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The BHP Billiton Science Teacher Award: Promoting quality teaching

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Abstract

The BHP Billiton Science Teacher Award is one of the most prestigious awards for science teachers. It recognises and values the time and effort that teachers give to the profession and to students conducting scientific research projects. This paper draws on data collected during an evaluation of the BHP Billiton Science Award scheme to identify the characteristics common to these innovative teachers in science. The data is drawn from interviews with eight award-winning teachers and interviews with the judges of the award-winning teachers. Every award-winning teacher had introduced innovative ways of engaging students in science through open ended investigations which was often embedded in their curriculum. Quality teaching was evident in their practice - valuing students owning their work, doing authentic science investigations, showcasing their work and developing critical thinking skills. The teachers often had a good understanding of the award schemes operating in their state, informing and mentoring their students of the opportunities – building a culture within the school. These enthusiastic teachers were humble and commonly did not seek recognition for themselves; however they believed the recognition of their students’ efforts was important. Many teachers were active in the professional organisations. This paper will argue that science competitions can positively influence the curriculum, the teachers approach to teaching science, especially including local contexts, and student attainment.
Introduction


Anecdotally, science awards have been said to achieve a lot for the advancement of science and science education worldwide. However, there is little research which actually verifies the stories. This paper, based on research into the BHP-Billiton awards, will provide a compelling story about the outstanding teachers who win such awards.

Awards are opportunities to acknowledge teacher’s excellent work. Internationally, there are a number of award schemes: in America (the National Science Teachers Association awards: CIBA, Shell, Intel); in UK (Association for Science Education Awards) and Europe (the European Science Teachers Awards), just to name a few. The large number of awards across the world, suggests a shared aim to value and acknowledge exemplary teaching science.

There are a select few national awards in Australia for science teaching, including BHP-Billiton awards, the Prime Minister's Prize for Excellence in Science Teaching in Secondary Schools, and Prime Minister's Prize for Excellence in Science Teaching in Primary Schools, Australian Academy of Science Teacher Awards 2010, Ruth Dircks ASTA Scholarship to CONASTA, and State Science Teachers Association Awards.

Award schemes provide opportunities for partnerships between government, private and business sectors - all supporting and acknowledging the importance of high-quality education for our future. The Victorian Department Education Early Childhood Development (DEECD) claims that “awards showcase the outstanding achievements and practice of teachers, leaders and support staff.” (http://www.education.vic.gov.au/about/events/vsmea/guidelines.htm)

The BHP Billiton Science Teacher Award- Characteristics and Selection

The national BHP Billiton Science Awards scheme is considered to be Australia’s most prestigious award (DFEEST, 2010). The Award scheme is a partnership between BHP
Billiton, CSIRO, and The Australian Science Teachers Association (ASTA). The student’s awards are designed to promote scientific inquiry. The Awards reward “students for creative research, experiment or investigation projects and teachers for their support of open-ended student investigations among all students” (DFEEST, 2010). To be eligible for the BHP Science Teachers Award, teachers had to “engage students in the study of open-ended investigations and work consistently within their school community and wider professional arenas to make an outstanding contribution to science education in Australia.” (BHP Teacher Nomination form application 2010.) By evaluating and recording innovative and effective practice, there will be greater awareness of teacher practices. The awards draw attention to effective practice, for example valuing diversity, challenging traditional approaches, responding to current issues from local to global environs etc. The awards can advertise and encourage innovation in science education, and promote the sharing of best practices beyond a single classroom (DEECD, 2010).

The Awards recognise classroom teachers from across Australia with each state and territory in Australia represented. To be eligible a teacher must be teaching in the classroom for at least 50% of their workload. The nominated teachers from each state and territory are rewarded with the travelling, teacher release, meals and accommodation costs of a trip to Melbourne to participate in the BHP Billiton Science Awards Camp. One teacher, from those nominated from each state and territory, is selected to travel to USA, supervising the winning students while they are attending the annual International Science and Engineering Fair (ISEF).

The criteria and requirements to be considered for the BHP Billiton Award are outlined in Figure 1. The selection process begins at the state and territory level - with nomination by the state professional organisation. The nominees for BHP Billiton Science Teacher Award must provide a two page summary of evidence that demonstrates the required qualities, a curriculum vitae and they are interviewed.
Data collected during an evaluation of the BHP Billiton Science Award scheme is used to answer the following research question:

RQ1 What characteristics are common to the BHP Science Teacher Award winning teachers who are innovative teachers in science?

RQ2 What effect has the winning of the BHP Science Teacher Award had on these teachers practice?

RQ3 The BHP Science Teacher Awards recognise individual excellence by committed teachers of science: What impact has the award winning teachers, had on the culture of science teaching?

Theoretical Background

There have been many studies in Australia which define effective science teaching (Goodrum, Hacklin & Rennie, 2001; ASTA/Monash, 2002; Tytler, 2002) but few actually stipulate the personal and professional qualities which make up an excellent teacher of science. Fitzgerald, Dawson and Hackling (2009) suggest that “contexts or environments”, including factors such as time, place, student age, country, culture and student ability, may
all contribute to how effective a teacher may be. Yet others (Tytler, Cripps-Clarke, Darby 2009) have indicated that being able to bridge the divides of content/process and teach with an ability to stimulate love of learning are crucial for teaching science. In describing one such teacher, words like intellectual curiosity, commitment, engagement, relationships, professional responsibility and passion were used (Tytler, Cripps-Clarke, Darby 2009).

Award schemes have been operating for many years and studies have researched characteristics that are common to award winning teachers. Award winning Biology teachers evaluated themselves on a variety of personal traits and scored significantly higher than the normal population on the scales of achievement, endurance, order, intraception, dominance, nurturance, defensiveness, personal adjustment, self confidence and self control (Deiter, 1975). A study by Weiss and Raphael (1996) compared the characteristics of Presidential Awardees with national teachers in USA – reporting that the awardees were more highly educated, more experienced and more active professionally; with the “presidential awardees classes considerably more likely to work in small groups and use manipulative materials” (1996, p. 1). Adjectives commonly used to describe excellent teachers include:

- Committed - demonstrated in their passion, motivation, dedication to their work - both emotionally and intellectually
- Leader – providing guidance and personal growth in others
- Professional – modelling ethical behaviour and values, and acting responsibility
- Knowledgeable – having a good understanding of scientific ideas, with expertise in the discipline

We see these above descriptors to be elements of a teacher’s identity and it is these components, which, in conjunction with others, leads to quality teaching in all areas. Hammerness et al., (2005, p 384) state “the identities teachers develop shape their dispositions, where they place their effort, whether and how they seek out professional development opportunities and what obligation they see as intrinsic to their role”. They also comment that teacher self-efficacy plays a major role in the development of teacher identity. Self-efficacy is one of the elements of motivation (Pintrich et al, 1993). When discussing motivation in general, Pintrich et al (1993), also stated age, gender, ethnicity, prior knowledge, classroom context help shape how individuals approach and engage with particular tasks.
Day Elliot and King (2005) have discussed the role of teacher identity as a key factor in defining commitment. They describe commitment as “a set of core, relatively permanent values based upon personal beliefs, images of self, role and identity” (p.563). A teacher’s relationships, interactions and identity extend beyond the classroom, as described by van den berg (2002, p. 579), “teacher identities are the result of an interaction between personal experiences, and ‘the social, cultural and institutional environment in which they function on a daily basis”. Teachers’ professional identities explored by Beijaard, Meijer, and Verloop (2004) are not definitive, and not the same as the personal practical knowledge that is often a focus. In addition, as science teachers, they work or model the processes of real scientists making inquiries, modelling and practising skills of a scientist, testing ideas, drawing conclusions etc. Many see their role as science teachers in educating future generations to become responsible scientifically literate citizens.

Teaching Awards provide opportunities to inform the community of teaching and learning excellence and recognise the vital work of teaching. The art of teaching can be undervalued and awards are one way of acknowledging this value. With national testing becoming more widespread in Australia, there is an increased focus on performance teaching, and consequently a need to clearly identify the characteristics of quality teaching. The criteria of an award should reflect the qualities of teaching that promote learning, to ensure that the validity of the award schemes. Moyer-Packenham, Bolyard, Kitsantas, & Oh (2008) examined a wide variety of selection criteria for many award schemes . They concluded that “the characteristics of mathematics and science teachers most commonly assessed among these awards included teacher behaviours, practices, and beliefs; subject knowledge; and pedagogical knowledge, which the research indicates are teacher characteristics, associated with student achievement outcomes.

**Methodology - Data Collection and Analysis**

The data collection consisted of interview data from the teacher award winners and judges. The interviews were semi structured and explored the experience of the interviewee with research investigations and the Billiton awards, and their perceptions of the benefits, challenges and long and short term impact of this initiative. The methodology uses a case study approach. Where possible, invitations were sent to 12, randomly selected award winners teachers - from period 2007-9 highlighted below
Phone interviews were arranged with seven award winning teachers and five judges who judged both students and teachers during the 2007-2009 Billiton Awards. Letters of invitation were sent to these groups of people, inviting them to return consent forms and details through which they could be contacted by phone. It proved surprisingly difficult to get responses from these letters, perhaps because of the wording of the Plain language statement, or because we were asking for teachers’ attention at a very busy time of year, or because the teacher invitations went through the principals. The CSIRO team helped with the mail outs and subsequently with phone and email contacts.

The interviews were transcribed and data coded in light of the three research questions. The primary themes were identified and are presented as evidence to address the research questions. The validity of the analysis is in the cross-checking of coding among the authors, interrogating the interpretation of the data and in the cross checking of themes identified in the data from multiple sources – from both teachers and judges perspectives.

**Results**

**The characteristics of the Award winning teachers**

The stories of the award winning teachers are those of inspirational and strategic teachers who have introduced innovative ways of engaging students in science through open ended investigations.

- All the award winning teacher teachers interviewed for this study had expended time and effort - selflessly - well beyond the normal teacher’s workload.

- The teachers were humble and commonly did not seek out recognition or awards yet they did seek out the competitions and awards for their students and believed the recognition was important. The national status of BHP Billiton awards scheme was considered important and significant.

- Many teachers were active in the professional organisations. The teachers acted as
mentors to students and staff, often providing leadership and professional development. In this way they were leading change in the way science is taught in their schools.

- The teachers worked over many years to change practice. Some examples of these changes include:

  the use of “Biomimicry” in the classroom and allowing the students to imitate nature by designing models that perform a specific task. My Year 8 students undertook this open-ended task (Teacher award winner 2)
  Looking at black fellow / white fellow science (Teacher award winner 4)
  We wanted to go into Nanotechnology with our year 7’s and…. I was able to establish contact in Georgia at the Georgia institute of technology and we have been able to access materials from them. (Teacher award winner 5)

It is interesting to note that some of the award winning teachers have qualifications that make them well suited to managing the demands of the BHP Billiton Science Awards scheme –for example, a Masters degree by research. One of the award winning teachers was a scientist who became a scientific education officer and is now a teacher whose experience clearly demonstrates the power of a scientist leading science investigations in her classroom:

  I share with them my background and take in scientific papers, shown them different spiders and caterpillars that have been named after me – Like this is what you can actually do..........share aspects of indigenous knowledge. (Primary teacher award winner 4)

There were strong links between the Teachers Awards and the Students Awards with most award winners involved helping students and other staff with the state awards.

**The effect of the awards on teachers who receive them**

There is a high recognition of the awards in school, by colleagues and the community. The teachers interviewed- describe their personal and institutional recognition a result of receiving the award:

  Upon receiving the award, all teachers and students have had an interest in the Awards. The whole school community, students, parents, teachers and the many partners we have established from the wider scientific community, celebrated the Award. Awareness of the award was raised via staff meetings, promotion in the school newsletter/website, parents and students sending me congratulatory letters/cards. Students have also wanted to know more about the teacher and the student awards and how to access the award. The local newspaper celebrated the award, as did other print media such as the Herald/Sun, Australian Teacher, Shine, AEU, NEOS KOSMOS and a Greek newspaper in Athens (Teacher award winner 2)
It definitely has raised an interest with students and I find myself discussing science issues with more students both within the classroom and in corridors and the schoolyard! (Teacher award winner 2)

The BHP Billiton/CSIRO Award has provided me with an opportunity to grow both personally and professionally. I have been able to share in my experience not only with the teachers at my school, in the state and nationally, but also with teachers on an international level. (Teacher award winner 2)

I found it eye opening to come down to the luncheon and see what was being produced from around Australia. It was really, really mind blowing and to be able to talk to some of the teachers and students from the other schools was very interesting – it gave us a lot of ideas as to what we could do and how our students compared to other students and how we could expand. (Teacher award winner 6)

The recognition has led to changes in recipients such as career pathways, their leadership position, and their profile in the school. For the school the recognition the teacher receives can lead to a change in enrolments and the focus or priority areas of the school.

It is not surprising that the excellence of the award winning teachers has commonly been recognised by other awards schemes including the Prime Minister’s Award for Excellence in Science Teaching, the Doherty Award for excellence in primary and middle school science and the Eureka prize. In addition to the professional learning opportunities from the BHP Billiton award, the teachers had commonly experienced other valuable professional learning experiences.

I am going to Singapore for a conference next week to present paper. Sponsored position by CSIRO. I went to the 2009 Greenhouse conference as a spinoff of this award. I have been involved in a sustainability project. It was really nice to be at a high level conference, reinvigorated the need for scientific education in primary. (Teacher award winner 4)

I was invited to help review the IB curriculum for science which goes to about 700 schools around the world. As a results of that they produced a book called Teachers Resource manual with examples of marked work and what was really flattering was work by my students went into that book. (Teacher award winner 3)

I…. attended a nanotechnology conference…seeing what they are doing, seeing the equipment, and just the nature of it. So I brought that back and generated one particular piece of work that we did, looking at what was simply nanotechnology and what the scale of it and examples of how it is being used. .. to produced nanoproduct and then we looked at the impact of it on society, and looked at it from both the positive and negative point of view …. That flowed onto other teachers who modified it for their own use but certainly it influenced what they were doing. (Teacher award winner 1)

All the award winning teachers acknowledged the national recognition and profile afforded all of the BHP Billiton awards: receiving the Teachers Awards had helped them in various ways such as in job applications, it had brought status to the school, and was a welcome recognition of their efforts.
The judges commented that, interestingly, most teachers do not find the awards act as a reward mechanism in a direct manner, rather in an indirect way. They find their rewards through the recognition of their students’ achievements, the increased visibility of science in the school, the overall impact within the school of a ‘Science Award winner’. They relate the Science Awards to their personal experience of working with open-ended investigations with students and the value of that to their teaching.

**The effect of the teacher awards in promoting quality teaching**

Through the teacher awards the recipients took advantage of opportunities to improve the learning situations at their schools, for example:

- one recipient became aware of programs such as Scientists in Schools and so initiated it at her school,
- another took the opportunity to forge links with a school in USA whilst on the overseas trip as part of the award, and now her school works with them on a nanotechnology project,
- another described how her confidence had been boosted by the formal recognition,
- another explained how she was exploring the ways of teaching the less able students - though a staggered approach to investigations.

**Economies of scale - taking advantage of multiple science programs**

The award winning teachers who were interviewed had a good understanding of the sponsored science programs, recognised their value and had taken advantage of other relevant activity running in their state, informing their students and the staff of available opportunities to maximise their advantage. This strategic use of programs enhanced the opportunities for students to:

- showcase their work,
- present investigations in multiple formats,
- build their confidence.

There are constraints with the suitability and availability of programs, nevertheless the awareness of available programs is the point. Table 1 presents examples of teachers building synergies across multiple programs.
<table>
<thead>
<tr>
<th>Program</th>
<th>Comment by Teacher</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Tasmania Science Investigation Awards</td>
<td>It is more like a real science conference- where the students present a poster (Teacher award winner 1)</td>
<td>Tas</td>
</tr>
<tr>
<td>Working with scientists</td>
<td>Yes, I have introduced working with a Scientist to mentor and assist students with their scientific investigations (Teacher award winner 2)</td>
<td>All states</td>
</tr>
<tr>
<td>Genethics competition</td>
<td>the genethics competition when the students started by writing an essay which was on contemporary genetics research and an application that had legal and ethical aspects (Teacher award winner 3)</td>
<td>ACT</td>
</tr>
<tr>
<td>Attend public lecture</td>
<td>Students go to two public lectures and write them up, with reflection their learning (Teacher award winner 3)</td>
<td>ACT</td>
</tr>
<tr>
<td>Eureka awards</td>
<td>One of the BHP Billiton Student award winners came second in one of the Category’s in the Eureka awards (Teacher award winner 5)</td>
<td>Qld</td>
</tr>
<tr>
<td>Working with scientists</td>
<td>Through UQ I now have one of my past students – he is in the last few months of his doctorate. (Teacher award winner 5)</td>
<td>Qld</td>
</tr>
<tr>
<td>Working with past students through UQ Scientists in residence</td>
<td>Working with scientists- they come into the school (Teacher award winner 5)</td>
<td>Qld</td>
</tr>
<tr>
<td></td>
<td>We had a scientist in residence every year The teachers claim the best PD they ever have is when the scientist in residence.... (Teacher award winner 5)</td>
<td>Qld</td>
</tr>
<tr>
<td>NATA Young Scientists Award</td>
<td>One of our students came third in the National Association of Testing NATA and they run a young scientists program and she won $ 2000 worth of science equipment for the school and it arrived last Friday so everyone is excited.(Teacher award winner 5)</td>
<td>Qld</td>
</tr>
<tr>
<td>Scientists in school /CREST awards Learning links –at UWA</td>
<td>Enrolled the Scientists in Schools program- working with a scientist from CSIRO- support them doing CREST awards. (Teacher award winner 5)</td>
<td>WA</td>
</tr>
<tr>
<td>Science education at UWA</td>
<td>Linking to other competitions –learning links program with UWA supports students to enter competitions. We have powerful plants and that's a learning links program with plant energy biology. (An ARC centre of excellence). (Teacher award winner 6)</td>
<td>WA</td>
</tr>
</tbody>
</table>
Science Education at UWA is running a mini conference for students at the end of the year where students present their own research work – for Year 10 only - building communication skills and confidence and realising that real science not just in laboratory but being an effective communicator those students who did well in Science Talent Search get five minutes to present to other students from six other schools that were involved. (Teacher award winner 6)

The national view – judges voice

BHP-Billiton staff and judges felt that by their involvement in the award scheme, they were making a contribution to promoting science education. They commented on the visibility of science in schools and the value of open-ended investigations. They used words like ‘inspired, passionate, involvement’ to describe the teachers they met. As one said, “Teachers are outstanding, you can’t help but be inspired. Their passion is humbling” (Judge 2, Interview 19 Oct, 2009). They also talked about seeing how science was being played out in schools and the value of rewarding teachers’ good work and students’ efforts. All were amazed, time and time again, by the quality of science produced by children. As indicated by the interviews, they commented that “you can see what kids are doing and what they can do”. “We are constantly amazed at kids’ efforts and the value of open-ended investigations. It is very rewarding” (Judge 1, Interview 16 Oct 2009).

The judges spoke of how the awards acted to increase science teacher professional experience through increasing the amount of inquiry-based science teaching and learning and effective assessment practices in schools. They spoke about:

- the impact of involvement in student research projects on teacher pedagogy and assessment practices more generally.
- the attitude of teachers involved in the program towards open ended science investigations
- perceptions of schools concerning the worthwhileness of science research investigation initiatives

The Teacher awardees talked about the impact of the science awards on their pedagogy and their attitudes to science in general. The judges recalled comments from awardees, relating that they considered “running science as open-ended investigations was very rewarding and
‘the best teaching they’ve ever done’ (Judge 6, Interview 28 Oct 2009). The participation in the award scheme changes teaching practice. They see science as ‘seeking information’ and ‘following enquiry’. In terms of assessment, teachers start to look at higher order thinking and how students process information. They assess students’ problem-solving capacities and how they can ‘pull ideas together’ (Judge 1, Interview 16 Oct 2009).

The judges also commented on the teachers’ talk of a wider appreciation of inquiry-based learning and find that undertaking the science awards with their students can provide support, structure and collegiality. The awards provide some teachers with a boost to self-esteem as they see ordinary students flourish when given the opportunity to use an open-ended investigative approach.

Schools see the Science Award scheme as worthy for a number of reasons. It can raise the visibility of science and their teachers. When students are successful, there is further publicity which is helpful for school image, prestige and presentation.

Example – One school promotes science within the school community by indicating that the principal values what student do in science and what the teachers also do in science. The school holds a presentation evening where it provides information to parents and community members on its science program (as part of the BHP Billiton Science Awards Scheme).

Interestingly, most teachers do not find the awards act as a reward mechanism in a direct manner, rather in an indirect way. They find their rewards through the recognition of their students’ achievements, the increased visibility of science in the school, the overall impact within the school of a ‘science award winner’. They relate the science awards to their personal experience of working with open-ended investigations with students and the value of that to their teaching.

All judges commented that the success of the science awards often depended on the enthusiasm and passion of a single teacher who generally contributed to science development above and beyond his/her teaching brief. Comments were made about how the science awards aligned with the National Curriculum. Another commented that the winning of a science award should have a role to play in the career of a science teacher but wasn’t sure if it did or if so, how much it figured in the career/promotion (Judge 2, 19 Oct 2009).
Assessing quality teachers - the validity of the criteria of the award scheme

Similarly with the science Teachers Awards – all applications are initially vetted by the state science association. The CSIRO judges are involved in the training of state teacher representatives in terms of what aspects to look for in the projects and applications which align with the criteria.

Judges commented that the initial process of selection was through the criteria that teachers responded to in their applications. It was difficult to judge the quality of the applicants and their professional practice and knowledge just from the application. Some of the judges had interactions with some of the teachers previously through the state awards or through CREST, although this wasn’t common. Normally, they relied heavily on the interview to help distinguish between the outstanding applicants. Sometimes it was possible to get a glimmer of teacher quality by the standard of the students projects, the variation in projects and in the nomination of the teacher by the school. Teachers who are nominated must have at least 50% classroom teaching. Once nominated, they cannot be re-nominated for a further three years. How is the quality of the applicant measured? This is a very difficult task. The teachers undertake a one hour interview and respond to 11 questions. As well as the interviews, teacher finalists have to present themselves and their work to the other teachers. The judges must all be in agreement about who they think is the overall winner. Up until now there has not been any disagreement within the judging panel about who is the best teacher finalist.

In considering the answers given at the interview, the panel look at a number of factors:

- the contribution of the teacher over an extended period of time - cumulative.
- Involvement with the state teacher association
- Involvement with curriculum development at local or national level.
- Discussion and understanding of pedagogy – breadth and depth of knowledge
- Networking (provides a strong confirmation of practice)
- Providing PD/mentoring to others
- Encouragement of students to undertake open-ended investigations, use of ‘cutting-edge science topics’
- active in science in the community
- links with universities/industry partnerships
• relevance of science in real-world
• ability to promote science as an Australian ambassador.

Example – One year the decision was between a young teacher of 2-3 years with outstanding contribution, and extensive understanding of enquiry pedagogy as applied to open-investigations in science, and an older teacher. The older teacher, whilst not displaying quite the same understanding of pedagogy, or the same depth of understanding of the new sciences, had demonstrated a strong commitment to science over a very long time. In determining the winner, the panel decided that the extended practice was superior to outstanding knowledge.

Most teachers selected by their state as finalists for the BHP Billiton wards will not only receive their state science teacher’s award, but they will be entered into other awards such as the Oliphant Award (SA) or the Prime Ministers Science teacher Award.

Evidence for change in teachers’ practice came from knowing teachers outside the Finalist awards but through the process of the awards scheme. Some of the judges had been involved in the science teacher associations, CREST or teacher professional development and had spent time with teachers in training them in understanding open-ended investigations. From this contact, they were able to indicate that they had seen considerable change in teachers’ practices. Most teachers involved in these professional learning opportunities went on to undertake the BHP Billiton awards scheme for their students and themselves.

**Conclusion**

The voice of the award winning teachers provide compelling evidence of the value of the award scheme both for teachers and for students. The judges supported all of what the teachers said, confirming the results. Teacher awards recognised, acknowledged and promoted quality science teaching. The stories of award winning teachers and their exemplary classroom practice is boosted with stories of how the award has empowered them. If we return to the three research questions, we can answer them and indicate that this research has identified the salient aspects of the award scheme.

= building their identity providing leadership and networking opportunities
What characteristics are common to the BHP Science Teacher Award winning teachers who are innovative teachers in science? Teachers are found to be selfless, humble, committed, motivated, professionally active, inspirational and exhibit leadership qualities.

What effect has the winning of the BHP Science Teacher Award had on these teachers’ practices? As a result of winning the award, teachers seek to improve the learning situations at their schools, forge links with other schools, are more prepared to try new approaches and the award validates working with open-ended investigations with students and the value of that to their teaching.

The BHP Science Teacher Awards recognise individual excellence by committed teachers of science: What impact has the award winning teachers had on the culture of science teaching? At the level of individual school, the teacher’s practice is validated and is recognised. School support is increased at a number of levels and science benefits from the recognition of the teacher’s exemplary practice.

However, further understanding came to light, above and beyond the three research questions asked. We found that teacher identity is woven into the fabric of just how a teacher applies him/herself to teaching. Teacher identity is then affirmed and strengthened through winning an award. Other benefits flow on from winning an award which includes a possible development in a career path, leadership opportunities, and an improved profile in the school community.

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