

# What page are we on? Interdisciplinary examples of the ‘what’ and ‘how’ in the ‘doing’

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**Abstract:** Interdisciplinarity has always existed in teaching and learning, but through a need to judge or assess student work, disciplines emerged in the 19<sup>th</sup> century, where subject areas became separate entities. “In ancient times education and philosophy was interdisciplinary (or rather pre-disciplinary) in the sense that philosophers did not accept any boundaries or limitations to the validity of the truths they uncovered by the way of thinking” [Krishnan, 2009, p.13]. More recently, there has been a move back toward interdisciplinarity, but the way is not easy while external structures remain that work against its philosophical values. We have employed a qualitative constructivist framework with an autoethnographic lens to examine a series of workshops that were conducted by the author. This article examines the difficulties that exist in pursuing an interdisciplinary approach, while acknowledging the benefits. Examples are provided of some ‘small steps’ that have been taken in the ‘doing’ as without practical examples, the ‘what’ and ‘how’ are lost and the discussions remain philosophical leaving teachers and academics scratching their heads, wondering how they will do this. The outcome of this approach allows a clear view of what can be achieved when the arts are involved.

**Keywords:** Interdisciplinarity; arts; creativity; education; divergent thinking

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## 1. Background

This article is specifically related to the use of the arts in an interdisciplinary manner with other subject areas. Interdisciplinarity can be difficult as not only is it unfamiliar to teachers but when the chosen disciplines work together there is often an evaluation expectation attached to the outcome [1]. One discipline is usually assessed, with the other used more as a pedagogical approach to achieve that outcome. This is especially true when using arts to strengthen understanding and outcomes in other subject areas. Perhaps in time both areas will be assessed, especially when the arts become more familiar to teachers and can be employed in more depth. Better still, perhaps there will come a time when evaluation is not at the core of every aspect of teaching and learning. This is a topic that requires considerable research and cannot be covered here, but we make the comment in the knowledge that when students enjoy learning creatively, pressure is removed, and students achieve greater outcomes with an increased confidence in their own ability [2] Lee, 2022. [3] Sternberg (2000) noted, “Conventional standardised tests encourage a certain kind of learning and thinking – in particular the kind of learning and thinking for which there is a right answer and many wrong answers.” (p.4). The interdisciplinary valuing of the arts recognizes diverse learners and their different ways of thinking and learning.

Creative thinking is important when working across and between disciplines, and what better way to stimulate creative thinking than through the arts? “Creativity has long been linked

to free association – the mind’s ability to connect concepts to form ideas” [4] Beaty, et.al., 2021. p.1. When working through and with the arts in a creative manner, it is not about being technically proficient. Students are free to enjoy themselves. When they are enjoying themselves, the creativity flows and concepts in discipline areas are understood and expanded upon. Evidence suggests that when students are having fun learning that the learning will be more likely to be retained [5] Rinne, et.al. 2011. Academic excellence can currently be seen as synonymous with skill. In this instance, we are not referring to the development of skills, but about the creation of divergent thinkers. When divergent thinking is developed, skills should automatically follow [6] Guo et.al., 2022. According to engineer Richard Felder [7] 1988 “The more possible solutions you think of for a problem, the more likely you are to come up with the best solution and sometimes a solution that at first sounds foolish is the best solution” (p.120). Where teachers and lecturers currently employ a direct transmission pedagogical approach and assess students through an examination, [8] Huitt et.al 2009, a change to interdisciplinary teaching will be difficult. While teachers do not have to be artists to teach through and with the arts as they connect with another subject area, they do need help in knowing how to go about this specific pedagogical approach. For this reason, our article is focussed on examples of ‘doing’.

Problem-based learning (often known as project-based learning in schools) [9] Bereiter & Scaramella, 2003 appears to be an approach that develops a deep understanding of a topic, and this is a method often employed in Western contexts and may have some elements of the arts involved in the process. However, problem-based learning “is not focused on a tangible product. The product is a problem solution – a purely conceptual artifact” (p.12). We propose that interdisciplinary approaches focus on improving students’ ideas, where they work together with multiple ideas to gain insights and create new knowledge to find new and creative insights and answers.

There is no righter right thing that humans know than the experience of creative engagement – making worlds we care about and exploring the world others have made – and there is a lifetime of pleasure to be had in that lifelong learning [10] Booth, 2013.

Our article provides examples of an interdisciplinary approach to teaching and learning. We provide context variety in documenting what was done and how this was achieved in each case. Each example is discussed and analysed. The following examples include:

- Dance as a medical intervention to bring about specific improvements in wellbeing for those living with dementia and those living with cancer.
- Drama and dance as interactive instruments to teach disaster management to tertiary students.
- Primary school students learning different subject areas through an arts pedagogy.
- Teachers learning to teach through an integrated dance pedagogy.

## **2. Materials and Methods**

This qualitative study employs a constructivist philosophical framework [11] Fosnot, 2013 while employing ethnographic techniques [12] Williamson, 2006. We are involved with the objectives of this research, as the results are reflections on workshops conducted by Barbara as an author of this article. We acknowledge that our critical voices reflect our own moral

systems [13] Carbaugh, 2009. “While it may seem evident that any sustained inquiry is constituted through a complex and reflexive, interaction process” [14] Altheide, 1987, p. 65, it is important to recognise that an “ethnographic perspective can help delineate patterns of human action” (Altheide, 1987, p.65), and in doing so, recognize the importance of the self-reflexive lens that has been employed here. Ethics approval from the University of Auckland was gained for the interviews that took place during the dance for the first section reported on in this article.

### 3. Results and Discussion

The following results detail descriptions of various workshops designed to provide experience, understanding, wellbeing, and learning through an arts pedagogy, while focussing on another discipline, other than an arts outcome.

#### *3.1. Dance used as a medical intervention to bring about specific improvements in wellbeing for those living with dementia and those living with cancer.*

##### *Applied to Exercise – Occupational therapy – Dance*

While both projects are dance-based and conducted through a community dance pedagogy, the outcomes are wide-ranging. Benefits were there for all involved, but particularly for the University students who danced with the people with dementia. Nobody learned about a dance technique, but everybody learned about people, differences, history, compassion, resilience, collaboration, and diversity.

The first project involved taking a group of university students to a group of elderly people with moderate to severe dementia who visit a retirement village weekly for a day of activities. The elderly people living with dementia with whom the students engaged, are seated in their chairs around the outside of a small room. Some of the elderly people interact with staff and others need individual encouragement. When we introduced dance to the group, every person in the room was engaged. A staff member commented that she had never before seen every single person participating together in an activity. The head of the dementia out-patients unit, Valma stated,

*“It’s really good because you get them fully engaged in the activities. At lunch time they are talking about that and asking if they can do dancing in the afternoon. After you have gone, they even take it home you know, they talk to their family about how they’ve enjoyed their day.”*

Understanding what activities were conducted and what we observed is necessary to fully understand the benefits of our dance sessions.

Each session began with the University students introducing themselves to the elderly, or reconnecting with them after the first day when they established relationships. For the elderly with dementia, the social networking with university students is an important aspect of improving the level of engagement. As Valma explained,

*“The good thing with the students is that it is a one-on-one interaction and they like being with the young ones. They want new faces. The younger ones are more authoritative and ask them to do things, helping them to be more creative, which is very very good.”*

A warm-up follows the conversation time with all participants sitting. Age-appropriate music is introduced as warm-up movements follow simple follow-the-leader actions with words of encouragement, odd jokes, and a good deal of smiling. Participants are encouraged to move their lower body as well as their upper body from a sitting position. Following the warmup, Barb, who conducts the session, provides a task for the group. An example may be that she teaches them some simple movements to a song they will know. The young and the elderly work alongside each other as they begin by singing the song through. The students do not usually know the song, but the elderly participants do, and it gives them a chance to lead the way. Valma states,

*“They always love music. It’s a very good tool to stimulate them, even the socially isolated, the very reserved ones, when you play the music, they’re just singing by themselves, they know the music and get stimulated.”*

With the stimulation of the music and the support of their young partners, everyone participates in learning some simple movement. Following the verse, the pairs (an elderly person and a university student) are asked to create their own movement for the chorus. While the elderly may tire if the ‘making’ section is too long, it is an important aspect of the session where the students engage with their partners in such a manner that a bond is formed. They own their movement and are proud to show it when called upon to share. Valma explains what her clients gain from the session,

*“I really appreciate the dance session because you ask them to change their movement to the music and it’s really good because they are thinking about how they can change the choreography and even the frail ones, they get up because they have the help of the students.”*

Every exercise is different and as the students work with the elderly, they develop a relationship and support each other. Valma commented,

*“I’m not that good, that is what they think, whereas when you work one on one and the students keep talking to them on what to do, it’s really good for their confidence, yes, this young lad will help me do it. They love the students. We were actually surprised when some of your students got so emotional on the last day. They get very attached to them.”*

By moving together, bonds were formed. During the sessions, the elderly shared some special memories with the university students, and between them, they created movements that reflected those memories. This was empowering for the elderly living with dementia and poignant for the university students. The university students became attached to the elderly people with dementia, and this provided them with the opportunity to reflect on their own lives and their own families. The sessions are powerful for the students, and personal growth is evident within the group by the end of the four sessions. We gained anecdotal evidence from staff who reported to us that after a year, some people with dementia had asked, “When are those young people coming back to dance with us?”

The second project was also conducted through community dance for people affected by cancer. 17 participants volunteered to take part who were at various stages of treatment for cancer. While cancer was a shared experience that helped bond the group, the dance provided a space where cancer was not the primary focus.

The dance itself was organic and was generated by the participants with guidance from Barb who was the project facilitator. Being part of a larger whole undoubtedly enhanced the

experience's richness for the participants. There was a sense of ownership around the work, which in turn fostered a sense of belonging to the group. For cancer patients, accessing emotional states and meanings through actions can take on a heightened importance. Movement is at the core of all human experience; body and mind, emotion and intellect are inseparable. The gestures that these dancers developed together were the embodied expression of their shared experiences. It was remarkable, however, how motivated people were to come and the number of hurdles they overcame. Connections in the group developed during the 10-week period, and it was apparent that these connections were spread equally across the whole group. Everyone appeared to want to support everyone else regardless of what may have been perceived as their differences in a situation where some people were very ill, and others had completed treatment. One man who came to the first three sessions was brought there from a hospice. He was unable to move his whole body but sat in a chair and used his arms where he could. He was extremely ill, and died soon after those three sessions, but there was an unspoken, yet tangible support for his participation by everyone in the group.

While there was no compulsion to perform the work that had been created, the group as a collective made the decision to go ahead and perform the work for the wider community. The importance of performance following the community dance experience was spoken about in terms of a bonus that had not been considered. One participant stated, "I've got so much out of these weeks; I've got to see it through."

This project had a profound effect on all those involved. The dancers' performance moved the audience and the participants themselves gained a sense of belonging to a group who cared. The embodied movement allowed an unspoken expression of the participants' journey with cancer. This would not have been the same had the movement been purely for exercise. Instead, the expressive qualities of dance allowed for embodied communication that would not have taken place without the medium of dance. This resulted in a heightened sense of well-being on an emotional level during our sessions and during the performance. In some instances, there may have been further positive effects that we can only surmise, as the objective of this project was to provide a positive experience, not research or measure.

### *3.2 Drama and dance as interactive instruments for tertiary education students in Disaster Management.*

#### *Applied to Disaster Management – Drama – Dance*

The University of Auckland Engineering Department runs an undergraduate course in Disaster Management and also offers a Postgraduate Certificate in Disaster Management and a Master of Disaster Management. For several years, the author was asked to run an interactive session for these students so that they could experience disaster scenarios. As New Zealand had suffered a serious earthquake in Christchurch in 2011, where many people died, it seemed an appropriate topic to base the workshop on, as this was something that the students could identify with. Barb gathered information about people killed in the earthquake and wrote role cards with names and ages for each person before the lesson. Before the lesson started, she set up desks close together so there were no gaps. When the students entered the space, it was explained to them that they would be participating in a drama that may heighten emotions, but if necessary, they could fall back on knowing that it was a drama and part of a lesson to help them understand what others went through. At the time, a brief explanation of what they would

do and why seemed enough for the students. Since Covid, we suspect this activity could trigger on many levels. However, this was what happened in this instance. Each student was given a role card and asked to get under the desks. This meant that they were squeezed up together in an uncomfortable manner. They were asked to stay there until such time as they were asked to leave. They were also asked to remain silent. Barb then spoke to the students.

While these are the names of real people who lost their lives in the earthquake, we will not attempt to be those people out of respect. Instead, we will create characters for ourselves using their names and ages as a tangible reminder that people died in the earthquake.

You will take on the role of the person whose name is on your piece of paper. Think about the following:

- What family do you have? Think about sisters and/or brothers, parents, cousins, aunts, and uncles. How will they be feeling? Draw on your own emotions here; how would you feel, and can you imagine how they might feel?
- Think about your close friends. They may have heard about the earthquake by now and could be ringing around to see if you are OK. How do you think that they are feeling?
- Do you have any children? Allow yourself to contemplate their lives without you. Those of you who do not have children, were you planning to have children at some stage? How do you feel about being deprived of this opportunity?
- What were your plans for the future?
- Those from another country, consider how your family might be contacted. What thoughts are going around in your mind?
- What does it feel like to be facing death? Do you think you will be rescued?
- How does it feel physically?
- How does it feel emotionally?

Following this, some footage of the Christchurch earthquake was played. While the participants could not see what was on the screen, they could hear the shouts and sirens, along with chaos and emotions. As this happened, Barb walked around the perimeter of the desks and climbed on top of them. This was followed by several minutes of silence.

The students were then asked to come out from underneath the desks and without speaking, pack all the desks to the side of the room. They were to then move into the space and begin creating a movement sequence in response to how they felt in the role of someone who died in the Christchurch earthquake. Music was added, and students were given instructions on how to develop their movement sequences. Finally, when the sequences appeared complete, the students were asked to sit in a circle around the room. They were then given the opportunity to debrief, an important aspect of this exercise. Did the experience allow them to empathize more deeply with those affected by the Christchurch earthquake? Barb took time to ensure that the students understood that the exercise was not designed so that the participants lived in fear of an earthquake but so that they might be grateful to be here and appreciate opportunities to do whatever they want with the rest of their lives.

This was a powerful use of the arts to teach an aspect of disaster management. We live in unpredictable times, and if students can build resilience and understanding through an integrated arts approach, they are more likely to deal with challenging situations [15] Larsen & Walker, 2006. [16] Ho, et. al. 2014 write about schools being “an entry point for offering psychosocial interventions to communities following disasters” (p. 275). This particular workshop was conducted several years after the Christchurch earthquake while students

remained aware of it but were no longer caught up in the immediate emotional pain. Artistic creation and a cognitive focus can reduce stress [17] Curl, 2011. The opportunity for students to express themselves through movement, when in fact words may not have been available to them at the time, was a form of 'de-briefing'. None of these students were dance students, and it is quite possible that some had never danced before. Everyone, however, moved into the space and began to dance, expressing the inexpressible through their bodies. This activity appeared to Barb to have been successful, judging by the expressive dancing and student feedback responses. The fact that the disaster management lecturer invited her back each year also suggested that he found the activity valuable.

### *3.3 Experimenting with Interdisciplinarity Ideas in an Australian Primary School*

#### *Applied to Spelling – Geography – Science – Maths – Dance*

Barb contacted a teacher in an Australian primary school whom she had previously taught for four years at High School. With a strong understanding of how each other worked in the classroom, plans for arts-integrated lessons were read and re-read by the teacher who didn't like to use lesson plans. She attempted to understand the aims and objectives of each lesson and understand how she would go about teaching her 7 – 11-year-olds in this manner while remaining true to herself and her personal pedagogical approach. Normally, Barb would do the teaching, but in this case, 11 of the 16 students in the class had varying degrees of social and intellectual disabilities. Without time to get to know the students, it was deemed best if the teacher worked with them directly. They were used to a particular pattern of teaching and to try something different was risky. Fortunately, because of her relationship with Barb, the teacher trusted the process and gave it a go. The teaching took a great deal longer than Barb had expected, but she recognized the critical importance of the teacher teaching 'her way' and owning her own meanings of arts across the curriculum.

The lessons covered were related to Animals of Australia, The Migration of the Arctic Tern, spelling, and maths activities. It would be easy to brush over the details of these activities as an unimportant aspect of this discussion. However, the how and what are generally missing when writing about interdisciplinary approaches to teaching.

The students in the class were all on different levels regarding spelling and so a selection of words from the vocabulary they were currently working on was selected. The students were paired with someone on the same level. Each pair was given a word to spell, and then they were asked to create one separate movement for each letter. Once they had worked out their letters and their movements and got their word dance in order, they performed the actions while speaking each letter at the same time. Everyone enjoyed this simple lesson and two of the boys who had previously struggled with spelling were particularly successful and even went on to spell words from the next level. This was a good example of an inclusive pedagogy where students worked co-operatively to problem solve rather than have spelling words trigger feelings of insecurity and fear of failure.

The Arctic Tern Migration was another lesson encompassing geography and science. Individual pages were drawn up with the names of each country where the Arctic Tern would stop at a resting place along the way as the bird flew from one pole to the other. These pages were then posted around the school on buildings and posts with numbers on them so that the students would recognize the right order.

In the meantime, the students learned how to ‘flock’, moving like birds in a V formation. Once confident and without speaking, someone from the group's side could change the direction of the flight path, and the others would follow, forming a different V shape to accommodate the leader. Once confident, the class was divided into two flocks, and they began their migration, searching for the countries around the school. Once they had completed the journey, they returned to the classroom, accessed the globes of the world, and found the countries they had flown to. They then used their imagination to write about what they saw along the way in each different country. Finally, they talked about the experience, and it was affirming to hear the students link their learning to aerodynamics and how they had felt secure within the group of flying birds while not so secure on the outside edge. The teacher had decided to become a crow and ran at the groups, making loud crowing noises. This scattered the groups at times, but they would come back into their formation and move on. Each student shared their writing with the class regarding what they saw in different countries. Once again, this cooperative approach enhanced the outcomes.

This exercise was complex on many levels. The teacher knew Barb and the way she worked. She was prepared to take a risk and branch out into a different teaching style, but it wasn't her natural style with this difficult class. This manner of teaching takes longer, not only to set up but also to complete, and not all teachers would be happy to take a risk.

### *3.4 New Zealand teachers engaging in professional development with an integrated dance pedagogy.*

#### *Applied to Maths – English – Dance*

In 2024, Barb was asked to conduct a professional development workshop for a group of primary school teachers so that they could meet the curriculum requirements that ask them to integrate different learning areas in their teaching. It was decided to conduct a full-day workshop with six resources, three for English and three for maths, all using dance as the pedagogical approach. 25 teachers attended the professional development day, and as this was held during the school holidays, it can be assumed that these teachers were already interested in using an integrated approach in their teaching. It is important that professional development meets a need and is not imposed on teachers. In this instance, two of the organizers had attended a previous workshop run by the author and believed that this was exactly what teachers wanted. During the sessions, teachers commented that “this was so much better than another professional development day that they had attended that had been organized by their school.” To this end [18] Birman et.al 2000 commented,

*“An activity is more likely to be effective in improving teachers’ knowledge and skills if it forms a coherent part of a wider set of opportunities for teacher learning and development (p. 29).”*

By engaging the teachers in multiple activities, they were more likely to develop an understanding of how they could create their own lessons using similar structures, and this was reinforced during the day. The teachers were also guided to a textbook, ‘*Using the Arts across the Curriculum: Integrated Lesson Plans*’ written by the author should they need follow-up activities. [19] Snook, 2021.



While every activity worked well, this article will document only one of the resources to provide an example. The following lesson description was designed to teach verbs to primary school students. It was adapted to suit the level of the students being taught as we went along. During the activity, the participants pretended to be primary school students to experience the activity as their students might.

The participants began by sitting in a circle. There were suggestions of books about spiders available that might be read to the class depending on the level of the students. In this instance, the participants engaged in the voice and movement activity of 'Incy Wincy Spider'. Participants were asked to think about 'what' spiders do and share with a partner. They considered questions such as: Where do you find spiders? Have you ever held a spider? How would you describe a spider? What does it look like, feel like, etc?

The participants were then prepared to move safely around the room. Preparation and scaffolding are particularly important when teaching primary school students whose concentration time is limited. Some relaxing music was played as students were given the following prompts at intervals:

- Can you move as slowly as possible?
- Can you move as low to the ground as possible?
- Can you be as large as you can?
- Can you get into all the spaces in the classroom?
- Can you lead yourself around the space with your elbow?
- Can you lead yourself around the space by your puku? (tummy)
- Can you lead yourself around the space by your head?

We then watched a video of the Peacock Spider Dance while participants watched to see what movements they could see and recreate them with a partner afterward.

Another video, 'Why do spiders build webs?' was shown to build upon the students' knowledge of spiders. This was followed by a reading of 'Gordon the Spider,' a resource written by Barb that contained many verbs. The participants made the appropriate movements as each verb was recognized during the reading. Participants then shared some of these actions with the whole group.

Participants were asked what they noticed about these words - 'ing'. Verbs were introduced as doing or action words. Verbs relating to spiders were written on the board. Music was introduced, and we experimented by creating actions to accompany each verb. It was also suggested that the participants might like to extend these movements by playing with the following examples.

- Imagine a delicious fly has just landed on your web. How might you move towards it?
- Imagine you are the fly who has become tangled in the web. How would you move to try freeing yourself?

Participants were divided into three groups and asked to choose at least three different spider actions and turn them into a spider dance. They were encouraged to use as much space as possible and repeat the movements as often as they liked. Above all, they were assured that there was no right or wrong way to do this activity and that whatever they did would be good.

The participants then came into a circle, and one group at a time performed music for the whole group. As each group finished, the participants were asked what verbs the group had used in their dance. These verbs were written on the board.

There were instructions on the lesson plan for follow-up activities to reflect and consolidate learning, such as:

- Simon says
- Stem sentence activity
- A collective performance poem using student suggestions
- Drawing stick figures performing the dance movements with the verb written alongside.
- Drawing a huge class artwork of a spider and writing all the verbs associated with a spider alongside it.

Should the teacher be working with older students, each pair would have as many verbs as they could think of to work with. They would create 30 seconds of spider movements to create an 'A' section. They would then work on a 'B' section, which would include different dynamics and use of space. Once completed, the pair would join the A, B, and repeated A sections together to make a continuous dance. The participants did this on the day to make the lesson more interesting for them as adults. Each pair was given different music as they performed their dance. There was much laughter and enjoyment. In this case, the dance section was a large component of the lesson that could be assessed in a classroom situation.

This lesson was designed to teach young learners to think. Sometimes, they were thinking through embodied movement, and at other times, they reflected on what they were learning. Stories are useful in language learning for young learners [20] Mart, 2012 and the 'Gordon the Spider' story was not only a meaningful context for language learning but provided an opportunity for students to embody the learning by engaging as characters in the story. Employing a constructivist approach [21] Eisner, 1998 each step was designed to build on what had gone before.

#### **4. Conclusions**

There are many ways in which people may come to understand interdisciplinarity. This article provides a small glimpse into our experience working within the arts to stimulate understanding in other discipline areas. We hope our focus on education and community dance may provide a starting point for how best to address a personal interest in working this way. Each of the documented activities resulted in positive outcomes.

You may wish to combine subject areas such as cultural studies with engineering as an example and cannot see how that could be done. Interdisciplinarity is defined as communication and collaboration across academic disciplines [22]. Jacobs & Frickel, 2009, and where this is possible regarding recent cutbacks in education, representatives from each discipline would need to work together. We suggest, however, that creativity is the glue that would hold the two disciplines together, regardless of the content. [23] Robson, 2012 proposes that how people view themselves as "thinkers and learners is dependent upon their self-concept, self-esteem and view of themselves as part of their surrounding social world" (p. 271). Teaching through creative movement as an example, has a significant positive effect in these areas [24] Crosby, 2013; [25] Poll, 1979; [26] Theodorakou and Zervas, 2012).

It's time to recognize the importance of the creative arts when moving toward interdisciplinarity. While advocating for the arts, and all it offers, we warn that making a good choice of an arts practitioner is critical. It is important to recognize that the arts practitioner who is engaged must be someone who values a creative process and is not focused on skilled

performance or product outcomes. While skills are important in a different context, in this instance, they could be a hindrance. We wish you luck on your journey as you move forward on your interdisciplinarity journey.

## Multidisciplinary Domains

This research covers the domains: Disaster Management; Dance; Occupational Therapy, Drama, Primary School curriculum subjects, and the Arts.

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## Conflicts of Interest

The authors declare no conflict of interest

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