to take a lesson on how to behave in the museum. Instead she would talk with the students about ways to behave inside the museum before going inside:

You know, things like you can talk quietly amongst yourselves and there'll be no running around being silly, no one leaves the area. I'd go through all of that certainly.

Linda expected that the students would be interacting with each other while in the museum, as this would enhance their learning experiences. She expected that students would behave differently from each other, due to their individual differences:

There'll be interaction like 'oh look at that, look at that', because kids will see different things. Some will stop, like I know for example that Sarah will stop and read all the information but I know there are other boys will have a quick glance at the artefacts and off they'll go. There will be students who will pull a hell of a lot more out of than others will, and that's the nature of the child and that's the nature of learning, isn't it?

She thought that the students would learn new knowledge, and that this was one of the indications that would inform her about the worth of the visit:

I'm hoping that they'll bring back and reflect in their writing a whole wealth of knowledge that they didn't have beforehand. What we're doing today is going to be almost like their 'before' views, isn't it? It would be very interesting to then do charts after we've returned to the classroom, you know. What do you know about the Y earthquake now? What do we know about, you know, disasters in general now? What do we know about how an earthquake actually occurs? What's happening under the earth's surface? You know, all that sort of thing.

Linda also thought that the students would learn new skills about how to gain information from reading a photograph, or examining artefacts and other visuals. She was also hoping that the students' attitudes would change as a result of involvement with the exhibition:

I'd like to hope that their attitudes would become quite empathetic, you know. I don't want them to be unresponsive. I want them to realise that it was completely out of those people's control.

Teacher roles

Linda spoke about her role before taking the students to the museum, which was mostly related to building foundations for their museum learning. This would help to ensure that the museum experience was richer and more in-depth:

It's mostly to prime them up. It's to give them some understanding to build on. It's basically to provide them with the skeleton and the scaffolding. It's the scaffolding to hang extra information on. If they go in cold I don't think they're going to pick up as much as if they had got something, some scaffolding in place, because it will be like a jigsaw puzzle. I'm providing them with the key bits and then they're going to get all the little bits that will fill it in and make the complete picture.

Whilst at the museum, she thought that she would be taking multiple roles, including gaining more personal knowledge to use afterwards in the classroom. She would guide the students through the visit, directing and supporting their learning. She would also interact with them and listen to them, so as to gain an understanding of their learning, so that she could build on that back in class:

I would imagine that I would be picking up on knowledge myself, so that I can supplement it and use it with the kids when we come back to class. I'd probably even take notes I would imagine. I will then be wandering around with the kids, pointing out things that I think are of interest, sharing what I've seen, hearing what other students have got to share with me. Yeah, just being there with them and experiencing the same things that they are, so I've got a really good understanding to help them when we come back to class. Definitely wanting to guide them into looking at certain things if I think that it's going to be valuable for them.

After the visit she was going to support and guide the students' learning, remind them of specific facts and activities, and help them to build on the museum experience:

I'll help them make connections. Remember when we saw this. Well what about that? Can you remember that one? I have to be there to do that and be of any use afterwards.

Student views

Four students were interviewed in one group before the visit. Roger (12 years) and Dean (11 years) were Year 8 students; Nikki and Lily were both 11 years old and in Year 7. None had visited a museum with a class before, but all had visited museums with family. At the time of the interview they had just begun the first lesson in their unit on disasters, so they had few specific details to offer related to this particular museum visit. However, they had formed general impressions about museum visits and the contribution they could make to their learning.

Views of museums

The students had fairly traditional ideas about what they might see at the museum. All thought that museums were about history and the past, and that they contained artefacts from historic times:

Pictures and old stuff. Maybe things found under the rubble. (Dean)

Historic things, you know like dinosaurs.

They could have old and new stuff. (Nikki)

Three students thought that they would be mostly walking around viewing the exhibits. Their involvement could include some writing and drawing. For example: 'Just walking around' (Roger), 'Looking' (Nikki), and 'Drawing, to remember what you've seen' (Dean). Lily had a less traditional view of museums, thinking that visitors to the museum might be involved in interactive activities:

It might be a 'doing' museum, where you can touch. Yea, it could be interactive. (Lily)

Preparation

To get ready for the visit, the children had prepared by learning about earthquakes in general, and they were just beginning to explore the earthquake that had occurred in the town they were to visit on camp. They thought that it was important to get ready, as ‘Then you will know more when you go’ (Lily). They were unsure of the details about what they were going to learn at the museum, although they all thought it was something to do with disasters, and that their learning would be helped because of the things they would see.

People helping them to get ready included their teacher and their parents. Their parents had attended camp meetings and helped them with any research homework, and their teacher was helping them search for interesting information about earthquakes. They thought that over the next few days they would be better prepared, as they knew that they would be involved in several lessons on disasters and on earthquakes. For example, they had just received a box of books from the National Library, and they were looking forward to reading those.

Help with learning

They viewed the approaching visit as being particularly useful in helping them to learn. For example:

It’ll help us get to look at what we’re studying about. (Roger)

It’ll have stuff about disaster. (Lily)

They’ll have things in behind the glass and also words to read. (Dean)

Several people would help them learn while they were on the visit. These included teachers and parents (Lily), the museum guide (Roger) and each other (Nikki).

Knowing you have learned

Several reasons were given for knowing whether they had learned from the visit. These included ability to discuss the visit, knowing more than before and being able to answer questions. For example:

You’ll keep talking about it. (Roger)

You’ll know more about it. (Dean)

If the subject comes up again, you will know more about it. (Lily)

When you talk to your Mum and Dad you can answer their questions. (Nikki)

Being more knowledgeable was the prime reason given for knowing whether they had learned from the visit. They each had different ways to judge the merits of the visit. These included it being fun and interesting, as well as them becoming more knowledgeable, and feeling different afterwards.

If it was fun, it would be a good visit. (Lily)

If you don't feel bored I think it would be worthwhile. (Dean)

If you know more the visit would have been ok. You'll have that feeling somehow. (Roger). Yeah, it's kind of in your tummy. You just feel different and you know more stuff. (Nikki)

Education officer views

Robyn, the education officer, was previously a principal. She had an Advanced Diploma in Primary Education (UK) and had taught all class levels in all types of schools. She had been an education officer at this site for three years, and taught all class levels (although she had taught Years 12 and 13 less frequently). She had not taught at any other sites.

Value of LEOTC

Robyn viewed LEOTC experiences as very important as education officers at museums and galleries could offer different experiences from usual classroom experiences. Robyn explained:

The way we utilise exhibitions in museums contributes to students' learning. All the artefacts we have are not available in schools. We can do activities the teacher can't do. We have materials and equipment they don't have.

She believed that LEOTC visits contribute to learning because students can interact with different people who have deep background knowledge about their topic. The place of learning is different, and is therefore motivating. Also, the hands-on activities captivate all students. She said:

Hands-on things are very motivating. All become involved. It's the key. The place of learning is different and the students can get as close as possible to an expert in the area. Specialist teachers bring an in-depth knowledge to the situation.

Features of this site

The earthquake programme was one of the core programmes offered by the museum, and was available to teachers throughout the year. The exhibition was divided into four small galleries,

where video projections, artefacts, photographs and audiotapes were used. Robyn believed that the museum displays and activities give students opportunities to develop immediate knowledge, which is strengthened through interactions with real artefacts. The site fostered learning because examining and interacting with the exhibits gained students' attention, and focused them on the ideas shown by and through the exhibits. Although the exhibition was geared to adults, students were still able to readily access the information. This was because she provided support for the students before, during and after they viewed the exhibits. Support was in the form of hands-on activities before and after visiting the museum, and through the students using worksheets while in the museum.

Robyn's aim was to help teachers and students take the ideas back to the classroom to build upon. There were many curriculum connections for assisting students' learning, especially the geology and history aspects. Participating in the exhibit helped students to develop information-searching skills and comparing information sourced from different places. The students were exposed to a range of experiences in a short period of time and this helped them to examine information from a variety of angles.

Liaison with and assistance to teachers

Robyn saw her work with teachers as crucial, since she needed to know before a visit whether the visit was at the beginning of a unit, part of an ongoing unit or at the end of the unit. The position of the visit in a unit influenced the students' responses, and the amount of information she could share with them. Along with Pat (another education office), she fields all teacher requests and sends out relevant information. The conversations they have with teachers before visits are used to refine teachers' expectations, and to sort out any specific emphasis.

Role of the education officer

Before the visit, Robyn saw her role as one to do with preparation. She said:

I pass on any information a teacher might request. I will do any research required so that I am well informed. I make any visual aids I might need.

During the visit she took the role of lead teacher. She used pedagogical approaches that matched the students she was teaching with the museum content. For instance:

I change my pace depending on the students. Some ask more questions than others. Some answer questions in more depth. At other times I have to give more basic clues. I use my own experience to judge what to spend longer on.

After the visit she acted as a clarifier, answering any questions from the students or teachers. If she did not have ready answers, she would find out and send the answers to schools afterwards. Teachers also took evaluations related to the visit with them. Their suggestions were acted on and incorporated into subsequent visits. Sometimes she visited nearby schools to see follow-up student work.

Useful advice

Robyn had advice for teachers bringing students to her site, although it was dependent on where they were in their study. She believed that students learned more if they were focused and well behaved. The teacher therefore had a role, to help keep students on task and respectful. She commented:

If the students were completely cold I would expect the classroom teacher to help with classroom management. If the students are well focused and well behaved they will get more from the visit. For example, listening to instructions. It does depend on what the teacher wants from the lesson.

She also offered some advice for other LEOTC providers. She thought that they should always introduce themselves and the exhibition to the students, as this helped the education officer to forge a relationship with the students. Settling the students down quickly helped them to focus on the exhibits, to think about what they might already know, and to link that to the new learning at the LEOTC site. For instance:

You need to help students make connections. This helps to make the visit richer for them.

She concluded by commenting that this was an ‘excellent job’ since, as a provider for LEOTC, she not only had time to get things well organised, but she could specialise, and knew a number of topic in depth. On the other hand, it was hard to always peak for every lesson. Yet, as most students only came once, it was important that the education officer did an optimum job, to ensure each group of students had worthwhile experiences.

In the classroom before the visit

One afternoon classroom observation was undertaken before the students went on their camp to Town Y and their visit to Museum Z.

The students were seated on the mat area when Linda introduced the topic by talking about disasters, then earthquakes in general, including mentioning Town Y’s particular earthquake.

She then read the students a story about Cyclone Tracy in Darwin in 1974. During the reading of the chapter she used a question-answer technique with the students. For instance:

T: What exactly is a cyclone? Student: A huge storm.

T: Yes, and what comes with a cyclone? Student: Rain.

T: Rain, heavy rain, torrential rain. What's the most amazingly bad thing that comes with a cyclone though? Student: Strong winds.

T: Strong winds, extremely. Wind that sends the rain sideways, not on a slant, no longer falling down.

Student: Could you be blown over? T: Winds that could blow you over, winds that could rip tiles off roofs, winds that could destroy your house.

The question and answer episodes helped the students to think about the concept of natural disasters and their effects. Linda commented after the lesson that she used a shared story for beginning the unit to develop empathetic feelings for disaster victims and to building ideas about disasters:

The reading was very important for setting the scene and to help students think about the effects of disasters on people's lives. I want them to develop some empathy for people who are involved in any disaster and this story tells the effects of a cyclone on a child similar in age to these students. I think they'll see her as someone like them.

After the story reading, Linda divided the class into small groups, to debate and discuss the disaster topic. Linda provided a list of questions to help keep students focused on disasters as a topic. She also gave discussion guidelines: 'you need to answer these on a large sheet of paper. You can brainstorm or list your answers. We will be keeping it so that we can look back at our answers later. Then we can see how much we have learned. You will be expected to share your ideas with each group. Each group will be answering the same questions'. Linda's instructions and the task sheet helped to focus the students on the goals of the task, in terms of topic content and discussion procedures.

The students enthusiastically moved to their groups to answer the questions. Much discussion followed. All groups recorded their answers, before sharing them with the whole class.

The work indicates that the students were able to stay on topic, use appropriate discussion procedures, explore and record ideas about disasters and that they had begun to develop a concept of disasters. Linda reflected on the lesson:

If we take the group work it was important for me to find out what they already know about disasters. It's good for them to explore their ideas too. I was actually surprised by how much they knew. That's good because I can build on that and I'll probably be able to go further than what I originally thought with them.

Linda's comments show the importance she placed on undertaking exploratory activities in the early stages of preparing students for their LEOTC visit. Her assessment of their efforts meant that she could alter her planning, so as to take into account the of information which the students already possessed.

Following this initial lesson Linda undertook several others, where the students explored ideas related to earthquakes and Town Y's particular earthquake. As she said:

I wanted the students to go along to the museum already knowing a lot. If they had good understandings the museum experience would add to them. They will be able to see more details and the experience will not overwhelm with an overload of information. I'm expecting the visit to be the icing on the cake, for it to enhance their existing ideas.

The visit

The students arrived at the museum at 2.00 pm with their teacher Linda and several parents. Outside the museum, Linda briefed the students. She expected them to be well-mannered, to listen politely, to follow instructions carefully and to not touch anything unbidden. She also wanted them to take the opportunity to enjoy the experience and to learn as much as possible. The students were greeted by Robyn, who invited them into the museum classroom. This had several areas within it; for example, a video viewing area, and an area set up as an olden day classroom.

The students sat on the floor space in front of a display of photographs of Town Y's earthquake. All the adults sat on chairs behind the students. The students immediately pointed to the photographs and shared their ideas about them with each other. Many of the photos were instantly recognised by the students as being from Town Y's earthquake. Robyn responded to the students' familiarity, and this validated the importance of the learning they had already undertaken:

Robyn: Oh, so you know what these are about?

Student: Yeah, we've seen some of them in books and we've read about it [the earthquake].

Robyn: That's good that you already know some ideas. I hope that today you will learn even more about the earthquake.

Robyn then began her teaching. She asked everyone in the room to close their eyes, whilst she read them an excerpt from a story written by a surviving child, who had been involved in Town Y's earthquake when the roof of her school collapsed upon her. It was an evocative literary portrayal, drawing the students into empathetic reactions. Robyn explained that her reading of the excerpt was two-and-a-half minutes long, the actual duration of the earthquake. This helped the students to understand one of the physical aspects of the earthquake. They were impressed.

Next, Robyn talked about earthquakes in New Zealand, showing a map of earthquakes that had happened in New Zealand over the past year. She demonstrated how earthquakes are measured against the Richter scale, with a seismograph. She told them they would see a seismograph in action when they visited the museum. She talked about after-shocks. This was not a lecture, however; throughout her demonstrations and explanations Robyn elicited responses from the students. The students also freely asked her questions, showing the immediate rapport she had established and how comfortable the students felt with her. The adults also contributed by asking questions, and Linda sometimes praised the students' responses.

From earthquakes in general, Robyn moved onto the earthquake that had devastated Town Y. She used the organisational framework of 'what, where, when, why and who' to structure her discussion with the students. It was obvious from the discussion that the students had done work on the topic at school before visiting the museum, as they were able to answer her questions. All the adults were as engrossed as the students, and they occasionally contributed by asking and answering questions. Robyn interspersed her explanations and questions with photographs, maps, diagrams and charts, which added variety, and gave a visual means to show what had happened. Sometimes these illustrations were passed amongst the students and adults. At other times their attention was drawn to large wall displays. In addition, Robyn provided first-hand accounts from people who had been involved to provide anecdotal evidence and detail of their experiences.

Everyone was then taken to another part of the classroom to watch a video of the earthquake, which included real footage, re-enactments and simulations.

Robyn asked three questions to think about while viewing: What was it like to be trapped? What demolished the buildings? What were the good things? These questions served to guide the viewing, and to help make it less passive. The students and adults were totally engrossed throughout. Following the video Robyn asked the students the three questions, which they were able to answer.

With the initial orientation and preparation activities over, Robyn talked about the museum exhibition and some of the things they would see. This served to build the students' anticipation, and helped to prepare them for what they would find. She explained how the exhibition was divided into four galleries, and gave the students a worksheet with questions matched to the gallery numbers. As she said:

This little leaflet will help focus you in. You can spend as long as you want to there. There is no need to rush.

Before they left, Linda asked if they could spend some time in the classroom looking at the photographs and displays, which they did. Linda then divided the students into four groups so that they could work together, but would each complete on their own worksheet. Each group began in a different gallery, with at least one adult assigned to their group. Each gallery used a variety of display types, including those behind glass, videos and interactive displays. Pat (another education officer) took the students to the museum. She gave them the following instructions:

Just something to remember - the only thing you write on is your worksheet and when you write you need to hold the clipboard in your hand and not rest it on any exhibits.

The students split into their groups, working actively in each of the galleries. Pat remained on hand for any help the students required, but Linda mostly worked with each of the groups as they looked at the exhibits and completed their worksheets. She encouraged them to look, to read, to search for the answers, to share with each other and to talk to each other.

Linda was heavily involved with the students throughout their time in the museum, and this meant that the students were all actively engaged for the 90 minutes they were there.

Evidence of engagement in learning

The students' behaviour in the museum showed engagement in learning. They all completed the worksheet, examined exhibits closely, watched the videos and talked with each other about the exhibits. They were responsible for, and initiated, their own learning – they knew what they wanted to look for, made choices and sometimes talked to themselves as they were looking. They were actively involved in learning, as they stood and looked and read. They also showed confidence in personal learning abilities as they asked questions about the displays, explained things to peers and read to peers. They exhibited curiosity and interest and were totally engrossed in the exhibits, showing close, concentrated examination, and perseverance with the

worksheet task. They used the hands-on exhibits as intended. They shared their learning with peers and experts. This sharing was seen in their talking and pointing and pulling others to show them something. They were willing to be pulled to see others' interests, talked, listened, asked each other questions and wrote together

Other behaviours indicative of engagement in learning included the students making links and transferring ideas, where they referred to the prepared questions and to previous experiences in the museum classroom and at school. For example:

Oh look, there's the bell from the ship Robyn talked about (Roger)

We know this about them all going into the open cos we saw that movie, aye? [Lily to Dean] Yeah.
(Dean)

Look at the ground going up and down at the school. I would have jumped on it just like the kids did.
(Roger)

After their museum visit they all returned to the museum classroom, where Robyn was waiting for them. Worksheets were collected and given to Linda to take back to school. Robyn talked to them about the buildings that had been built since the earthquake, using a mixed mode of telling, questioning and showing, as before. Finally they watched a video of Town Y buildings. This reinforced and illustrated the points that Robyn had been making.

After the visit

Student views

The four case study students; Nikki, Dean, Lily and Roger, had worked in one group at the museum. Linda undertook a group interview with them about their LEOTC five weeks after the visit. This section presents their ideas.

The students responded positively to their visit to the museum. All believed it had been worthwhile. For example:

Yes, it was worthwhile because it was interesting and we learnt stuff about the ...(Town Y) earthquake and the people who were in it. (Dean)

I liked it because of that story, when we had to shut our eyes. (Lily) Yeah, that was cool; it helped us imagine what it was like. It was a real good way to start. (Nikki)

I liked it that we saw other stuff too. Even though we went to learn about the Town Y earthquake we could see the other things in the museum too. (Roger)

All the students were able to describe what they had learned. They talked about how the things they saw and examined helped them learn:

I saw that barrel thing for measuring the earthquake and that helped me see how it worked. (Nikki)
You mean that earthquake detector that we saw spinning around. It was good. And we saw how some people survived. (Dean)

The videos were very valuable. We were all just sitting in that room and watching and they were real people who had survived. (Lily)

I thought the videos were good because I'd never seen a field do waves. And how we saw bits of the broken bits of the buildings. It makes it real. (Roger)

And we saw that piece of wood with all the people's names who had died. (Dean) Yeah, there was a Mitchell (surname of one of the students). That was scary. (Nikki)

The videos were seen as a visual aid to learning, as were different tools and artefacts, such as the seismograph, the list of victims and pieces from destroyed buildings.

They also talked about how activities they had been involved with had helped them to learn, noting that a variety of activities had contributed to their learning:

Listening to the story helped me learn. (Lily)

We did things that helped us think a lot about how the earthquake might be coming.

We did a worksheet and that helped us learn because we had to answer questions and go into different rooms and find the answers. (Roger)

When you pushed the button you could hear voices of people who had been there. That was cool. (Nikki)

They talked about knowing they had learnt by now knowing more than before, and being able to better discuss earthquakes:

We know we learned because we found out things we didn't know. (Lily) Yeah, that's right. (Dean)

We can talk about the earthquake more now. (Roger)

The museum as a place for learning also contributed to their learning, because of the wide variety of displays, and the use of artefacts not available at school. They liked the variety of

experiences they had been involved with, including the talks, the videos, stories, the worksheet activities, and seeing and hearing real life people being interviewed. For example:

You wouldn't have the machines in class and the interviews. There is a lot more stuff at the museum, which you can't get at school. So you can learn more better. ... I thought that you wouldn't learn that much but it gave you heaps of information about all the people. (Dean)

It was really fun walking around and you can see things that you can't see in class. (Lily)

One of the primary ways that students thought they had learned was through their interactions with others. Adults had helped them to learn. For instance:

You need an adult with you cos they can help you spot things. They helped by walking around with us and by showing us stuff. (Roger)

And they (adults) can help you out with questions you don't understand properly. (Nikki)

Their classmates had helped them learn. They especially liked being in a small group when going around the exhibits, as opposed to working on their own. As Dean commented:

Some people can talk to the others and some people can spot things and you can spread the load and share things.

They thought that the education officer had contributed to their learning.

If stuff is presented in an interesting way it is easy to learn. Like the story she read out and the movie she showed (Lily)

Lots of good pictures she had helped. You get the idea of it. (Dean)

Robyn talked to us and it was easier instead of reading it and she told it in an interesting way. She made it fun. (Nikki)

The questions like we had from Robyn helped us find the information. (Lily)

Robyn had been the prime learning helper, with other adults and classmates also contributing. However, Dean also thought that individuals needed to take some responsibility for assisting their own learning:

You need to listen and look hard and take your time. (Dean)

Finally, they thought that the work they undertook before the visit, and the work they undertook following the visit contributed to their learning. Lily and Dean talked about the contributions made by prior work:

Because we understood some of the things that were there. (Lily)

The museum gave us more details and filled in the gaps. (Dean)

The work they did afterwards contributed to their learning, although more as consolidation rather than adding to their ideas. Some of these activities included writing stories about being in an earthquake, completing an earthquake assignment, and practicing how to prepare for an earthquake. As Lily and Nikki commented:

We were not so much learning new stuff but getting it together and writing about it. (Lily)

We were using our ideas. (Nikki)

Student work

The students' work demonstrated some of the understandings they gained through their LEOTC. One of Linda's science learning outcomes for the students was for them to know about tectonic plates. To see the changes, if any, in the students' thinking about earthquakes, Linda asked them to record their ideas about earthquakes before visiting the museum. On their return they were asked to record their views again. These before and after views show major shifts in the learning of the four students concerned.

One of Linda's aims for the students was to help them build empathy towards those caught in the earthquake of Town Y. She wished for them to put themselves in others' shoes, and to 'realise the repercussions of a civil emergency'. She also wanted them to be able to take all the information they had gained in order to write a narrative as if they were living in Town Y at the time of the earthquake.

The students' work shows they were able to write a narrative, using much of the information they had gained through their experiences at the museum, and in class. Their breadth of knowledge helped them to create realistic accounts. Also their narratives show an empathy with those caught in an earthquake, and the far-reaching effects earthquakes can have on people's lives.

In summary, the students' work shows that their understandings and emotions had been stimulated by their visit to the museum. New understandings were built, and they were able to link all their experiences together to project themselves into a disaster situation.

Teacher reflections

Linda's overall impression of the visit was that it was worthwhile, and that it went well. She particularly enjoyed the opportunity to be a learner, and she thought that the variety of methods Robyn used enhanced the students' learning:

Well, I thought the visit was extremely successful. I think, for me as a learner, as well as a teacher, being given the opportunity to have somebody else do the teaching, rather than me just being the leader of the learning was fantastic. I think that I agree with the students, I think, the fact that they were presented with their learning in a variety of different styles e.g. they got information off story boards, on the walls, they were able to listen to video presentations, or listen to tape recorded presentations. They were able to listen to an adult just reading a story about somebody else's experiences in surviving the earthquake. I think all of those things contributed to making the visit extremely worthwhile.

Linda believed that the place itself, including the education room, the museum, and the artefacts and displays contributed to the students' learning, particularly because of the focus on the earthquake. She commented:

The place, certainly. Going into the educational room was good. I think doing that first was good because the students had enough time to get in there and just sit down and listen to Robyn. There weren't any other displays around ... There weren't any other members of the public in there. I think all of those things helped with the learning. Certainly the exhibits helped.

She also believed that the tools Robyn used, and the artefacts on display contributed to learning. For example:

And using the tools such as the video, such as Robyn herself, such as the story boards and the pictures and the artifacts and the other bits and pieces that the students learned from – I think all of those things were extremely useful tools for the learning. ... I think another strength was those questions that Robyn asked the students to go and find the answers to; I think that honed them in on finding the pertinent information.

Linda thought that there were many strong connections to different curricula, including English and narrative writing, science and the planet earth and beyond strand, social studies and people organisation after extreme events, and finally the visual arts curriculum and design:

Our visit connected to the curriculum in a lot of ways. ... Certainly the focus for me was English, the narrative writing, being able to put all of the learning that the students did into a narrative piece of writing. But also there was the Planet Earth and Beyond from the science curriculum, learning about earthquakes themselves. The students looked at tectonic plates, etc. I think from social studies, how people organise themselves in cases of extreme events - that was a social studies curriculum objective and also the art deco, which was sort of like a subsidiary of our visit to the museum - that came from the visual arts document. So we have actually been able to dip in quite a few curriculum documents by visiting the museum.

Various people had contributed to the students' learning while visiting, and they had made the experience more worthwhile, especially the education officer. Linda believed that Robyn was the strength of the visit, because of the deep knowledge base that she had, and the variety of pedagogical approaches that she used, including the worksheet questions she had prepared:

I think the strength was definitely the education officer, Robyn. She was fantastic. Her knowledge of Town Y's earthquake and the way she presented the information was brilliant.

She led the learning at the museum for a good part of the time. And it was very valuable to return to her for a summary at the end. I am pleased we were able to do that. She also was able to send me some information prior to my visit so that I had some information to feed to the students before we went. And that was very valuable, just talking to her in person when I rang her to ask about that information was really good.

In contemplating which other adults had been helpful for the students' learning, Linda acknowledged the parents as being helpful, and also herself. Parental contribution was important for keeping the students on-task. She commented:

I think I helped and the other parents helped because we were acting as a guiding role when we were going around the Museum, we also had those questions to focus in on and could help the students skim read the boards etc. So I think we all assisted in the learning by simply accompanying the students and helping to keep them on task and focusing them.

Linda also commented on how the students helped each other with their learning:

As the students said, they found it easier to walk around in a small group. The students certainly learned from each other as they were going around.

She commented on why it was important that others were involved with the students' learning, and that the structured nature of the visit assisted:

I think some of the personalities of my class, if they had have been left to their own devices they would have skimmed through and not paid as much attention. But they were forced to pay attention because for quite a lot of the time it was a very controlled environment. For example, when we first went into the learning area Robyn asked the students to close their eyes and she read them that story. That made them listen and I think that was a really great way to start, as it really focused the students, particularly asking them to close their eyes was good.

Linda also described some of the follow-up activities the students were involved with back at school. The first activity was writing a narrative about being in an earthquake. Linda commented:

I asked the students to write a story and they have all done that. They have written some of the best stories that they have ever written. One of my girls commented to me that she really enjoyed writing the story and the ideas just came flowing. I think it is just because they had so many different learning experiences to call upon from the visual, to the oral, to the hearing – they had plenty of opportunity to do the learning and it has certainly been reflected in the stories.

Other activities revolved around earthquakes, and these included an assignment, true/false questionnaires, posters and bumper stickers, crosswords and checklists:

I got them to do an earthquake, what I called an earthquake assignment. Some of them had to prepare a true/false questionnaire about Town Y's earthquake or about earthquakes in general. Some of them did posters on how to prepare for an earthquake. Some students did bumper stickers on what to do in an earthquake. We had a couple of students do a crossword on earthquakes. Some students went around and did check lists for our classroom that would possibly be used a couple of times a year just to make sure that the classroom is as safe as it should be in case there was an earthquake. So we had a variety of activities that we did afterwards.

Linda offered some advice for other teachers taking students on LEOTC visits, to help to ensure effective learning. This included undertaking learning before the visit, in order to build a foundation before the visit. She said:

I think there does need to be some learning beforehand. As Lily said, they had some ideas in their head on what they needed to focus in on and they were able to add to that and add the detail, fill in the gaps once they were at the museum. I think you definitely need to do some preliminary work before you go.

Secondly, she commented on the importance of having a knowledgeable and skilful education officer:

And I would certainly want to have an education officer of the same calibre as Robyn. She was brilliant and you need to have someone who really knows what they are talking about, who is an experienced teacher, and who knows how to draw students' attention in straight away. The ways she responded to the students and the ways she responded to their answers were also very helpful. It gave the students lots of confidence, they felt good about wanting to respond to her and there was no hesitation wanting to respond to her.

Finally Linda commented on the importance of visiting the place where the earthquake occurred as this added to the students' learning experiences, helping to render them more genuine:

I think the whole experience was absolutely fantastic, it was a real advantage to our learning to be able to go and visit the museum in the town where the earthquake occurred. It was really great.

Education officer reflections

Robyn, the education officer, was interviewed immediately after Linda's class had visited the museum.

Robyn thought that the visit was successful, because the students got immediate knowledge and were able to see first-hand many artefacts from the earthquake, as well as hear first-hand accounts from many who had been involved. She thought that the use of the worksheet was beneficial, as were the videos. She commented:

The exhibition is geared for adults so the worksheet focused the students to their level. The videos had colour and action and that helped the students connect to them.

She believed her main role was that of a lead teacher, where she led the students through the activities. She needed to change the pace of her lessons, depending on students' responses to her questions. Since these particular students had come with knowledge about earthquakes, she was able to go more in-depth with details. She explained:

These students had undertaken some work before they came. They were well focused and well behaved. They were very good at listening to instructions. I think they would have got a lot from the visit.

Also, she thought she was well-prepared because she had talked to Linda, and therefore, she had some idea of the work that the students had undertaken in the classroom pre-visit. This meant that she had time to get organised for them. She had also been able to pass on relevant information.

Robyn had some advice for teachers wishing to bring students on LEOTC visits in order to ensure that the students gain from the experience. If teachers were bringing students at the beginning of a study, it was important that they encouraged their students to focus and listen, as they would then get more from the visit. If it was in the middle of a study or towards the end, the teacher needed to help the students make connections with the work they had already undertaken. Robyn's aim was to help teachers to take ideas back to the classroom. She wanted teachers and students to get in touch with her after the visit, if there were still unanswered questions. She commented:

Students and teachers can send me any questions they have afterwards. I will always communicate with them and send the answers back to them.

Finally, Robyn commented on the opportunities to develop positive and on-going relationships with students. To develop positive relationships she always introduced herself, and tried to make the students feel comfortable in the museum environment. Her story telling helped to do this. She was not able to develop long-term on-going relationships with all teachers and students, as some only ever visited once. However, where possible she related the new experience to any previous times when students had visited. She was sometimes invited into classrooms to view students' work resulting from their visits to the museum, and she took all those opportunities. She also sent resources to teachers if they requested them, as Linda did during the visit. This meant that dialogue between them was more than a one-off experience. Teachers also took away an evaluation document and she then acted upon and incorporated their suggestions in subsequent programmes.

Robyn viewed the case-study visit as successful because the students had been so motivated and involved. The worksheet had focused the students on earthquakes. She had also been able to help Linda with some resources. She advocated that teachers make connections between their classroom programmes and the museum programme, for she believed that this strengthened students' learning. She saw the teacher as the crucial connection between learning at school and learning at the museum. Finally, she believed that school-museum experiences where students were made to feel welcome and comfortable in the museum environment fostered positive relationships between students and museums.

Key points from Case Study E

Looking back over the case study, several key points emerge:

- Ongoing dialogue between the teacher and the education officer contributed to the quality of the visit. They had consulted with each other before the visit, had some common learning outcomes, valued each other's contributions, and had shared beliefs about how museum experiences enriched students' lives.
- There was sound preparation by the teacher and education officer before the visit. A focus on learning about earthquakes and their effects on people's lives ensured seamlessness between school and museum experiences. The teacher's in-class experiences prior to the visit helped the students create a foundation of knowledge that could be built on at the museum. The teacher knew about the museum's programme and planned her programme around it. The education

officer had liaised with the teacher about the visit and had provided an outline of the museum programme. Common expectations were developed.

- There was value in the access to exhibits, experiences and spaces at the museum that were not available at school. The different environment, exhibits and spaces enthused and entranced the students who were engaged in novel and stimulating learning opportunities.
- The education officer enlivened the museum experience. She enriched the students' knowledge and experiences by using her in-depth knowledge, and a variety of pedagogical approaches. Her specialist knowledge and skills meant she could match her programme to these students' needs and abilities. The students shared her enthusiasm, related to her welcoming manner and therefore responded with confidence and like enthusiasm.
- There was suitable worksheet to guide the museum experience. This prompted the students to search for appropriate information. The worksheet was well-matched to their learning levels and they were able to interpret the questions and complete it successfully.
- The involvement of parents was a positive influence. Robyn (the education officer) involved the parents in the classroom by sometimes asking them questions. They also contributed some anecdotes to help explain a point, although they did not take a dominant role. Linda (the teacher) also attached parents to different groups in the museum, and they then helped to keep the students on task and helped search for information, and directed students to various exhibits they might otherwise have missed. These different involvements meant that the parents were an integral part of the visit not just child minders. The students interacted with them, thus adding to the richness of their experiences.
- Follow-up experiences and linking experiences at school after the visit enriched students' learning, as they were encouraged to reflect on their LEOTC visit and to apply and use the new knowledge they had gained.
- Students became aware that learning could be undertaken outside the classroom, which they readily acknowledged. Through the positive experience of their LEOTC visit they came to realise that learning opportunities were not just confined to school. The visit had demonstrated to them that the museum was also a place for learning.
- As a result of the visit, students acquired new knowledge had new experiences. The students affirmed that they had learnt new knowledge by visiting the museum and that, in turn, they valued the museum as a special place to visit.

Evidence of learning

Evidence of learning from Case Study E is provided in the commentaries in Tables 1, 2 and 3 below.

Table 1. Student commentary on learning

Before the visit	After the visit
<p>We'll see pictures and old stuff. Maybe things found under the rubble. We'll do some drawing, to remember what you've seen. We'll see some disaster things (Dean, 11)</p>	<p>Yes, it was worthwhile because it was interesting and we learnt stuff about the (Town Y) earthquake and the people who were in it. That earthquake detector that we saw spinning around. It was good. And we saw how some people survived. And we saw that piece of wood with all the people's names who had died. We did things that helped us think a lot about how the earthquake might be coming. You wouldn't have the machines in class and the interviews. There is a lot more stuff at the museum, which you can't get at school. So you can learn more better. The museum gave us more details and filled in the gaps. Lots of good pictures she [EO] had, helped. You get the idea of it. (Dean, 11)</p>
<p>We'll see historic things, like dinosaurs. We'll just be walking around. (Roger, 12)</p>	<p>I liked it that we saw other stuff too. Even though we went to learn about the Town Y earthquake we could see the other things in the museum too. I thought the videos were good because I'd never seen a field do waves. And how we saw bits of the broken bits of the buildings. It makes it real. We did a worksheet and that helped us learn because we had to answer questions and go into different rooms and find the answers. We can talk about the earthquake more now. You need an adult with you cos they can help you spot things. They helped by walking around with us and by showing us stuff. (Roger, 12)</p>
<p>They could have old and new stuff. We'll be looking at what we're studying about – disasters. (Nikki, 11)</p>	<p>Yeah, that [the story] was cool; it helped us imagine what it was like. It was a real good way to start. I saw that barrel thing for measuring the earthquakes and that helped me see how it worked. When you pushed the button you could hear voices of people who had been there. That was cool. They [adults] can help you out with questions you don't understand properly. Robyn [EO] talked to us and it was easier instead of reading it and she told it in an interesting way. She made it fun. (Nikki, 11)</p>

Before the visit	After the visit
It might be a 'doing' museum, where you can touch. Yea, it could be interactive. It'll be about disasters. (Lily, 11)	I liked it because of that story, when we had to shut our eyes. The videos were very valuable. We were all just sitting in that room and watching and they were about real people who had survived. Listening to the story helped me learn. It was really fun walking around and you can see things that you can't see in class. If stuff is presented in an interesting way it is easy to learn. Like the story she [the EO] read out and the movie she showed We know we learned because we found out things we didn't know. (Lily, 11)

The students' before views illustrate their somewhat traditional view of museums; for example, museums are about history and the past, and they contain artefacts for visitors to view. In contrast, Lily had a less traditional view of museums, thinking that visitors to the museum might be involved in interactive activities. Student comments also demonstrate that they realised the purpose for visiting the museum was tied to their disaster study. The interviews from which these comments were taken were undertaken on the first day of their disaster unit. The students therefore had few details to offer which were related to the visit.

The students after-visit comments indicate positive responses to their visit. They were able to describe what they had learned, and recognised what and who contributed to their learning. For example, 'the museum gave us more details and filled in the gaps. Lots of good pictures she [education officer] had, helped. You get the idea of it'. They believed that their learning had been stimulated and enhanced through their museum visit. They were especially focused on the knowledge gains they had made. The education officer's facilitation and provision of interesting activities, especially the videos, photographs and telling of stories, were particularly valued. For example, 'Robyn [education officer] talked to us and it was easier instead of reading it and she told it in an interesting way. She made it fun'. The museum itself was viewed as a stimulating space for learning, and for finding out about earthquakes. For example, 'It was really fun walking around and you can see things that you can't see in class'. All the students believed that they had learned and that the museum visit contributed to their learning in ways that could not be replicated at school. For example, 'we did things that helped us think a lot about how the earthquake might be coming. You wouldn't have the machines in class and the interviews. There is a lot more stuff at the museum, which you can't get at school'.

Table 2. Student work – before and after understandings about earthquakes*

Before the visit	After the visit
<p>I think an earthquake happens when white clouds and black clouds join and makes lightning then it shocks the ground then it makes the shake. (Roger, 12)</p>	<p>The earth's crust is made up of several large and several small "pieces" called tectonic plates. These plates move constantly and when they meet they grid against each other or overlap causing catastrophic pressure. When the pressure becomes too much it is released as either an earthquake or a volcanic eruption. Earthquakes occur mostly on the edges of the tectonic plates. Earthquakes can happen at any time all over the earth, on the land or on the ocean floor. (Roger)</p>
<p>A plats grind and an earthquake comes. (Dean, 11)</p>	<p>Where/Why/How does an earthquake occur?</p> <p>The earth's crust is made up of several lard and several small "pieces" called tectonic plates. These plates move and when they meet they grind against each other over lap causing catastrophic pressure. When the pressure becomes too much it is released as either an earthquake or a volcanic eruption. Earthquakes occur mostly on the edges of the tectonic plats. Earthquakes can happen any time all over the earth on the land or on the ocean floor. (Dean)</p>
<p>I think an earthquake happen when underground plates shake and move. (Nikki, 11)</p>	<p>The earth's crust is made up on several large and several small pieces, called tectonic plates. These plates move constantly and when they meet they grind against each other or overlap causing catastrophic pressure. When the pressure becomes too much it is released as either an earthquake or a volcanic eruption. Earthquakes occur mostly on the edges of the plates. Earthquakes can happen at any time all over the earth. (Nikki)</p>
<p>I don't really know how an earthquake</p>	<p>What is an earthquake? It is the sudden</p>

<p>happens but I think it's when stuff under the earth hit each other and then everything shakes or something like that. (Lily, 11)</p>	<p>violent shaking/trembling of the earth's crust (surface).</p> <p>Where/how/why/when does an earthquake occur? The earth's crust is made up of several large and several small "pieces" called tectonic plates. These plates move constantly and when they meet they grind against each other or overlap, causing catastrophic pressure. When the pressure becomes too much it is released as either an earthquake or a volcanic eruption. Earthquakes occur mostly on the edges of the tectonic plates. Earthquakes can happen at anytime, all over the earth, on the land or on the ocean floor. (Lily)</p>
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* Spelling is students' own

The before-visit written statements show the students had relatively hazy, minimal understandings about earthquakes. These were mostly to do with the earth moving in some way. After the visit, there was evidence of considerable learning. The four students worked together in the same group for this task, and each individually child recorded the group discussions. The written statements show more extensive understandings than before the visit. They were able to define an earthquake, identify the existence of tectonic plates, recognise how and why earthquakes occur, and identify where they might occur. This work shows how the students have linked ideas from their various experiences and built their knowledge and understandings about earthquakes.

Table 3. Teacher commentary on student learning

<p>Linda, the teacher, believed that the visit was worthwhile for her students' learning because 'They were presented with their learning in a variety of different styles; for example, they got information off story boards, on the walls, they were able to listen to video presentations, or listen to tape recorded presentations. They were able to listen to an adult just reading a story about somebody else's experiences in surviving the earthquake'.</p> <p>She said that the museum and the exhibits influenced student learning; for example, 'The place, certainly. The students had enough time to get in there and just sit down and listen to Robyn [education officer]. There weren't any other displays around [except earthquake ones]. ... Certainly the exhibits helped. And using the video, Robyn herself, the story boards and the pictures and the artefacts and the other bits and pieces that the students learned from – I think all of those things were extremely</p>

useful tools for the learning’.

She also said that the education officers use of questions helped to focus student attention; for example, ‘Those questions that Robyn asked the students to go and find the answers to; I think that honed them in on finding the pertinent information’. She also commented that the visit was multi-curricula focused; for example, ‘There was the Planet Earth and Beyond from the science curriculum, learning about earthquakes themselves. The students looked at tectonic plates, etc. I think from social studies, how people organise themselves in cases of extreme events – that was a social studies curriculum objective and also the art deco, which was sort of like a subsidiary of our visit to the museum – that came from the visual arts document’.

Finally she commented on the attention her students paid to the education officer; for example, ‘When we first went into the learning area Robyn asked the students to close their eyes and she read them that story. That made them listen and I think that was a really great way to start, as it really focused the students’.

Linda, the teacher, commented on how student behaviour at the museum was influenced by the place itself, and the exhibits they saw. She believed that their engagement in learning was facilitated by the variety of approaches used by the education officer. She commented on the education officer’s use of questions as a tool to help her students’ research. She said that the students were involved in a variety of curriculum areas, including science, social studies and visual arts. Finally, she said that her students showed interest in their learning, which was demonstrated through the attention they paid to the education officer.

Table 4. Education officer commentary on student learning

These students had undertaken some work before they came. They were well focused and well behaved. They were good at listening to instructions. The worksheet focused the students and was to their level. They got immediate knowledge from studying the artefacts and watching the videos. They looked like they were enjoying it. They were positive in their responses to any questions. I think they would have got a lot from the visit.

Robyn’s commentary indicated her belief that the visit had been successful for the students because they were motivated and involved. She commented on the influence of the worksheet, and how it had helped focus student attention. She also commented on the impression they gave her of enjoyment in being at the museum, and the encouraging sign of being constructive in their replies to her questions.