

TEACH JOURNAL

OF CHRISTIAN EDUCATION

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CONTENTS

3 Editorial

TEACHING & PROFESSIONAL PRACTICE

4 Doing twice as much maths in half the time: Implementing scrum methodology in a Year 7 mathematics classroom
Jotham Kingston

8 Developing autonomy in primary school aged children with type 1 diabetes
Amanda Cochrane

13 Conflict resolution for the classroom
Deana C. Jones

15 Loneliness gets a bad report
Trafford Fischer

20 Transforming classroom practise
Ian Baskin & Beverly Christian

EDUCATIONAL ADMINISTRATION

22 Future leadership of schools in Australia: Employee perceptions of taking on the challenge
Peter Williams & Peter Morey

RESEARCH & SCHOLARSHIP

34 Imagine, interrupt, innovate: Internationalising teaching and learning Practice
Sherry Hattingh, Steven Thompson, Peter Williams & Lindsay Morton

42 Don't stress me out! Anxiety, information processing and learning
Klinton Neirinckx, Darren Morton, Wendi Herman & Jason Hinze

51 Exploring the interaction between Christianity and science
Lynden Rogers

REFLECTIONS, IMPRESSIONS & EXPERIENCES

60 Pilgrims and progress
James Standish

61 Ytravel: A travel blog
Lara Campbell Lawson Hull

63 Book reviews:
Encyclopedia of Christian Education
Barry Hill

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Ministry Of Teaching



EDITORIAL

Graeme Perry

When Joan Baez on her recent concert tour spoke on Q & A, then chose to sing (2015) *God is God* (Earle, 2008), her mindfulness stimulated reflection on her life and career (Brown, 2009). In 1963, when Baez performed with Dylan his composition *With God on Our Side* (Baez, n.d.a), I was, it seems, living in a parallel universe. I do not recall the lyrics having the profound impact on me they did when I re-read them in my current context. While expressing disillusionment with the right to explain and justify war (that still sounds familiar)—one verse states

*Through many dark hour
I've been thinkin' about this
That Jesus Christ
Was betrayed by a kiss
But I can't think for you
You'll have to decide
Whether Judas Iscariot
Had God on his side*

Subsequent to the restatement of historical fact, and significant acknowledgements—I can't think for you, You'll have to decide—comes the poignant question, 'Did Judas Iscariot have God by his side?' What an effective stimulus for discussion!

The folk singer Baez, performed at the event and on the same platform, as Martin Luther King when he enunciated his 1963 speech, 'I have a dream...', and has been a social activist throughout life. 'If people have to put labels on me, I'd prefer the first label to be human being, the second label to be pacifist, and the third to be folk singer.'

But, why sing *God is God* on national television? Could it be an influencing testimony from this 74 year old? A statement of certainties and uncertainties; expressing ambivalence to the ambiguities of life, yet a foundational certainty. The lyrics affirm a God who intervenes—in prophecy, miracles, sustaining nature, gracious acceptance, instilling purpose, yet leaving space for faith in uncertainty.

*Maybe someone's watching and wondering
what I got.
Maybe this is why I'm here on Earth, and
maybe not.*

The lyrics certainly negate common social philosophical assertions—God is not me (individualism), and God is not us (social norms of collectives – capitalism or socialism).

While Baez has not lived a 'puritan' life, her Quaker background pervades her songs and living. The potential and opportunity in another day to get it right, 'a little light ... [to] shine and rage against the night.'

Standish joins the 'rage' in this issue seeing a combative 'pilgrim's progress' embodied in his, and his children's experience of education within a Christian school event. Fischer addresses the 'loneliness' of children and adolescents appealing to authoritative entities in the community to form safe places. Jones suggests resolution of conflict strategies, Nierinckx explores controlling anxiety, while Cochrane seeks to develop autonomy and self-care for diabetics. Williams and Morey ask—will sufficient teachers accept the challenge to be inspired leaders as many baby boomers retire. Rogers seeks an understanding of Science and Religion.

A Bob Dylan benediction for educators might be that each will remain *Forever Young* (Baez, n.d.b), inspiring and fostering in others the idealism and enthusiasm of the 'good news' that provides hope and purpose.

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[Photography:
Nikolai Agafonov]

Doing twice as much maths in half the time: Implementing scrum methodology in a Year 7 mathematics classroom

Jotham Kingston

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Key words: scrum, teaching mathematics, motivation

The need

I have been teaching Year 7 Mathematics for three and a half years. I enjoyed Maths in high-school and took as many units as I could, but I did not study Mathematics or Mathematics teaching methods formally at tertiary level. Consequently, I started teaching ‘green’. In the beginning I taught directly from the textbook, but the more I taught, the more I began to realise that Year 7 Maths is frequently not about Mathematics at all. It’s not the complimentary angles and like terms that stump students; it’s their fear of failure, their inadequacy in organising themselves. “Sir, I’m not good at Maths and I never have been,” I hear from one boy who struggles to rule up his exercise book. “I’m most scared you’ll compare me to my older sister,” says another. The problems they bring to the classroom are not ones that can be solved with a calculator.

So Maths is often not about mathematics. It’s mainly about confidence and organisation, which relies on skills like mindfulness, initiative, bravery and stick-to-it-iveness. Consequently, I started wondering how I could actually break through; how I could teach these underlying skills in such a way as to enhance outcomes for students, while at the same time covering the curriculum and producing meaningful results at report time.

Scrum

Enter Jeff Sutherland’s book *Scrum: The art of doing twice as much in half the time* (2014), which I downloaded as an audiobook and digested over a few weeks at the end of last school year. Jeff Sutherland is co-creator of the Scrum method.

Scrum, or *Agile Scrum* is a project management

model that was first used by software companies to create working software very quickly. Participants are organised into Scrum Teams. Projects are tackled in ‘sprints’. A six-month project may be broken into six sprints, and at the end of each sprint, a piece of working software is ‘launched’ and delivered to the client. This means that after less than five weeks, the client can be using part of the software package they paid for.

A Scrum team works in this way: Project progress is depicted on what is known as the Scrum Board. The Scrum Board is divided into three columns and populated with sticky notes. As a team member takes on a part of the project, they move the corresponding sticky note from the Backlog column to the Doing column. When they get confused on a Monday morning and wonder where they’re up to, they can stand in front of the Scrum Board, look at their ticket in the Doing column and say, “Aha! *That’s* what I am *doing*.” They work on the task until it is finished: until it meets the Definition of Done, which is also posted on the Scrum Board. Then they move their sticky note from the Doing column to the Done column, perform a little dance of celebration, and pick off another sticky note from the Backlog.

Every day there is a short meeting called the Daily Standup, where team members give a quick update by answering three questions: “What have I done since last time we met? What am I working on now? What’s next?” At the end of every sprint is another meeting called the Retrospective, which focuses on process rather than product. Team members reflect on what they could do to work faster and more efficiently.

It’s best if all the members of the team have diverse skills. There is no hierarchy in the team. It’s as flat as a pancake. The only person who has a specific role on the team is The Product Owner, who leads the Daily Standup meeting, keeps the

“*Maths is often not about mathematics. It’s mainly about confidence and organisation, which relies on skills like mindfulness, initiative, bravery and stick-to-it-iveness.*”

Scrum Board up-to-date, organises the Backlog, and checks product against the Definition of Done.

Jeff Sutherland, in his book, shows that the principles that govern scrum methodology result in a dramatic increase in both the quantity and quality of output. "Twice as much in half the time" is no idle boast. He tells how Scrum methodology was used by his team to overhaul the CIA's record keeping system from a paper-based to an online database within a matter of months, when other experts said it was impossible. He examines how crack teams of US soldiers, freed from military hierarchy and empowered by Scrum were able to turn the tide of the Iraq war. (They were considered too dangerous by their superiors and were disbanded when the war ended.) Jeff Sutherland claimed that Scrum can be used across a wide range of contexts, and he even mentioned a small handful of teachers who are implementing Scrum in their classrooms. Willy Wijnands (2012) is a chemistry and physics teacher at Ashram College in Alphen aan de Rijn, Netherlands, while John Miller (n.d.) of Blueprint High School, Chandler, Arizona, is another. But, could I use it in mine?

The Setup

What did and didn't work

A mistake that is regularly made by people who catch the Scrum bug is to think that buying a cube of sticky notes and turning a wall of the room into a Scrum Board is all that's required. Sutherland is careful to reiterate that Scrum is a *way of thinking*. He actually gives very little space in his book to the Scrum Board, and spends most of it talking about the underlying concepts of team selection and power, minimising waste and understanding processes. Consequently, as I thought about how to adapt Scrum to the classroom setting, I realised it would take some deep changes in the way that we did our learning in the classroom.

So I created a really, really, really, good looking handbook for students that outlined the whole process of Scrum. I used some artwork from the movie *Kung Fu Panda* to capture their attention and bridge the gap from the known to the unknown. (Master Shifu was the Product Owner, for example). This, however, proved to be a general waste of time because I didn't see a student ever open the handbook. (I guess making the booklet did help me get my own thinking in order, however!)

I also tried to create teams by using a very sophisticated survey of self-perception of skills and abilities. This didn't work. What *did* work was to simply consult as a class at the beginning of a unit, and to create groups of 3-4 students that included

a person who "liked ruling up and making things straight." This person became the Product Owner.

Am I assessing individual or team effort?

A Scrum Team exists to create 'product', which is easy when it's writing software. Our Mathematics unit that I wanted to try Scrum on was *Decimals and Operations*. But what could I call 'product'? I could get every team to produce a booklet showcasing the required mathematical skills. This would be not unlike a software team creating product. But in the classroom, we traditionally grade students as *individuals*. A team assessment opened the doors for weaker students to let their teammates do all the heavy lifting. I had to figure out a hybrid method to reward students for their individual effort, and for collaborating as a team.

After a few days of agony and cold sweat, I came up with something that worked.

I broke the unit down into about 15 different skills. Some skills were foundational, and others were more complex. Generally, a chapter of a mathematics textbook will break a unit down into about 10 exercises, or 10 skills. I added a few more, both at the 'bottom' and at the 'top'. For example, being able to stack decimal numbers in columns was not something taught in my Year 7 textbook, yet it was absolutely crucial for the rest of the unit. I printed up a set of 15 sticky-note sized cards that had the name of the skill and a mathematical example.

The next thing I did was to assign each sticky note what Sutherland calls a 'Dog Score' - a

“ as I thought how to adapt Scrum to the classroom setting, I realised it would take some deep changes in the way we did learning ”



Source: <http://thenerdstash.com/trailer-kung-fu-panda-3-official-trailer-debut/>



Moving fast doing maths!

“students could rush ahead and score ... big numbers and then were still ... rewarded by assisting their weaker teammates.”

number that corresponds to the effort required to master the skill. The term ‘Dog Score’ came about when a scrum team were trying to get a handle on how difficult their project was to complete: Some parts required Chihuahua sized effort. Some problems were as difficult as Saint Bernards. Sutherland translated the size of the dog into a number from the Fibonacci sequence: 1,2,3,5,8,13. He used the Fibonacci sequence because those numbers are easier for the human mind to compare relative to each other.

Consequently, stacking decimal numbers in columns had a Dog Score of 1, while long division of decimals had a Dog Score of 13.

I solved the individual versus team problem by printing out a set of different coloured cards for each person on the team. This meant that each team member had his or her own complete set of sticky notes. I told students that the aim was for the team to move the maximum amount of Dog Points from the Backlog column to the Done column. The little trick to enhance collaboration was that when a task, such as stacking decimal numbers, was Done by the entire team, their score for that task was **doubled**. So, if all four members of the team could multiply decimal numbers (8 Dog Points), their team

could get a total of $8 \times 4 \times 2 = 64$ points.

This scoring system meant that more advanced students could rush ahead and score some big numbers, and then were still handsomely rewarded by assisting their weaker teammates.

Creating product – The ‘Definition of Done’

A team member created product by demonstrating that they could solve a randomly generated problem on the sticky note *under test conditions*. The ‘Definition of Done’ was that a test had to be a) completed on grid paper, b) ruled up, c) named, d) numbered, e) completed neatly, f) marked, g) signed off by a peer and h) placed in the ‘Product Box’ at the front of the room. Students were free to attempt a test whenever they wanted. They did not have to complete the entire test; only the questions that they chose to. The only stipulation was that they were not allowed to practice that particular type of problem on the day of the test. They had to do it from long-term memory. In order to fuel this on-demand testing, I created a test in Excel that had 15 problems: each problem corresponded to one of the 15 skills. The numbers were randomly generated for each problem, so I could generate a new test at the press of a button. The solutions

to the test problems were printed on the test page, and students were shown how to hide the solutions by folding over the test page, and how to self-mark their test. (Curiously, under these conditions, students generally took the tests quite seriously, and cheating didn't happen.) I also generated a Practice Sheet that had sets of questions and answers that students could use to rehearse their responses.

Results

It is not easy to say whether Scrum method improved the scores of my class, because I did not have a control group to test them against. However, judging from the general 'buzz' in the classroom, the way that we implemented Scrum added value to what we were doing.

What worked well

- a. Students appreciated being able to genuinely work at their own pace. They could do a test whenever they wanted; they could choose what problems they were going to work on next.
- b. The entire class got through the material very quickly, which enabled us to enjoy the reward of watching *Kung Fu Panda* during Maths, (which I did *very* educationally; pausing the movie to discuss the learning process-failure and success, confidence, team dynamics etc.)
- c. Many students did actually work in teams, helping each other with their weaknesses.
- d. Generally, students were motivated to create product and most needed little guidance. It seems they liked coming to Maths lessons, judging by the sounds they made as they entered the classroom.
- e. Sticky note movement across the Scrum Board and product creation meant that it was obvious when students were falling behind and needed extra support.
- f. As students got used to the process, their Scrum Boards were neat and tidy, demonstrating feelings of pride and care in their work.

What didn't work well

- a. Students did not see value in "The daily stand-up meeting" and had to be regularly prompted to discuss, "What I've done/what I'm doing/ what I'm doing next."
- b. Calculating a running total of Dog Points and graphing their progress on a chart was too complicated for the students to do independently. They were quite happy to just keep track of their work by moving tickets from one side to the other.

- c. One group in particular could not organise themselves to get through sticky notes efficiently. I think this was due to the overall chemistry of the group rather than their individual abilities.
- d. The students lost heart when I was absent for a week due to my participation in a school camp. The substitute teacher who covered my classes was not familiar with Scrum methodology, so the instructions I left were not followed. This resulted in a loss of momentum. When I returned, we finished out the unit, but I could see that students were tired of the method. The way we were implementing Scrum was no longer *fun*, there was no *game* to it.

Reflection

It's been about 4 months since I last used Scrum formally. Firstly, the units since then have not lent themselves to creating randomly generated tests. Secondly, the pace of school life picked up considerably, and I didn't have the time to prepare the necessary materials. Thirdly, I thought the students needed a break from the method, so they could come at it fresh next time, instead of jaded.

What I find most interesting is that this leap, way out of the comfort zone, has transformed the way I do business in my classroom. I now have a greater capacity to invent simple, creative ways to get students to take ownership of their learning journey, to learn quickly, and to reflect on their own learning. **TEACH**

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Developing autonomy in primary school aged children with type 1 diabetes

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Key words: diabetes, children, self-care, autonomy

Abstract

This review considers literature on the self-care of children with type 1 diabetes and applies it to the primary school classroom. It reports that by allowing children to have self-care with their health at an early age, they develop a healthy foundation for lifelong health. This review found that children with type 1 diabetes are able to provide self-care when they develop the cognitive skills to understand how to control their condition, along with social and emotional development to be able to cope within the social environment. It is shown that when care-givers and children monitor the condition closely, better control is achieved resulting in less long-term health problems.

A healthy start in life is vital for establishing a strong foundation of healthy practices for a person's lifetime. There are many health issues that affect primary school aged children including mental health problems, chronic health conditions and lifestyle health related problems. The 2007/2008 Australian Bureau of Statistics (ABS) National Health Survey (as cited in The Australian Institute of Health and Welfare, 2012, p.17) states that 37% of children suffer from at least one chronic health condition. The figures from this report further indicate that whilst from 2001 to 2008 the prevalence of asthma has decreased and the number of children being diagnosed with cancer has stabilised, the number of children being diagnosed with type 1-diabetes has increased.

The Australian Government Department of Health (2012, para.3), states "There is sound evidence that prevention initiatives early in life are highly effective. Prevention, early detection and early intervention with respect to health, education and social problems can improve outcomes for children." Providing children that have chronic

health conditions with the knowledge and skills to take care of their health from an early age can enable deeper understanding of their condition allowing them to achieve better health outcomes.

Purpose and scope

The purpose of this essay is to review literature on children with type 1 diabetes and to discuss the importance of establishing autonomy in disease management for primary school age children. This essay focuses on type 1 diabetes but some of the implications of supporting children with diabetes can be applied to other chronic health conditions as well.

Literature review

Blanson Henkemans, Hoondert, Looije, Alpay, & Neerincx (2012, pp. 51-61) researched details of the support needed for children when self managing type 1 diabetes and the use of a robot to support children within this process. This study was based on interviews with diabetic children, their parents and diabetes caregivers in a semi structured style survey format. The results of the survey revealed that parents play a significant role in the management of their child's diabetes resulting in few complications due to their diabetes management capability. The study suggests that children need to start establishing autonomy prior to puberty so they can become proficient at diabetes management from an early age. Blanson Henkemans et al. (2012), also determined that social robots could be used to "help parents monitor how their children experience their illness and different aspects of its management in regard to mental and physical well-being" (p. 60).

The Blanson Henkemans et al., study had several limitations: a very small sample size was used, the participants volunteered to take part in this study by responding to an invitation, therefore the sample was not randomly selected. This indicates that the sample might not be

“Prevention, early detection and early intervention with respect to health, education and social problems can improve outcomes for children”

representative of all children with diabetes. Another limitation is the absence of quantitative measurements; the results are based on qualitative data only. In addition, there was no robot that this research was actually based on. The robot was an imagined concept that they asked questions about within this stage in the study.

Kelo, Martikainen, & Eriksson (2011, pp. 2096-2108) considered a number of research articles in an integrative review and synthesised these findings. They determined that the ability of self-care is based on knowledge and skills. Further, the extent to which a child could self-care was related to multiple factors including, their own attitude, motivation, gender, age, and emotional wellbeing; diabetes duration and the level of control, care and support provided by parents, teachers, peers and their healthcare team; along with the school environment (Kelo et al., 2011, p. 2096). The child needs to be developmentally mature to be able to cope with the demands of the disease and educating the child about diabetes should be appropriate to their development level (Kelo et al., 2011, p. 2106). Parents and other adults that are responsible for the care of the child, must plan and allow an appropriate transition to independence as a significant gift to the child.

Kelo et al. (2011, p. 2098) attempted to eliminate variables that might offer an explanation for the results they reported on. Accordingly, research that was completed prior to January 1998 was excluded as they focused on only more recent papers to eliminate results based on out of date treatments. In their reported method they aimed to only include articles that used children aged 6 to 12 years old, however in the findings two of the articles that included 3 to 18 year olds are noted. Articles about the technical side of diabetes management were excluded, being considered outside the scope of their review.

The research asserts that the diabetic primary school children need to be developmentally mature to be able to cope with the demands of the disease. Kelo et al. states that educating a child about diabetes should be “empowering” to help and promote self-care and to support the parents’ involvement at an appropriate level for their care (2011, p. 2106). Parents and other adults that are responsible for the care of the child must allow an appropriate transition of independence being given to the child.

Marvicson, (2008, p. 477) investigated the relationship between maternal environment, self-efficacy for diabetes management and child glycaemic control. The overall focus of this study was based on mothers as they “typically

assume the primary responsibility of the diabetes supervision”, (Marvicson, 2008, p. 478). This study states that school age children require more independence than is advisable. The study found that a mother’s coping resources significantly predicted maternal self-efficacy. The more support the mother received the better they were at taking care of their diabetic child.

The results of the study indicated that the mothers had less confidence in their ability to adjust the child’s management plan if the child was not going to be with them for an extended time with instances like sleepovers for example. Results taken from the child’s blood glucose meter indicated that when mothers closely supervised their children, the children had better metabolic control resulting in better lifetime health and wellbeing (Marvicson, 2008, p. 481).

This study used “test retest” to try to eliminate problems with self-reporting but it was determined that with the items that were addressed some of the results might not be entirely accurate. To verify results Marvicson used blood glucose monitor readings to give an accurate measure of diabetes control. It was determined that self-efficacy may not be correlated to the tests conducted (2008, p. 482).

A similar but much earlier study, conducted by Leonard, Skay & Rheinberger (1998), surveyed 100 different items of information used to determine self-efficacy. The results indicated that whilst mothers were confident in their own ability of managing their child’s diabetes, they were less confident in their ability to transfer their skills of diabetes management to their child (p. 230). This research suggested that when parents transfer the responsibility of management to their child that their own skills in the management of diabetes will diminish. It is also suggested that children may not manage their disease to the extent that the parents do.

Leonard et al. (1998) also determined that conflict between the mother and child can hinder the transfer of diabetes management skills to the child and that further research needs to be conducted to address dealing with this conflict (p. 231). Several different ways were used to measure data in this survey to cater for logistic data and concept data using multivariate models. It was noted that the strongest multivariate of independence was conflict (p. 229). It is interesting to note in this context Jordan and Kelfer (as cited in Leonard et al., 1998) state that children feel upset when they are treated differently and many feel very restricted in regards to their level of independence, and also “children have a need to maintain control over decisions involving their health by participating

“*children have a need to maintain control over decisions involving their health by participating in decisions but not necessarily taking responsibility for them*”

in decisions but not necessarily taking responsibility for them” (p. 225).

Klingensmith, Kauffman, Schatz, & Clarke (2001, p. S111) give advice for the care of children with diabetes in the school setting. It is recommended that children and youth should, with parental consent, be able to implement their own diabetes care at school to an appropriate extent based on their knowledge and experience with diabetes. The age at which children are able to do this is very individual and specific to the child and depends on their willingness and capabilities. Suggested guidelines for the care of diabetic children in the school setting are offered, and usefully inform practices in the school for school personnel, parents and diabetic children. Appropriate care in the school environment is necessary to ensure the child is safe in the immediate setting, but long term it is vital for both their wellbeing and academic performance (Klingensmith et al., 2001, p. S108). Therefore understanding the effects of the condition both immediate and long term is vital for all teachers.

Application to the child within the primary school setting

The Australian Institute of Health and Welfare (2012, p.17) states that chronic health conditions can impair and delay growth and development of a child physically, socially and emotionally. The research review indicates that in order for a child with diabetes to develop self-care they must be developmentally able to cope with their condition. Teachers and school support staff can adopt many practises to assist diabetic children in dealing with this disease and should be encouraged to take further steps to learn the best way to help support a child develop the necessary skills to do this.

Primary school age children are able to provide self-care when they are socially, cognitively and emotionally ready. Exactly when these developments occur is different for every child however, Erik Erikson’s theory of psychosocial development provides some insights into stages of development and these stages can be related to progress towards self-care. Faw (1995) states that Erikson’s theory suggests that people develop through a series of eight stages where they encounter a crisis or conflict at each stage. Erikson’s suggests that people progress through these stages around similar ages and the stages are sequential. When a crisis is resolved, social and emotional growth and development occurs and a person proceeds to a new stage of development. According to Aden, Benner & Ellens (1992) growth can only occur in the midst of a crisis (p.37).

According to Erikson, autonomy is the second

stage of development and this usually occurs when a person is a toddler, this is the stage where a child develops more independence and self-control (Chapman, 2006). The second developmental crisis that is relevant to a diabetic child developing self-care is Erikson’s fourth stage, the stage of industry vs. inferiority. Chapman (2006), states that this stage usually occurs during the primary school years and this is a time when a child develops skills and competence. Although the fifth phase according to Erikson, usually develops during adolescence it may happen earlier for diabetic children. According to Benner (1987), Erikson relates phase five to identity formation; usually adolescence is a time for a person to learn their identity in relation to the world around them (p. 24).

Type 1, diabetes is a complex condition that requires numerous skills to be able to manage the disease and in treating the whole child, it goes beyond the administration of correct medication and diet. According to Atkinson, Eisenbarth & Michels (2014, p. 69) most commonly type 1 diabetes is diagnosed between the ages of 5-7 years of age or pre-puberty and can be caused by an immune or auto immune response in the body that may be triggered by environmental factors. The current treatment for type 1 diabetes is exogenous insulin therapy delivered by subcutaneous injections and as stated by Atkinson, Eisenhart & Michel (2014, pp. 72-73), most modern countries utilise the technology of insulin pumps and continuous glucose monitoring.

Cognitive development in helping to understand physical symptoms

For children to be able to understand diabetes, to result in self-care, a child must have developed the cognitive skills to understand how to best manage the physical symptoms of the condition. In a primary school a teacher could help a child to develop understanding by ensuring that they too research and learn about the disease, allowing them to be able to provide assistance to the child also, if needed.

The most immediate risk for a diabetic child that a teacher, staff and the child needs to be aware of is hypoglycaemia. Hypoglycaemia, or a low blood sugar level, occurs when the blood sugar level drops below an appropriate safe level. Students need to be aware of these symptoms so they can treat themselves for this but there may be times when they can not recognise the symptoms. A teacher that can recognise the symptoms of hypoglycaemia may see the child displaying these symptoms and can ask the child to test their sugar level. Some of the symptoms of hypoglycaemia as detailed by Briscoe & Davis (2006, p. 116), are: paleness, sweating,

“Appropriate care in the school... is necessary to ensure the child is safe in the immediate setting, but long term it is vital for both their wellbeing and academic performance”

palpitations, shaking, fatigue, excess hunger, disorientation, headache and nausea. Failure to treat hypoglycaemia can result in loss of consciousness for the child. Litvin, Clark & Fisher (2013) report that hypoglycaemia can have detrimental effects on the brain and brain development and if severe can cause “brain damage, long-term cognitive dysfunction and even sudden death” (p.1922).

For children with diabetes the ability to develop the skills necessary to be able to understand the physical aspects of their condition and their health, whilst developing the skills to measure, understand and respond to their medical needs with the use of medication, would be developed during the skills and competence phase of Erikson’s theory. A child needs to be cognitively developed at this stage to be able to understand how to control their illness, and attaining the cognitive development required to take care of the physical aspects of the condition, will enable the child to be have more autonomy.

Social development and emotional development

A diabetic child also has challenging social issues that they need to address as they seek to feel included and valued in their class. Children who have diabetes may feel isolated, misunderstood and different from other children. It is important for teachers to ensure that diabetic children are included in all classroom and play ground activities. It was indicated in at least one study that children can sometimes feel parents or teachers do not understand what they are experiencing, so it is important for both to show empathy towards the child and seek understanding of how they feel. In order to allow the child to feel comfortable discussing how they feel with the teacher or other students in the class, it might be worthwhile asking the child if they would like to talk to the whole class about diabetes. Allowing the child to tell others about it and allowing them to feel that these people can understand them would help them to feel more comfortable in the classroom, to be able to test their sugar levels within the class, and if they preferred, not the leave the room to also inject or use a pump without the fear of being judged by other students or teachers.

Having a chronic medical condition can require a child to address some developmental aspects earlier than may be encountered by their peers. This may mean that a diabetic child could develop into a phase of identity crises that Erikson relates to as the adolescent development phase quicker as they struggle with a crisis of trying to find their identity of being a ‘normal person’. It is important for teachers to also realise that students may have emotional swings as they come to terms with accepting their condition. Supporting the child emotionally and

helping to set up a system within the classroom to support the child’s emotional needs with peers would be beneficial and assist the child in feeling comfortable within the classroom.

Conclusion

Berger, (2014, p. 328) suggests that for children with chronic health conditions middle childhood is a time for them to establish good health habits in order to be able to maintain good health and form lifelong healthy habits. Research shows that primary school aged children have the ability to use self-care when they are cognitively, socially and emotionally developed to understand how to control their disease. Diabetes is a complicated condition to manage and parents can find it difficult to allow children to take some independence in their condition. It is important for parents and teachers to support the development of the child to the self-care stage.

Establishing the ability for primary school-age children to be able to take care of their own health is very important and this becomes even more important for a child that has a chronic health condition. There are many implications for teachers in assisting diabetic children feel ready to take steps towards self-care. Within the primary school setting it is extremely important for caregivers who are responsible for diabetic students to have a thorough understanding of the disease and how a student may be affected by some of the difficulties that can arise from diabetes. Helping a child to establish fundamental understanding and providing support of healthy practices, along with social and emotional support can be life saving and life changing for a diabetic child. **TEACH**

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Conflict resolution for the classroom

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Key words: conflict, classroom, resolution, negotiation

Conflict significantly disrupts achievement within classrooms. It effects individuals but also influences group members and potentially a wider community. Minimizing conflict optimizes opportunity and this is the goal of sharing these insights.

WHAT is conflict?

Barsky (2007) defines conflict as existing "... when two or more parties have differences in beliefs, values, positions, or interests, whether the divergence is real or perceived" (p. 2). Using this definition for conflict makes it easy to see how that conflict is a common occurrence in the school setting each day... whether public, private, or faith-based.

WHY plan resolution?

Training students for conflict resolution helps to equip them to become independent problem-solvers, prevents additional behavioural concerns, has a positive effect on the learning environment, and supports the responsible learning atmosphere desired by all schools. A choice to use the following processes should 'nest' within the school educational 'visioning'. Wiles and Bondi (2004) assert "The issue is what kind of learning you wish to promote and how classroom management and discipline conform to that conception" (p. 77).

HOW can it be done?

"A prepared teacher approaches child-child classroom conflict by being supportive to children in very intentional ways" (Finch & Wirtenan, 2012, para. 9). A more traditional response to student conflict is for the teacher to refuse to take time to follow due process, but rather to assign punitive consequences to both parties. Another popular and traditional view is to simply make the students "apologize and make-up." The problem with these views is that they do not allow the problem to be responsibly addressed and resolved. Thus, this type of conflict management can actually increase the problem. Additionally, it does not equip students to resolve their own conflict.

The biggest complaint from teachers is that they don't have time to train students to deal with conflict resolution. To teach the required standards while seeking to keep the peace is all they can do. However, Porro (1996) provided an alternative viewpoint that suggests that you gain more time to teach if you first explain resolution of conflict. In other words, a small investment of time at the beginning can work wonders throughout the year to enable students to be equipped to resolve their own conflicts.

The key to eventually saving class time by teaching conflict resolution is to coach students to become advocates for their own conflict resolution. This type of valuable training of students to be advocates for themselves during conflict resolution is a three-part process:

1. *Attitude assurance:* Ensure students have the right view of, and attitude about, conflict.
2. *Cooperation coaching:* Train students, and give them plenty of practice, in cooperating with their peers.
3. *Negotiation 'know how':* Teach students how to negotiate Christianly by supplying them with the right tools and guiding their practice.

Equipping tools

The 'equipping tools' for student advocates include:

Tool 1: *The Bible*

Matthew 18:15-17 directs Christians to resolve conflict in a way that is pleasing to God. That way begins with going to the person alone and telling them the problem, in order to restore the relationship. Then, we may take a witness. If unsuccessful, it ends with working with the person and authority (church is the authority listed, but teacher is an authority figure at school).

Tool 2: *Prayer*

Prayer should be taught, modelled, and expected of children.

Tool 3: *Honest Evaluation*

Biblical advisement encourages people to evaluate themselves on an ongoing basis.

Tool 4: *Effective Communication*

Effective communication involves two

“you gain more time to teach if you first explain resolution of conflict.”

main factors: honest communication and full communication. Communication is most successful when students know how to establish their own ground rules. Of course, those who follow the “Golden Rule” (Matthew 7:12) first and foremost will be in a prime communication beginning point. Webne-Berhman (2011) also suggests the following ideas for establishing ground rules for communication:

- a. One person speaks at a time.
- b. We will make a sincere commitment to listen to one another, to try to understand the other person’s point of view before responding.
- c. What we discuss together will be kept in confidence, unless there is explicit agreement regarding who needs to know further information.
- d. We agree to talk directly with the person with whom there are concerns, and not seek to involve others in “gossip” or “alliance building.”

Negotiation

Negotiation is a valuable tool for resolving conflict. One very acceptable goal to teach students is the concept of a “win-win” resolution, such as through compromise. According to Rafenstein (n.d.), a compromise requires “that both parties give up something in order to solve the problem. In the long run, however, giving up something can really be like getting something if the conflict is resolved” (para. 5).

A negotiation plan can be created through class collaboration efforts. The following is one example of a plan suggested by Denton & Kriete (2000) [embellished by the author]:

- Calm down (walk away, count to ten, pray, if you can forget – choose to)
- Explanation of the upset party (“I-message”)
- Discussion and negotiation (i.e. a counter “I-message”)
- Some kind of acknowledgment (handshake, “I forgive statements”, etc.)

WHERE to begin?

At the beginning of each school year, masterful teachers automatically dedicate class time to teaching procedures for that classroom. They understand that rituals and routines are a necessary part of the classroom environment because they enable the class members to focus

more fully and successfully on learning. This is the perfect time to add just a consideration of conflict resolution. During that training time, simply include the following plan into the classroom training.

1. Introduce the concept of conflict resolution, including its components of attitude, cooperation, and negotiation.
2. Equip students with proper negotiation tools of The Word, prayer, honest evaluation, and effective communication.
3. Develop class expectations about conflict resolution and proper negotiation. Work collaboratively to set a negotiation plan that the whole class can explain and follow.

By equipping students to resolve their own conflicts, teachers are able to focus on the most important goals for the classroom. These lessons, however, remain a valuable expenditure of time, as these skills will serve students well for the rest of their lives, since conflict is a regular and natural part of life.

Some may think that students in the primary grades are not able to resolve their own conflicts. However, students at all levels are able to learn these same concepts on their own levels. Further, teachers can teach the same concepts and offer varying levels of scaffolding until students are able to successfully implement these concepts independently. **TEACH**

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“these skills will serve students well for the rest of their lives, since conflict is a regular and natural part of life.”

Loneliness gets a bad report

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Key words: adolescence, authoritative communities, children, loneliness

The Christian text is quick to introduce the imperative to build close relationships. At the commencement of human history God declares that it is not good for a person to be alone (Gen 2:18 NIV). Loneliness was clearly not a part of God’s original plan for human existence. As Henri Blocher (1984) states,

Solitude contradicts the calling of humanity. From the very beginning, the human being is a Mitzein, a being-with; human life attains its full realisation only in community . . . Every human individual, being either masculine or feminine, must abandon the illusion of being alone. The constitution of each of us is a summons to community. (p. 96)

To be human is to experience a deep desire to be in relationship and to build and sustain close connections with others. According to Murphy and Kupschik (2012), loneliness can be defined as “an overwhelming sense of inner emptiness and social isolation. . . . Loneliness is more than a person feeling that they want to be able to connect on a social level with others – but rather it is a perceived sense of disconnection, rejection and alienation” (para. 1). Lonely individuals often experience a subjective sense of inner emptiness combined with feelings of separation and isolation from others. Rotenburg and Hymel (1999) suggest that the universality of loneliness may well arise “from the universal need for belongingness – the need to establish stable social bonds with others who care. In that context, loneliness is the cognitive and affective reaction to the threat to social bonds” (p. 3).

However, loneliness is not the same as being alone. Being alone in a place of solitude away from societal noise can be a positive thing: it can be a time of renewal and reward. Loneliness is when we believe no one is there for us – we have no one on our side. We believe we are disconnected from others and feel isolated and vulnerable. We can be surrounded by a crowd of thousands and yet feel desperately alone. Weiss (1973), cited in

Qualter, (2003, p. 11), used two terms to describe loneliness: ‘social loneliness’ (‘loneliness of social isolation’) and ‘emotional loneliness’ (‘loneliness of emotional isolation’). He suggests that ‘social loneliness’ refers to ‘being alone’ – “the physical absence of other people.” In contrast, ‘emotional loneliness’ is about a lack of attachment which can be either ‘felt’ or real. Weiss argues that “‘emotional loneliness’ can only be alleviated by a satisfying attachment relationship.”

Research indicates that the negative impact of loneliness on health can be significant. Early research by James Lynch (1977), published in *The Broken Heart: The Medical Consequences of Loneliness*, continues to be supported in more recent literature. Lynch’s hospital based research lead him to conclude that:

there is a biological basis for our need to form loving human relationships. If we fail to fulfil that need, our health is in peril.

Social isolation, the lack of human companionship, death or absence of parents in early childhood, sudden loss of love, and chronic human loneliness are significant contributors to premature death. Almost every cause of death is significantly influenced by human companionship.

... loneliness and isolation can literally ‘break your heart.’ (Preface, para. 1)

House, Landis & Umberson (1998), note “developments suggest that social relationships, or the relative lack thereof, constitute a major risk factor for health-rivaling the effects of well-established health risk factors such as cigarette smoking, bloodpressure, bloodlipids, obesity, and physical activity” (p. 451). Later research (Umberson & Montez, 2010; Commission of Children at Risk, 2003) also clearly links loneliness to negative effects on both the physical and mental health of individuals. Holt-Lunstad, Smith and Layton (2010) reviewed 148 studies that link death with social relationships and found that “people with stronger social relationships had a 50 percent increased likelihood of survival than those with weaker social relationships” (para. 11). Further, when comparing loneliness with other

“Loneliness ... is a perceived sense of disconnection, rejection and alienation ... loneliness is not the same as being alone.”

death risk factors such as cigarette-smoking, high blood pressure, and alcoholism, loneliness was found to lead toward death as much as smoking 15 cigarettes a day (Figure 6). The researchers also found that the effect of social relationships on human health is the same, regardless of age, gender, initial health status or cause of death.

Sue Johnson (2008) refers to research by Louise Hawkey, at the University of Chicago Center for Cognitive and Social Neuroscience, where Hawkey calculated that loneliness raises blood pressure to the point where the risk of heart attack and stroke is doubled. Hart (2003), former Director of the School of Psychology at Fuller Theological Seminary, has stated, “Research confirms the importance of human bonds. Without relationships humans wither and die, both emotionally and physically. The quality of our life diminishes when there is no one to share it with – family, friends, or spouse. . . . Everything about us was designed to live in close community and interaction with others. We certainly were not designed to go through life emotionally disconnected” (p.50). Sue Johnson (2008), links close links to others as ‘vital’ to mental, emotional and physical health.

Billy Joel alludes to the desire for human connections in his song, *The Piano Man* (1973):

*Now Paul is a real estate novelist
Who never had time for a wife
And he's talkin' with Davy, who's still in the Navy
And probably will be for life*

*And the waitress is practicing politics
As the businessmen slowly get stoned
Yes, they're sharing a drink they call loneliness
But it's better than drinkin' alone. (15)*

While it might be easy to imagine loneliness as a pressing issue for previous generations, we may find it more difficult to imagine loneliness being an issue in the digital age with iPhones, iPads and iPods, and LinkedIn, Twitter, and Facebook! Surely the ability to have instant contact 24/7 would eliminate any hint of loneliness. The research suggests otherwise. Current evidence indicates that the quantity and/or quality of social relationships in industrialised societies are decreasing. Holt-Lunstad, Smith and Layton (2010) refer to research indicating that despite increases in technology and globalisation that would presumably foster social connections, people are becoming increasingly more socially isolated.

In a major piece in its May 2012 issue, American magazine *The Atlantic* even postulated that the ubiquitousness of Facebook in our lives, and a growing preference to connect to friends and

family via electronic devices rather than physical contact, had created an epidemic of loneliness. “We are living in an isolation that would have been unimaginable to our ancestors, and yet we have never been more accessible” (para 3). Turkle (2011), author of *Alone Together*, suggests that technology may offer the illusion of companionship but it doesn't provide all that we desire, or need, from friendships.

Children, Adolescents and Loneliness

Loneliness is not just an issue for the aged or geographically isolated—it also confronts children and adolescents. The class room and play-grounds do not offer an automatic buffer against loneliness. Rotenburg (1999) reports that while early research had considered loneliness in adults and adolescents, more recent research has focused on loneliness in children, including those in kindergarten. For example, one study suggested that loneliness in kindergarten children is linked to friendship, peer-group acceptance, victimisation, aggression, withdrawal, teacher-child relationships, parent characteristics, and parenting styles. Loneliness can eat away at a child's soul and diminish the ability to be fully available to the multiple experiences of learning during the school hours. It can restrict potential friendships and opportunities for healthy, creative interaction and development.

A significant study, published in the USA, reported the lack of meaningful relationships among adolescents. *Hardwired to Connect: The New Scientific Case for Authoritative Communities* prepared by the Commission on Children at Risk (2003), stated that in the midst of unprecedented material affluence, large and growing numbers of U.S. children and adolescents were failing to flourish and more and more young people were suffering from mental illness, emotional distress, and behavioural problems. The study referred to statistics that highlighted the high and rising rates of depression, anxiety, attention deficit, conduct disorders, and thoughts of suicide. In their executive summary (Commission on Children at Risk, n.d.) of the research, the authors note, “In large measure, what's causing this crisis of American childhood is a lack of connectedness. We mean two kinds of connectedness—close connections to other people, and deep connections to moral and spiritual meaning” (p.1).

The members of the Commission make reference to a growing amount of research in biology and neuroscience that strongly suggests the need for enduring and nurturing relationships is hardwired in the human brain. “Biological systems

“*what's causing this crisis of ... childhood is a lack of connectedness ... two kinds of connectedness—close connections to other people, and deep connections to moral and spiritual meaning*”

predispose human beings to form and sustain enduring, nurturing relationships” (Boisture, p. 4).

Building Authoritative Communities

The Commission outlined a number of recommendations designed to deal with the growing lack of connectedness in adolescents. The Commission in particular called for a new model that focused on promoting the healthy development of children and youth by surrounding them with a network of nurturing, supportive relationships. The Commission proposed such a model – what the report called ‘Authoritative Communities.’ Authoritative communities (or authoritative institutions), could play a role in providing children and youth with a safe, secure and supportive environment in which to form both nurturing relationships and a positive moral and spiritual perspective on life. The Commission suggests a simple working definition: “Authoritative communities are groups of people who are committed to one another over time and who model and pass on at least part of what it means to be a good person and live a good life” (Boisture, p.6).

The Commission came up with a list of 10 characteristics that describe authoritative communities:

1. they include children and youth
2. they treat children as ends in themselves
3. they are warm and nurturing
4. they establish clear limits and expectations
5. their core work is performed largely by non-specialists
6. they are multigenerational
7. they have a long-term focus
8. they encourage spiritual and religious development
9. they reflect and transmit a shared understanding of what it means to be a good person
10. they are philosophically oriented to the equal dignity of all people and the principle of love of neighbour. (p. 6)

The report states that the family is (or at least should be) the most obvious authoritative community. Parents who are defined as authoritative are warm, involved and accepting, and establish clear-cut and reasonable guidelines, consequences, and expectations. They state that research has consistently demonstrated that children are more likely to experience healthy emotional development when they are reared by parents who practice an authoritative approach. Other core authoritative communities include youth organisations and other community groups involved with children, religious

congregations, and schools.

The Weakening of Authoritative Communities

After defining the concept of authoritative communities and identifying their key characteristics, the Commission then considered the health of authoritative communities in contemporary American society. Their conclusion was that over the last several decades a range of social forces had seriously weakened those types of communities which had seriously reduced their effectiveness in nurturing children and youth. In particular, the Commission spoke of the weakening of American families and social institutions in society. Boisture (2003) notes that “abundant data and multiple analysis confirm what the authoritative communities’ model predicts: When authoritative communities grow weaker, children suffer” (p. 7).

Big Ideas

Dr Kenneth Gladish (2003), National Executive Director of the YMCA, offers three ‘big ideas’ and asks a series of questions that challenge homes and schools to be more in-tune with the need for child and adolescent relational health that promotes close connections and spiritual and moral development that may help in minimising the debilitating effects of loneliness:

Big Idea 1:

Surrounding kids with a richly nurturing environment from birth through adolescence is critical to promoting their healthy physical, emotional, moral, and spiritual development.

If this is true, then why are so many of our current youth strategies and programs focused on trying to put the pieces back together after kids are already in crisis rather than on providing the early and continuing nurture that will keep them healthy and whole?

Big Idea 2:

Positive social, moral, and spiritual development is integral to the healthy overall development of children and youth, and, in turn, fundamentally depends on kids receiving consistent and effective nurture from committed and caring adults.

If this is true, then why as a nation have we become so single-mindedly focused on promoting academic competence and, relatively speaking, committed so little time, effort, and money to supporting our children’s social, moral, and spiritual development? Wouldn’t a more balanced strategy, a more balanced investment, yield a significantly higher return?

“*abundant data and multiple analysis confirm ... When authoritative communities grow weaker, children suffer.*”

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Big Idea 3:

The work of providing this non-academic nurture is done largely by families, neighbourhoods, community groups, and religious organisations (authoritative communities). Taken as a whole, these institutions have been growing weaker when we need them to be much stronger.

If this is true, shouldn't all of us as one be working harder to strengthen the authoritative communities that are, or could be, part of our lives? Given the central role of the family, shouldn't strengthening families be a much higher and more explicit national priority? And shouldn't government and private funders be doing more to make sure that the community and faith-based groups on the front lines of nurturing our kids have the resources they need to do their jobs? (pp. 2-3)

Gladish's questions are too important to be ignored by authoritative communities, including schools. Schools would do best when they work to build and sustain a nurturing environment that fosters emotional wholeness and helps to ameliorate the devastating effects of anorexic relationships; they would do best when they mold and shape a child's social, moral and spiritual development that will in turn assist the child in achieving their God-given desire to build effective connections with their peers; and they will do best when they continue to commit to the task of socialising children and adolescents, including the development of vibrant and healthy friendship connections with their class mates and staff.

Loneliness is a silent killer. The human heart, irrespective of age or gender, has been designed to connect with another heart: not just any connection, but an emotional union that allows a mutual sharing of heart-matter. We have been designed to give ourselves away. Our hearts have been formed to unite in relationships with others, and to experience the reciprocal strengthening and renewing that comes when we take the risk to connect. Children and adolescents urgently need these heart-connections to thrive in a world characterised by detachment and loneliness. **TEACH**

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“*shouldn't government and private funders ... make sure that the community and faith-based groups on the front lines of nurturing our kids have the resources they need to do their jobs?*”

TRANSFORMING

CLASSROOM PRACTICE

Ian Baskin

Head of Department - Bible Department:
Northpine Christian College, QLD
shared with

Bev Christian

Senior Lecturer, Faculty of Business, Education
and Science, Avondale College of Higher
Education, NSW

Is it possible for an in-school soup kitchen to provide a vehicle for practical Christianity, lessons in prayer and a changing school culture?

Ian Baskin, Bible teacher at Northpine Christian College wanted his students to understand the concept of healthful eating using 'pulses'. What began as a "Taste and see" experience during a study of the book of Daniel grew to become a culture-changing feature of the school community.

About once a fortnight after the question, "What are pulses, sir?", the Bible Department made a couple of pots of pulse-based soups—peas, lentils and beans—combined with different



Discipleship in Action: Seniors Alexis Ball and Victoria George help prepare today's pot.
Photography: Ian Baskin

vegies and a blend of herbs and spices and opened the door to students. They called it *Daniel's Kitchen*.

A beautiful spring day in October, 2014; offered a 'teasing' catalyst for something that has transformed more than just a classroom: a Year 7 girl in tears because she was teased for being hungry and a Year 8 boy teasing another student because he had not eaten that day.

The biblical message is practical. "Share with the Lord's people who are in need. Practise hospitality" (Romans 12:13). That day the Bible Department at Northpine Christian College resolved to offer a cup of soup every lunchtime until . . . well, until God said "Enough."

The senior students enthused by the idea of religion being practical, promoted the idea throughout the Middle and Senior classes. On their return they suggested we may need to add a little water—ninety cups of soup left the room that day. They called it the *Matt 14 Kitchen*, because when one student asked, "Why is food frequently around the Bible Room?" the auto-response came from Matthew 14, where Jesus said to His disciples, "You give them something to eat." A slice or two of bread or a bun is also provided. These are yesterday's loaves obtained from a local bakery.

In excess of 40 teachers, parents and students have so far provided either foodstuffs or money to keep the concept alive! Parents at times express their appreciation in emails, letters and cards—often with a cash donation. One such note says, "my boys have asked me to stop making their lunch . . . it seems they like your soup instead." And currently about 80 other students—and more than a dozen staff—regularly help empty the pots on a daily basis. When a puzzled observer commented to Principal Graham Baird, that a large number of users were not really short on food, he replied, "That's actually the beauty of it. It can only really work when those who are not so needy normalise the situation for those who are. This is what makes it comfortable for them."

One day when the bread supply was limited to less than 50 buns, it was suggested that people take either a top or bottom of a bun so that there would be something for everybody.

Teaching & Professional Practice



Tara May enjoys soup too.
Photography: Ian Baskin

The colour-coded mini wheelie bins filled with various pulses are replenished with donations. The number of staff on Ian Baskin's team of helpers is commendable. As Ian noted, "We are simply here to serve. If the kids see God through what is happening, that is all we want. All credit goes to God."

Please pray that God will continue building a community of faith as the team at Northpine place their trust in Him. It is their prayer that having encountered God in such a practical way, more and more students will transition this approach into their personal walk with Him.

Matthew 14:16 But Jesus said to them, "They do not need to go away. You give them something to eat."

“We are simply here to serve. If the kids see God through what is happening, that is all we want. All credit goes to God.”



Sharing soup available for all.
Photography: Ian Baskin

There were two and a half buns left at the end of the day! The fact that students chose to care about someone else was a beautiful thing to experience! God's love is at work.

Visiting guest at the College, Ari Herber, President of Queensland Jewish Community Services loved the soups and recommended the idea to three other schools the very next school day! Spending just 25 minutes in the *Matt 14 Kitchen* at Northpine left him in awe of what a soup kitchen can achieve in generating a closer sense of community. He could feel it. Deputy Jaco Tams added, "There are significantly fewer discipline issues for this time of the year." Clearly the students want to be enjoying the food and the sense of community. Indeed it has transformed more than just the classroom.

The *Matt 14 Kitchen* runs on prayer. Donations are never solicited, yet they are prayed for. The kitchen has been operating for a full year on November 1 and stories of how God is providing are shared with Bible classes.



Matt 14 inspired a response.
Photography: Ian Baskin

Future leadership of schools in Australia: Employee perceptions of taking on the challenge

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Key words: employee aspirations, school leadership, leadership perceptions, succession planning

Introduction

Educational systems are experiencing a global leadership crisis. The literature around school leadership paints a clear picture: school leaders are an ageing population and there is a lack of willingness from classroom teachers to take on school leadership roles. Anecdotal evidence would suggest this is also the case within Adventist Schools Australia (ASA), however, there is a lack of research that has explored the leadership intentions of current employees within this education system. Through a review of school leadership literature, and ASA employee survey responses on the topic of school leadership, this study explores the views of these respondents to taking on school leadership positions, including the influences on their decision to further explore school leadership roles.

Literature review

There is a leadership crisis developing in schools internationally (Bennett, Carpenter & Hill, 2011; Fink, 2010; Pont, Nusche & Hopkins, 2008). The 'Baby Boomer' generation (those born between 1946 and 1964) are increasingly retiring from leadership and principal positions, and the research suggests the next generation are becoming increasingly less willing to take on leadership positions (Bennett, Carpenter & Hill, 2011; Fink, 2010; Australian Principals Association Professional Development Council report, 2002).

Looking specifically at the Australian school

leadership context, the literature identifies there is a shortage of principals (Barty, Thomson, Blackmore & Sachs, 2005; d'Arbon, Duignan & Duncan, 2002; Lacey, 2006; Lacey & Gronn, 2006; McKenzie, 2008). Teasdale-Smith (2008, p. 3) stated "Australia, like most other industrialised nations, is expecting a school leadership crisis with fewer people showing an interest in leading schools".

Dempster (cited in Macpherson, 2009) believes that due to the low numbers of teachers coming forward for principal roles, as well as other key school leadership roles, an urgent systematic approach to finding leaders from within the profession must take place to ensure the next generation of educational leaders. Myung, Loeb & Horng (2011) put forward the strategy of actively recruiting teachers to become school leaders, particularly those identified as having the greatest potential for effective leadership. The authors refer to this process as 'tapping', an informal recruitment mechanism with the goal of progressing school teachers, who demonstrate leadership potential, to take on school principal roles. Their research found that a majority of principals report that they were 'tapped' by their school principal when they were teachers. The following quote captures the viewpoint well:

Current school leaders may be well suited to recruit potential principals from their teaching ranks, as they are acquainted with the demands of the job. Furthermore, through day-to-day interactions with and observations of teachers, school leaders are uniquely positioned to identify and foster the intangible leadership skills in teachers, which are necessary to successfully lead a school but are particularly difficult to capture on standardised tests or resumes alone. (Myung, Loeb & Horng, 2011, p. 699)

“Australia, like most other industrialised nations, is expecting a school leadership crisis with fewer people showing an interest in leading schools”

Additionally, Myung et al. (2011) found that ‘tapping’ can positively impact the recruitment of teachers to become principals. As principals recognise they have the ability to motivate teachers to consider principal roles in the future, the principal themselves may ‘tap’ more, but they may also be more disciplined about who they ‘tap’. It is likely that these teachers will have some school level leadership experience, whether that be as having acted as heads of departments, head of school or other areas of school wide demonstrated leadership (Myung et al., 2011).

Barty, Thomson, Blackmore and Sachs (2005) identify in research, however, that smaller numbers of applications for principal positions does not necessarily indicate there is a decline in interest in school leadership positions. In fact, their research found that interest remains high but, interestingly, principal aspirants are becoming more strategic in how they approach the application process. For example, there is an unwritten code in the teaching profession that you do not apply for leadership positions where an ‘incumbent’ is likely to reapply for the position. As stated by Barty et al. (2005, p. 9):

The incumbent rule can also it seems produce a profound sense of futility in potential applicants. This is because incumbents are, most commonly successful in regaining their positions. This phenomenon, widely observed and discussed, deters many an aspirant from putting in the time and effort to submit an application because to do so would be pointless.

Australian studies also outline the increasing age of the principalship (Barty et al., 2005; Lacey, 2003; Lacey & Gronn, 2005; McKenzie, 2008; Marks, 2013). The Australian Bureau of Statistics (2009) found that the ‘education and training’ sector registered the largest proportion of workers who intended to retire within the next 10 years. Studies from a 2007 national survey identified that more than 50% of school leaders were aged 50 years and older (Australian Government Department of Education, Science & Training, 2007; McKenzie, 2008). One report indicated that 25% of both primary school and secondary school leaders were aged over 55 years old (McKenzie, 2008). Internationally, Hargreaves, Halasz and Pont (2008, p. 71) note that “in many countries, almost half of the current generation of school leaders is due to retire within the next five years, creating significant challenges to leadership recruitment, stability and effective continuity”. Such figures highlight a generic problem in educational settings: the entire leadership team of many schools belong

to the baby boomer cohort and are approaching retirement at similar times.

There is some evidence in the literature that age impacts an individual’s tendency to pursue school administrative positions, with both younger and older individuals less likely to do so than middle-aged individuals (Joy, 1998; Browne-Ferrigno, 2003; Walker & Kwan, 2009). This raises the idea that age, or years of teaching experience, impacts on the decision or intention to seek administrative positions. Browne-Ferrigno’s (2003) case study of 18 students in a principal preparation program suggests that differences by age and experience stem at least in part from individual’s perceptions of readiness to assume or be selected for a principal role. Specifically it was found that younger, less experienced participants expressed greater uncertainty about seeking positions than older, more experienced participants. As Bush (2011, p. 181) writes of the English context, “Heads serve a long apprenticeship (on average 20 years) as teachers and deputies, before becoming head teachers”. “Making the route to the top a swifter process would render it more appealing to younger teachers” (NCSL, 2007, p. 7). Lacey (2003) found that the length of teaching experience appeared to impact on career aspirations, as teachers with less than 5 years experience were more likely to aspire to the role of principal, while those with more than 10 years experience are more likely to want to remain in the classroom. Additionally, although there was a significant increase over time in the number of teachers aspiring to the assistant principal position, 50% of younger teachers who had aspired to the principal position at the beginning of their careers no longer did so. Another interesting finding of the study was that more primary teachers aspired to the principal role than secondary teachers.

The Texas (U.S.A.) based University Council for Educational Administration reported that in 2007, 52% of principals leave their position within a three-year period (Fuller, Orr, & Young, 2008). As Fink and Brayman (2006, pp. 62-63) speculate, having been stripped of their autonomy, principals are frustrated, which has produced “an increasingly rapid turnover of school leaders and an insufficient pool of capable, qualified, and prepared replacements”. Concerns relating to the complexity of the role have also contributed to the attractiveness of the principalship being questioned, along with compensation that is not seen as commensurate with the work (Bengston, Zepeda & Parylo, 2013; d’Arbon, Duignan, Duncan & Goodwin, 2001; DiPaola & Tschannen-Moran, 2003; Kruger, 2008; Leithwood, Jantzi & Steinbach,

“
the
‘education
and training’
sector
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the next 10
years.”

1999; McAdams, 1998; Mertz, 1999; Portin, Shen & Williams, 1998; Pounder & Merrill, 2001; Thomson, 2009; Whitaker, 2001).

It is interesting to note that some American literature suggests there is not so much a shortage of qualified people who could fill available administrative roles – the United States generally certifies more administrators than principal vacancies - but rather, the demand is for principals with attributes and skill sets that go beyond merely possessing the relevant administrative credential (Lankford, O’Connell & Wyckoff, 2003; Pounder, Galvin & Sheppard, 2003). This is echoed by others outside the U.S. context, as they identify the need for leadership that manages schools in periods of rapid change, engages school stakeholders and continues to benefit both the school community and their students (Bush, 2008; Brundrett, Fitzgerald & Sommefeldt, 2006). There is clearly a disconnect between qualified candidates for principal positions and job applications, which is resulting in a shortage of candidates for leadership positions.

The results of a Canadian study described by Gallo and Ryan (2011) reflect interesting findings around gender differences and leadership aspiration. A survey of 2,000 teachers, followed up with focus group interviews, identified males and females as having differing attitudes toward leadership; specifically, more females than males wanted to remain in the classroom. Females tended to aspire to the assistant principal role rather than the principal role, while more males aspired to the principal role. “Aspiration to the assistant principal role increased over time for both males and females” (Lacey, 2003, para. 10), based on a commissioned Victorian Department of Education and Training research project in 2000.

Gallo and Ryan (2011) further noted that participants reported a high level of satisfaction from factors such as the sense of achievement through their work, interactions with students, school policies and practices, and the physical work environment. Factors which have been identified as working against a decision, included the effect of the job on the individual’s personal life, the adequacy of administrative support, and the perceived intensity of the job. In an Australian context, D’Arbon, Duignan, Dwyer and Goodwin (2001) undertook research in the Catholic Education System, and found eight scales that related to an unwillingness for Catholic based employees to apply for leadership roles, and two scales that related to a willingness to apply from their factor analysis of survey data. The eight factors influencing the decision not to apply were: Personal and Family Impact, Unsupportive

External Environment, Explicit Religious Identity, Interview Problems, Systemic Accountability, Lack of Expertise, Gender Bias and Loss of Close Relationships. The two factors influencing the decision to apply for leadership roles were Internal Rewards, and External rewards.

Additionally, the literature indicates educators in faith-based school settings face an additional deterrent when aspiring to leadership roles. According to d’Arbon, Duignan, Duncan and Goodwin (2001, para. 34):

In addition to the normal administrative and leadership qualities required of a principal in any school system, those who decide on a career path in a Catholic school have the additional challenge of leading a faith-based school community in which their personal lives, faith-commitment and religious practices are placed under scrutiny by Church authorities as well as by the Catholic education system, the students and their parents. These additional expectations can be seen to be a deterrent to persons applying to become principals.

The literature clearly emphasises that education systems must consider succession processes that create pools of potential leaders, or risk the shrinking of their educational relevance. This view is supported by Zepeda, Bengtson and Parylo (2011), who suggest that because school systems can no longer rely on an appropriate number of principal applicants, succession planning will be the life blood of educational systemic success. As Thompson (2010, p. 98) writes “leadership development should not be left to chance, but should be part of a planned effort at all levels from the broader organisation through to the leader. This [is a] call to grow your own leaders”.

Methodology and processes

The data for this study were collected as part of a larger research project examining the perceptions of the succession process held by those working within the private faith-based education system, Adventist Schools Australia (ASA). The research project employed a two phase mixed method design, consisting of both a quantitative component and a qualitative component. This study explores the survey data, from the quantitative component, relating to desires and influences impacting ASA employees with regards to involvement in school leadership positions.

The study adopted three specific questions to direct the research:

1. What are the desires of ASA employees with respect to school leadership positions?
2. What factors influence ASA employees

“the demand is for principals with attributes and skill sets that go beyond merely possessing the relevant administrative credential”

NOT to apply for school leadership positions?

3. What factors influence ASA employees **TO** apply for school leadership positions?

The questionnaire was developed after a thorough review of the literature was undertaken, with a number of relevant stakeholder groups also consulted. Its initial structure was based on previous research undertaken by Tony D'Arbon, Patrick Duignan, Deirdre Duncan, Jack Dwyer and Kim-Maree Goodwin (2001) in the 'Planning for the Future Leadership of Catholic Schools in New South Wales' project at the Australian Catholic University. Importantly, its development was also guided by four additional criteria. First, it was important that it cover the concerns of ASA employees with regard to leadership succession planning. Secondly, its structure needed to be consistent with the general principles of questionnaire development and be internally consistent. Thirdly, individual items within it must be sensitive to the differing levels of concern expressed by respondents. Lastly, ease of administration and aspects of statistical analysis were considered.

The draft questionnaire was piloted with a small group of ASA present and past employees who had a good understanding of this school system. Briggs, Coleman and Morrison (2012, p. 152) write "The single most effective strategy to minimise problems is to make sure you pilot your instruments". The pilot study resulted in the revision of a number of the items, as well as identifying structural issues and a needed correction to the layout of the Likert scale being made. These changes made the instrument more user-friendly, and the feedback aided in providing a more cohesive, concise instrument. The final questionnaire was then prepared for distribution to ASA employees via email, along with instructions on its completion and statements regarding the guarantee of anonymity. The survey instrument consisted of a questionnaire divided into four sections (corresponding with dimensions). Dimension One contained demographic items. Dimension Two consisted of one question, which asked respondents to identify their career desires. Dimension Three consisted of 38 fixed choice items related to factors that would influence respondents **NOT** to apply for principal positions. Dimension Four consisted of 12 fixed choice items related to factors that would influence respondents **TO** apply for principal positions.

Emails (1173) were sent out to ASA employees with an online link to the questionnaire via SurveyMonkey. This online link was left open

for a one-month time frame. At the completion of the one-month (and subsequent three follow up emails), 504 responses were completed, representing a 42.9% response rate. Of these 400 responded to almost every item on the survey, and form the database for this study. The data from the questionnaire was then exported into the statistical analysis software program IBM SPSS Statistics, Version 22.

Results

Sample

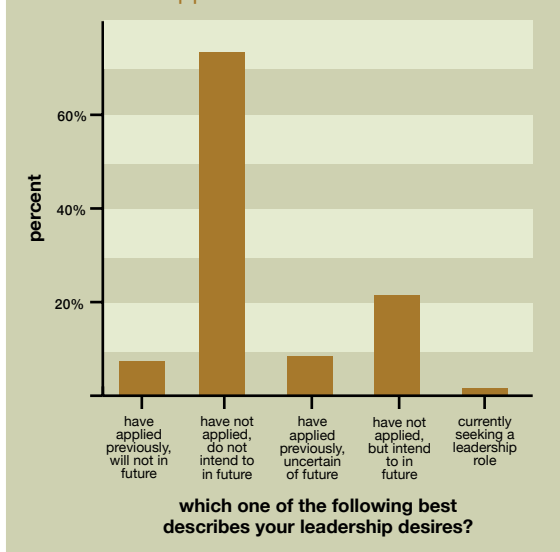
Of the 400 ASA employee respondents 258 (64.5%) were female and 142 (35.5%) were male; 21.3% were under 30 years of age, 25.8% were 31-40 years of age, 29.5% were 41-50 years of age and 23.5% were 51+ years of age; 48.0% were employed as primary teachers and 52.0% were employed as secondary teachers.

Desire to seek school leadership positions

Figure 1 provides an overview of ASA employees' desire to seek leadership positions within the ASA system. While 6.5% indicated that they have applied for a school leadership position in the past but will not do so in the future another 6.7% indicated that they have applied for a school leadership position in the past but are unsure if they will in the future. A majority (64.5%) indicated that they have never applied for a school leadership position and do not envisage doing so in the future. About 19% indicated that they have not yet applied for a school leadership position, but do envisage

“6.5% indicated that they have applied for a school leadership position in the past but will not do so in the future”

Figure 1: Employees' school leadership application intentions



doing so in the future. Only 1.8% indicated that they were actively seeking a school leadership position. The desire to seek leadership positions was further explored in terms of gender, teaching level and age differences.

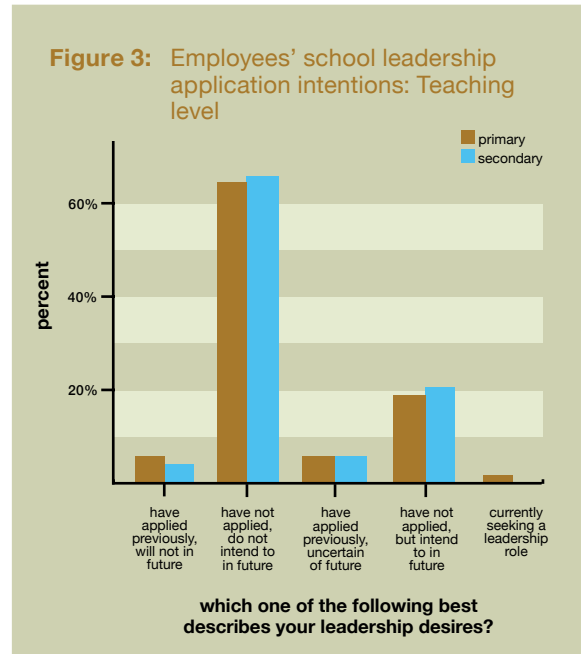
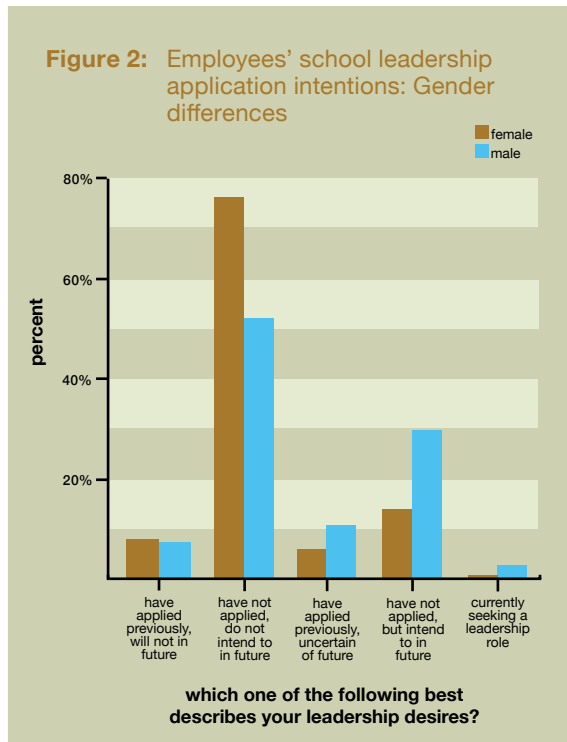
Gender differences

In terms of gender differences, 6.3% of females compared to 5.9% of males indicated that they have applied for a school leadership position in the past but will not do so in the future. Fewer females (4.3%) compared to males (11.1%) indicated that they have applied for a school leadership position in the past but are unsure if they will in the future. About three quarters of the females (74.7%) compared to half (51.1%) of the males indicated that they never applied for a school leadership position and do not envisage doing so in the future. Those that have not yet applied for a school leadership position, but do envisage doing so in the future included 13.4% of the females and 28.9% of the males. Lastly, only 1.2% of females compared to 3.0% of males indicated that they are actively seeking a school leadership position (Figure 2).

“About three quarters of the females (74.7%) compared to half (51.1%) of the males indicated that they never applied for a school leadership position and do not envisage doing so”

Teaching Level Differences

The data also indicated that 6.7% of primary level teachers compared to 4.4% of secondary level teachers reported that they have applied for a



school leadership position in the past but will not do so in the future. Only 6.7% of both primary and secondary level teachers indicated that they have applied for a school leadership position in the past but are unsure if they will in the future. Similar majorities of primary level teachers (66.3%) and secondary level teachers (67.2%) indicated that they had never applied for a school leadership position and do not envisage doing so in the future. Comparable components of primary (18.4%) and secondary level teachers (20.6%) indicated that they had not yet applied for a school leadership position, but did envisage doing so in the future. Interestingly, 1.8% of primary level teachers compared to 1.1% of secondary level teachers indicated that they were currently seeking a school leadership position (Figure 3).

Age differences

Finally, the 'desire to seek leadership' data indicated that 1.2%, 1.0%, 5.1%, and 18.8% of the less than 30 years, 31-40 years, 41-50 years and 51 and over, year age groups respectively, indicated that they have applied for a school leadership position in the past but will not do so in the future. Comparatively 1.2%, 5.0%, 10.3%, and 9.4% of the less than 30 years, 31-40 years, 41-50 years and 51 and over years' age groups respectively, indicated that they have applied for a school leadership position in the past but are unsure if they will in the future. A majority in each age group (70.6%, 66.3%, 65.0%, and 64.7% of the same ordered age groups)

indicated that they had never applied for a school leadership position and do not envisage doing so in the future. Importantly, 25.9%, 24.8%, 18.8%, and 4.7% of respective age groups, indicated that they have not yet applied for a school leadership position, but do envisage doing so in the future. Notably only, 1.2%, 3.0%, 0.9%, and 2.4% of the less than 30 years, 31-40 years, 41-50 years and 51 and over years age groups respectively, indicated that they are actively seeking a school leadership position (Figure 4).

Factors influencing teachers NOT TO apply for school leadership positions

Factors impacting teachers' unwillingness to apply for school leadership positions were determined by factor analysis of the 38 Dimension Three survey items. The responses for these 38 items, selected on a 4 option Likert scale, were near normal in their distribution. Missing data was randomly distributed in the database, and replaced by using the SPSS 'replace with a mean' option.

Principal factor analysis with oblique rotation (Direct Oblimin with Kaiser Normalisation) was conducted on the 38 items linked to unwillingness to apply for school leadership position. The Kaiser-Meyer-Olkin (KMO) was .904, which is greater than the minimum criteria of .5 (Hutcheson & Sofroniou, 1999), indicative of sampling adequacy. The KMO for the individual items were all above .775, consistent with what the literature would describe as acceptable (Field, 2013). An initial analysis was run to obtain eigenvalues for each factor in the data. The scree plot suggested a five factor model, and this was finally adopted for this study. These five factors, which in the analysis had eigenvalues over Kaiser's criteria of one, in combination explained 65.23% of the variance. Items with a loading of less than .40 or which exhibited significant double loadings were removed and the analysis repeated.

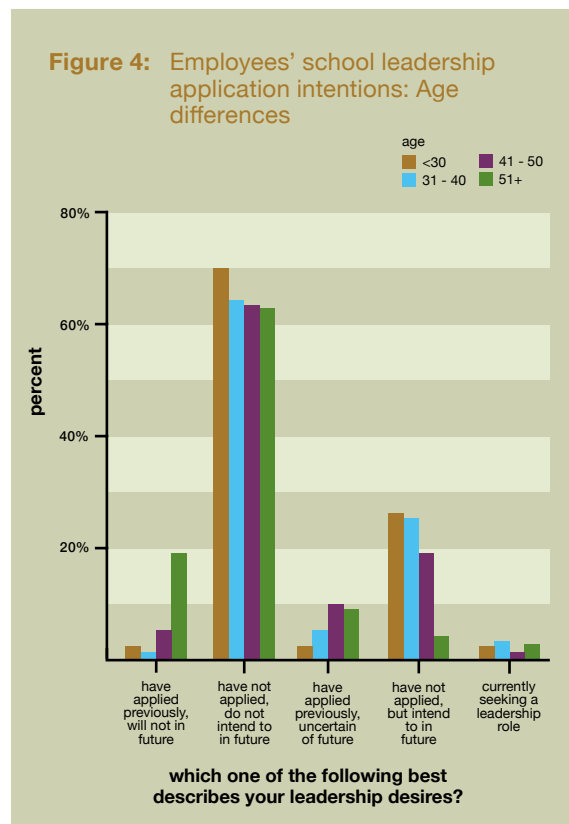
Five factors were identified and the respective reliability coefficients (Cronbach's alpha) determined as outlined in Table 1. Each of the factors represents a common theme. Factor 1, Work-Life Balance, represents the perception to which respondents identify work-life balance components to add pressure to the role of principal (sample item: The role intrudes too much on personal and family life). Factor 2, Leadership Detractors, represents a perception by respondents that aspects of the role of principal make the position less attractive (sample item: The career path of a principal is a dead-end one). Factor 3, External Environment, represents a perception that respondents consider aspects of the external

environment to be unsupportive (sample item: Principals are often over-scrutinised by governing bodies). Factor 4, Gender Bias, represents the perception of respondents that gender bias played a part on the appointment of principals (sample item: Men are valued more than women as principals). Factor 5, Religious Identity, represents the extent to which respondents felt that religious elements impacted on the role of principal (sample item: The principal is expected to be a 'practising' Adventist).

For the four option Likert scale (1-4) ranging from 'Low' to 'Medium' to 'High' to 'Very High' adopted by this study, the greater the mean of the factor scale, the greater the respondents' perceived importance of the factor in influencing their decision either TO or NOT TO apply for a leadership position.

Analysis of the 'unwillingness to apply' data indicated it was the work-life balance factor with a mean of 2.814 - indicating a high degree of influence - that the majority of the respondents considered to be the strongest influence on why they would not consider taking on school leadership positions. This was followed by the leadership detractors and external environment factors, with similar means ($M = 2.259$ and $M = 2.258$ respectively) but of

“Notably only, 1.2%, 3.0%, 0.9%, and 2.4% of the less than 30 years, 31-40 years, 41-50 years and 51 and over years ... respectively, indicated that they are actively seeking ... school leadership”



magnitude indicating a medium degree of influence on their decision. Gender bias ($M = 2.075$) and religious identity ($M = 2.040$) have similar medium level influence, the latter having the least influence on the decision not to apply for school leadership positions (Table 1).

An exploration into whether there was a significant statistical difference in these influence factors across gender, teaching level and age was conducted, using t-tests and a one way ANOVA.

Gender Differences

Table 2 provides data relating to the female and male respondents with respect to the five 'not to apply for leadership' position factors. There was a significant statistical difference in the gender bias factor, with the female mean ($M = 2.394$), indicating only a medium level of influence on their decision to not apply, being higher than the male mean ($M = 1.573$), who considered this to be a lower influence on their decision-making, [$t(391) = 8.231, p < 0.001$]. Additionally there was a significant statistical but smaller difference in the external environment factor, with the females ($M = 2.313$) considering this to be a stronger influence on their decision to not apply, than males ($M = 2.158$), [$t(379) = 2.158, p = 0.032$].

There was no significant statistical difference in the male and female responses relating to the influence of the work-life balance, religious identity and leadership detractors in the decision not to apply for school leadership positions.

Teaching Level Differences

Of the five 'NOT TO' apply for a leadership position factors only two registered significantly different responses between the primary and secondary employees (Table 3). Even though the responses relating to the influence of religious identity indicated this factor only had a moderate influence on their decision NOT TO apply, there was a significant statistical difference between the secondary level respondents and primary level respondents with the secondary teaching level ($M = 2.190$) considering this to be a stronger influence, than primary level respondents ($M = 1.924$), [$t(343) = 2.862, p = 0.004$]. There was also a significant statistical difference in the leadership detractors factor, with the secondary teaching level respondents ($M = \text{mean } 2.356$) considering this to be a stronger influence on their decision to not apply, than primary level teaching respondents ($M = 2.164$), [$t(338) = 2.683, p = 0.008$].

There was no significant statistical difference in the primary and secondary level respondents relating to the influence of the external environment, work-life balance and gender bias factors in the decision not to apply for school leadership positions.

Age Differences

There was no significant statistical difference between the respective age categories in terms of the influence of the five factors on their decision not to apply for leadership positions. What was noticed, however, was an age difference trend within the work-life factor. Here, the perceived influence of the work-life factor in their decision

“it was the work-life balance factor ... considered to be the strongest influence on why they would not consider taking on school leadership positions.”

Table 1: Unwillingness to apply influences: Factors, factor description, scale means, standard deviations and reliability coefficients

Unwillingness to Apply Factor	Factor Description	Scale Means	Standard Deviation	Cronbach's Alpha
Factor 1 Work-life Balance	The perception that work-life balance components add pressure to the role of principal.	2.814	0.73	0.790
Factor 2 Work-life Balance	The perception that aspects of the role of principal make the position unattractive.	2.259	0.67	0.719
Factor 3 The External Environment	The perception that the external environment is unsupportive.	2.258	0.68	0.899
Factor 4 Gender Bias	The perception that gender bias played a part in the appointment of principals.	2.075	0.96	0.862
Factor 5 Religious Identity Expectations	The extent to which religious elements impacted on the role of principal.	2.075	0.88	0.744

Table 2: Scale means across the NOT TO apply for school leadership position factors by gender

Factor	Gender	Scale Mean	Standard Deviation
The External Environment*	Female	2.313	0.658
	Male	2.158	0.709
Leadership Detractors	Female	2.246	0.654
	Male	2.282	0.715
Work-life Balance	Female	2.852	0.733
	Male	2.742	0.737
Religious Identity Expectations	Female	2.018	0.847
	Male	2.078	0.951
Gender Bias*	Female	2.394	0.960
	Male	1.573	0.755

* Significant difference at 0.05 level

Table 3: Scale means across the NOT TO apply for school leadership position factors by teaching level

Factor	Teaching Level	Scale Mean	Standard Deviation
The External Environment	Primary	2.268	0.690
	Secondary	2.261	0.644
Leadership Detractors*	Primary	2.164	0.639
	Secondary	2.356	0.680
Work-life Balance	Primary	2.817	0.732
	Secondary	2.830	0.716
Religious Identity Expectations*	Primary	1.924	0.802
	Secondary	2.190	0.912
Gender Bias	Primary	2.051	0.965
	Secondary	2.124	0.975

* Significant difference at the 0.05 level

“the perceived influence of the work-life factor in their decision to not apply for positions of school leadership, increased with age”

to not apply for positions of school leadership, increased with age as indicated by the change in the respective means (<30 = 2.724, 31-40 = 2.854, 41-50 = 2.927) until the 51 plus age group. This age group registered the lowest mean (2.701) indicating that the work-life balance affects them the least.

Factors Influencing Teachers TO Apply For School Leadership Positions

The survey data obtained from the 12 willingness ‘TO’ apply for school leadership position items, were near normal in their distribution and missing respondent data were randomly distributed in the database. The missing data were replaced by using the SPSS ‘replace with a mean’ option.

Principal factor analysis with oblique rotation (Direct Oblimin with Kaiser Normalisation) was conducted on the 12 willingness to apply for school leadership position items. The Kaiser-Meyer-Olkin (KMO) statistic was .869, which is greater than the minimum criteria of .5 (Hutcheson & Sofroniou, 1999), indicative of sampling adequacy. The KMO for the individual items were all above .808, consistent with what the literature would describe as acceptable (Field, 2013). An initial analysis was run to obtain eigenvalues for each factor in the data. The factors which had eigenvalues over Kaiser's criteria of one, of which there were two, in combination explained 51.84% of the variance. The scree plot agreed on a two factor model, which was adopted for this study. The final two factor output of this analysis is shown in Table 4.

Each of the factors represents a common theme. Factor 1, Internal Rewards (sample item: Principals have an opportunity to make a difference in the lives of others), with a mean rating of 2.802 indicates that the great majority of the respondents perceive that internal rewards act as highly influential incentives to apply for the role of principal. External Rewards, Factor 2 (sample item: The prestige offered by the role of principal is attractive), with a mean rating of 1.854 indicates that the great majority of the respondents perceive external rewards acting as medium rather than strong incentives to apply for the role of principal.

An exploration into whether there was a significant statistical difference in these 'willingness to apply' influence factors across gender, age and teaching was conducted, using t-tests and a one way ANOVA.

In contrast to the NOT TO apply for school leadership position factors there was no significant statistical difference in the influence on the ASA employees' decision TO apply for school leadership positions across any gender, teaching level and age category. Interestingly, however, it is the 41-50 age

group that generated the highest rating for both of these TO apply factors; and the very low rating of the External Reward factor for the 51+ age group would suggest that these external rewards have very little influence on their desire to apply for leadership positions at this stage of their careers.

Discussion

In terms of leadership desire, it is important to note an overwhelming 64.5% of ASA employees who responded to the survey have not applied for school leadership positions, and do not envisage applying for school leadership positions in the future. Additionally, only one in four ASA employees (27.3%) would consider or anticipate applying for school leadership positions; and only 1.8% of these respondents were currently seeking school leadership roles. Significantly, 13.2% of respondents indicated they had applied for a leadership position previously, with some identifying no desire to apply again in future, and some indicating uncertainty about applying in the future. This reticence to apply again could well be an area worthy of further exploration. The ASA data reflects the situation in other Australian school systems and in most industrialised nations, which are also experiencing a leadership crisis with very few employees demonstrating interest in leading schools into the future (Teasdale-Smith, 2008). This study data would suggest that ASA, like other Australian educational systems reviewed in the Australian Institute for Teaching and School Leadership report (Dempster, Lovett and Fluckiger, 2011), must review the present succession processes to ensure a future generation of educational leaders will emerge.

A noteworthy observation from the data is that male ASA employees more aggressively seek school leadership positions, with twice as many males (31.9%) as females (14.9%) indicating that they were either actively applying or intending to apply for school leadership positions. While other factors

“
the great majority of the respondents perceive that internal rewards act as highly influential incentives to apply”

Table 4: Willingness to apply influences; Factors, factor description, scale means, standard deviations and reliability coefficients

Willingness to Apply Factor	Factor Description	Scale Means	Standard Deviation	Cronbach's Alpha
Factor 1 Internal Rewards	The perception that internal rewards act as incentives to apply for the role of principal.	2.802	0.643	0.844
Factor 2 External Rewards	The perception that external rewards act as incentives to apply for the role of principal.	1.8537	0.556	0.743

such as gendered views of current ASA practices may impact this, it is still a noticeable difference in the desire to seek leadership positions. This reflects Canadian research findings (Gallo and Ryan, 2011), that more males than females demonstrate a desire to seek school leadership roles, and most specifically the role of principal.

Exploring teaching level, it is interesting to note that primary teachers are slightly higher represented than secondary teachers (8.5% compared to 5.5%) in currently applying or having previously applied for school leadership positions. This would suggest the ASA data is consistent with other Australian research findings in that more primary than secondary level teachers aspired to school leadership positions (Lacey, 2003).

ASA respondents indicated that intention to apply for school leadership positions decreases as age increases. This data contrasts the findings of other research which found that middle aged individuals were the most likely demographic to apply for leadership positions (Joy, 1998; Browne-Ferrigno, 2003; Walker & Kwan, 2009). These findings identified that younger, less experienced candidates expressed a greater uncertainty about seeking school leadership positions than older, more experienced teachers. ASA findings, however, show that younger employees (Age <30) ranked the highest in indicating an intention to apply for school leadership positions. But it is also worth noting that research undertaken in Australia (Lacey, 2003) identified that while younger teachers indicated very early in their career (less than 5 years teaching experience) a desire to pursue school principal positions, 50% of these younger teachers no longer did so after being in the classroom more than 5 years.

Factor analysis of the survey data generated five factors (Work-Life Balance, Leadership Detractors, The External Environment, Gender Bias, and Religious Identity) that influenced ASA employees in their decision NOT TO apply for school leadership positions. Three of the ASA factors (The External Environment, Gender Bias and Religious Identity) were similar to the D'Arbon et al (2001) Catholic education system leadership intention study.

Of the unwillingness to apply factors, it was the Work-Life factor that the majority of ASA respondents most strongly identified as an influence in their decision NOT TO apply for school leadership positions. This factor emphasised the perceived negative impact on personal and family life, the multiple roles that needed to be played by school leaders, significant time pressures, and the heightened level of responsibility of school leadership. Interestingly, and in contrast to the

D'Arbon et al (2001) faith-based study findings, the Religious Identity factor, which emphasised Adventist faith-related pressures, was not seen by the majority of ASA respondents as a strong detractor in applying for school leadership roles.

In relation to the Gender Bias factor, there was a perception by the female ASA respondents that this was a strong deterrent in their decision NOT TO apply for school leadership positions, but the male ASA respondents were rather dismissive of this being a negative influence in their decision to apply for school leadership roles. Additionally, the female ASA respondents perceived the External Environment factor, having to deal with various external regulatory bodies or communities, was a stronger influence on their decision NOT TO apply for leadership position than their male counterparts. This may reflect a difference in leadership styles between males and females, but this needs further exploration. It was noted that the Religious Identity, faith-based pressures that arise from accepting an Adventist school leadership position, and Leadership Detractor factors, a perception of having to assume a managerial rather than relational role with the school community, students and colleagues, were stronger influences on secondary level teachers in their decision NOT TO apply than what was perceived by the primary level teachers.

No statistically significant differences amongst the factors influencing the decision NOT TO apply for school leadership positions was found across the four age categories, though a trend was noted that the Work-Life factor influencing the decision not to apply increased steadily for each age group, until the 51 plus age group, who indicated that the Work-Life factor affected them the least.

Factor analysis also generated two factors influencing the decision TO apply for school leadership positions: Internal Rewards and External Rewards. The large majority of respondents indicated that the Internal Rewards, that is, being able to implement positive change, improve educational processes, and make a difference in the lives of students, were what prompted them to apply for leadership positions. However, the a large majority of respondents indicated that the External Rewards, that is, the gaining of status, power, and financial benefit, had very little influence on their decision to apply for school leadership positions. No statistically different responses to these factors were found across the gender, teaching level and age demographic differences.

Despite some clarifying findings emerging from the data, this study is limited in a number of ways. Firstly, the respondents did not have the opportunity to present their views on factors

“*younger teachers indicated very early ... a desire to pursue school principal positions, 50% of these younger teachers no longer did so after being in the classroom more than 5 years.*”

that influenced their desire to apply for school leadership positions outside of the factors presented in this survey. There is a need to follow up this study with an exploration of ASA employees' views adopting a less restricting methodology. A qualitative oriented study would enhance understanding of ASA employee motivations for exploring leadership possibilities. Secondly, the study is restricted to the Australian Adventist School system, but further study into Adventist School systems would increase understanding of the applicability of the findings to other Adventist educational contexts. **TEACH**

Overview

The data collected in this research project indicates a significant shortage of ASA employees willing to undertake school leadership positions. This shortage of applicants must be addressed by ASA to ensure the future of appropriate leadership within the ASA education system. This lack of desire to take on school leadership, the data suggests, is due to the perception of many ASA employees, firstly, that a leadership role within ASA cannot co-exist with an appropriate work-life balance. Secondly, there are a number of leadership detractor factors identified, such as the disruption to family life in accepting such a position, a perceived loss of close relationships with staff and students, a perception of having to assume a managerial rather than relational role within the school community, and a reduction in what many ASA employees consider to be a meaningful interaction with fellow staff members, students, and the broader school community. Thirdly, if there is to be an increase in the numbers of applicants for school leadership positions, the gender bias perceived by females must be addressed. Finally, the internal rewards associated with taking on positions of leadership, that is, being able to implement positive change, improve educational processes, and make a difference in the lives of students, must be more strongly emphasised by school and system level administrators.

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“the gaining of status, power, and financial benefit, had very little influence on their decision to apply for school leadership positions.”

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TEACH^R

Imagine, interrupt, innovate: Internationalising teaching and learning practice

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Key words: internationalisation, curriculum content, pedagogy; student engagement

Abstract

Internationalisation of the curriculum is a key research area at the intersection of teaching and learning. Increasing numbers of international students in Australian schools and tertiary institutions necessitate the reconceptualisation of curriculum to incorporate global perspectives and develop intercultural competencies of both students and teachers. Accordingly, this research project identified key discipline areas at Avondale College of Higher Education in which to perform pedagogical intervention with an internationalisation focus. Three lecturers undertook action research in the areas of Primary Education, Business and Theology, resulting in the production of culturally-informed perspectives, increased cross-cultural awareness and the identification of areas for future research and innovation.

The experience of international students is increasingly a critical topic for Australian education providers. In 2009 the Australian Bureau of

Statistics (ABS) recorded Australia as the OECD country with the highest proportion of international students, and globally as the third largest provider of international education services (ABS, 2012). According to the Department of Education and Training (DET), international students account for almost a quarter of all university enrolments in Australia (DET, 2014). Further, international education is Australia's largest service export, indicating that education both at home and abroad contributes significantly to the nation's economy (Universities Australia, 2014). Statistics reflect modest growth in international student commencements in primary and secondary schools between 2011-2014 with approximately 18,500 year-to-date enrolments nationally in December 2014 (DET, n.d.). Given that trends indicate transnational education has been increasing over the past three decades and shows no sign of slowing (ABS, 2012), the impact on quality of experience for international students should be a central concern for education providers in all sectors. Domestic students are also key stakeholders in a globalised education economy, as reflected in graduate attributes of Higher Education (HE) institutions. In a survey of 29 Australian HE providers, 19 included the terms 'global', 'international', or 'cultural diversity'

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In 2009 the Australian Bureau of Statistics recorded Australia as the OECD country with the highest proportion of international students, and globally as the third largest provider
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as graduate attributes (Bowman, 2010, p. 39). As Jones (2014) writes: “The ability to interpret local concerns within a global context and to judge the impact of global issues on their personal and professional lives should surely be an attribute of all graduates in contemporary society” (p. 78).

Contextual perspectives

The term ‘Internationalisation’ in a HE context broadly refers to “the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education” (Knight in Luxon & Peelo, 2009, p. 53). These six elements signal the wide range of forms internationalisation can take within universities. It affects all stakeholders – academic and non-academic staff, domestic and international students; legislators and service providers in the home and hosting countries; and the community through intersections of language and culture. While research in this area has proliferated in the past decade, the work of Betty Leask (2009), one of Australia’s foremost scholars in this field, has focused specifically on Internationalisation of the Curriculum (IoC). She proposes that “An internationalised curriculum will engage students with internationally informed research and cultural and linguistic diversity. It will purposefully develop their international and intercultural perspectives as global professionals and citizens” (p. 209). This approach to internationalisation acknowledges that curriculum is more than simply content. As Breit et al. (2013) note, culture, backgrounds, learning styles and attitudes may be implicit, but these are critical components of an internationalised curriculum: IoC “can and should generate uncertainty about what is taken for granted and the relevance of the dominant model of education within a disciplinary context” (p. 121). Jones and Killick (2013) also highlight the need for intervention into traditional tertiary contexts. They argue that introducing global perspectives can extend “comfort zones in a controlled manner by challenging cultural assumptions and extending knowledge and experience through the responses of fellow students” (p. 168).

Rationale, aim and contextual purpose

Responding to this research, Avondale College of Higher Education (ACHE) academic staff aimed to identify areas in which intercultural and international competencies are produced, and innovate by destabilising routine pedagogical practice to develop and deepen these competencies. The rationale for this research project recognises that internationalisation “has

been driven largely by the marketisation discourse that has come to prevail in [Higher Education]” (De Vita & Case, 2003, p. 384), and is in danger of neo-liberalising agendas that emphasise economic over educational outcomes (Leask & Bridge, 2013; Svensson & Wihlborg, 2010). The researchers contend that the College’s special character not only invites but necessitates engagement and integration with students’ racial and culturally diverse backgrounds. Avondale’s motto: “For a greater vision of world needs” reflects the College’s Christian ethos of service, and underpins graduate attributes which include “an informed respect for individual worth, cultural and social diversity, and environmental sustainability” and “the facility to lead and to work collaboratively in professional and community contexts” (Avondale College of Higher Education, 2014). Therefore, through internationalisation this project aims to facilitate “complex holistic interconnections and relations between students, teachers, and curriculum within which power relations are recognised and difference valued” (Ilieva, Beck, & Waterstone, 2014, p. 880). Secondly, the project’s rationale responds to calls for empirically grounded research to inform curriculum issues in the tertiary sector (Rasi, Hautakangas, & Väyrynen, 2014; Svensson & Wihlborg, 2010). It has been noted that the unique context of each tertiary institution calls for a tailored approach to IoC (Jones & Killick, 2013), which is in fact helpful for framing interventions. Extensive research has been undertaken in large institutions to date, but the small number of international students at ACHE precluded large-scale interventions. The focus of the research, therefore, was to extend IoC research through case studies in Business, Theology and Education.

The specific aim was to initiate the internationalisation of discipline areas as staff performed action research through pedagogical intervention.

The international students participating in this study originated almost exclusively from either New Zealand or the Pacific islands. Given this cohort, studies investigating the educational experience of students with Pacific Island background provided valuable background to inform this study. A longitudinal study of tertiary Pasifika students in New Zealand, for example, was commissioned to “assess the impact of successive Tertiary Education Strategies (TES) on success for Pasifika learners” (Horrocks et al., 2012, p. 4). A key theme in the study was the high correlation between visibility and sense of place felt by Pasifika students, with one observation being: “if students remained ‘invisible’, this could reflect the fact

“IoC “can and should generate uncertainty about what is taken for granted and the relevance of the dominant model of education within a disciplinary context”

that ‘being “actively Māori” or “actively Pasifika” in an institution [was] to make a *highly* political statement” (Horrocks et al., 2012, pp. 38–39). One reason for statistically low retention and completion rates was captured succinctly by one student who suggested that some individuals “think they’re invisible...they just sort of disappear...they don’t put their hand up if they’re stuck, they just quietly fade off the scene” (Horrocks et al., 2012, p. 39). More recently Leach (2013) reported findings of a similar study which included international students in New Zealand. The research question was “How do institutional learning environments influence student engagement with learning in diverse tertiary settings?” Findings included the need to address the highly rated responses from ethnic groups that suggest belonging is key to a positive tertiary experience for Pasifika students; thus, it was a priority to foster “a sense of belonging and cultural respect for students, particularly those who are ‘fish out of water’” (Leach, 2013, p. 122).

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Research method

Two forms of data collection formed the research methodology. Each researcher kept an action-research diary, noting significant issues and reflecting on personal and professional observations throughout this project. Thematic analysis of the data identified recurring topics and points of relevance to internationalisation. In addition, during this first stage of the project, the researchers also administered a student survey instrument designed by Mak, Daly and Barker (2014) to capture students’ perceptions of internationalisation issues and provide feedback for pedagogical interventions. The survey was made up of two sections, the first an 8-item measure of students’ perceptions of how culturally inclusive a multicultural class may be, and the second a 12-item measure of cultural learning development. Students indicated level of agreement using a five item scale with 1 = Strongly Agree and 5 = Strongly Disagree. Past research established high reliabilities for each scale.

Results and recommendations

The following section presents the discipline-specific approaches, interventions, results and recommendations from the initial stage of this study.

Case Study A: Education

The Education unit targeted for the first stage of the project was the third-year primary Curriculum Studies unit: *Humanities & Social Sciences II* (HSIE) (Avondale College of Higher Education,

2015c). The focus of this unit is preparing pre-service teachers to teach History, Geography, Civics and Citizenship, and Economics and Business in Australian primary schools from Foundation to Year Six. The majority of the content for these curriculum subjects is centred on the individual primary student (their background and location) and Australia. The curriculum content for these subjects at school begins at Foundation, moving from the individual, to the family, to neighbours, then to local, national and lastly international communities.

At first the possibility of internationalising this unit seemed limited and quite unrealistic as the content focus is predominantly on individuals and Australia, with only the latter primary year levels moving towards international parameters. However, the broad scope of the term ‘internationalisation’ is significant and suggests that all aspects of pedagogy can intentionally be included, irrespective of content. As a result of this the chosen areas to target for internationalisation in this unit included: the planning of relevant cultural content, identifying and intentionally engaging the cultural diversity of the classroom, and the development of lecturer-student relationships.

Before the semester began, three changes were implemented in the planning of the unit. The first change was to intentionally reword some sections of the unit to internationalise learning outcomes, for example, identifying values as a cultural aspect specific to Australia. The second planning change was to update the recommended reading list and web resources to reflect international perspectives. This change meant including readings and websites that presented relevant worldviews and perspectives other than Australian. Content was adapted to include the way HSIE subjects are taught in primary schools in other countries, for example, South Africa, England and New Zealand. The third planning change involved identifying international students and other ethnic backgrounds within the class prior to classes commencing. The fourth planning change implemented was to invite a guest lecturer of different international experience, to present a series of four topics relevant to this unit, thus including another perspective, and in this instance, wider cultural exposure for the students in this unit.

The next focus area for internationalisation in this unit was to identify and highlight the cultural diversity within the class interactions. A teacher’s knowledge, understanding, and ability to work with various cultures within a classroom demonstrates cross-cultural competency—a vital component of internationalisation. As mentioned

previously, the identification of the students and their cultural backgrounds was important to implementing internationalisation. At the beginning of the semester the lecturer identified one international student and a number of cultures represented within the class. Another important aspect of cultural diversity for this unit included the background of the lecturer and that of the guest lecturer. In this case, the culturally-diverse background of the lecturer has significantly shaped her identity and significantly contributed to the development of cross-cultural competencies. After being born in South Africa and living there for 25 years, this lecturer worked in South Africa, South Korea, New Zealand and Australia. The guest lecturer also contributed to internationalisation as, although he grew up in Australia, he has strong French connections which he highlighted throughout his lectures. In the lectures presented by the primary lecturer there were opportunities to highlight internationalisation to the pre-service teachers when looking at Indigenous education and the government drive of ‘closing the gap’. These lecture topics were prime instances where pedagogy for culturally and linguistically diverse students could be included in the unit. This presented an opportunity to include some English as a Second Language theory, specifically targeting culture and differences in Australian society, and the aspect of speaking English as a second or other language when teaching these subjects in the primary school.

The final intentional strategy implemented in this unit for internationalisation was that of building authentic relationships between the lecturer and students, as well as among the students themselves. Throughout the semester the lecturer developed classroom relationships with the students by getting to know their names, enquiring about their ethnic backgrounds, considerably questioning about their cultures and intentionally personalising the content throughout the semester to reflect the diversity of the class. It was important to learn of the students’ cultural experiences. Building this cultural profile of the class group enabled intentionality in forming authentic links for the students and a modelling of internationalisation within a class, specifically for these pre-service teachers.

The student survey generated for this multi-discipline project was administered at the completion of this unit. A total of 40 students were enrolled in this unit and 28 completed the voluntary student survey in week 12. The results show that 67% of these students perceived cultural inclusiveness positively in this unit; however, 21 of

the 28 students did not know whether the lecturer specifically helped the international student. This response could have occurred because the students did not know who the international student was, or they were unaware of what constitutes ‘help’ for internationalisation. Further results show that in the section of the survey covering cultural learning development there is, overall, a positive response by these students. All students stated they are more conscious of cultural knowledge and interacting with people from different cultural groups, further they felt more comfortable participating in multicultural groups. This indicates a raised awareness of cultural diversity and representation of cross-cultural processes as outcomes within the class. The lecturer’s research diary also reflects on her personal journey through this unit, and the process of awareness developed for herself and her students regarding internationalisation. The most significant are listed in the findings that follow.

The first key finding from this case study is that *forming relationships is important*, and that lecturers need to model this for their students where possible. The second key finding is *the importance of articulating when internationalising interventions are occurring*. It is important not to assume that students are aware and understand what is transpiring as intentional regarding internationalisation. For the lecturer it was important to highlight the implications, *make the links explicit for the students*, and not to wait for them to perceive the experience as being relevant to their international experience or intercultural development. In the next stage of internationalisation, the lecturer plans to again highlight her culturally diverse background during her introduction to the unit. However, *time will also be allowed for students to introduce themselves to each other in groups*, with an emphasis on identifying and highlighting the various cultural groups and languages spoken within the class. At the start of the semester, *international student/s will be introduced to the class in an inclusive manner, and an intentional effort will be made to connect with these students regularly at the end of each of the lectures*. This will ensure that domestic students are visually aware that the lecturer is assisting. The lecturer plans to ensure that assumptions are avoided, and that the students will know when they are having a cultural experience; this will be explicitly highlighted, raising awareness and building on knowledge, awareness and understanding of internationalisation for both lecturer and students.

“All students stated they are more conscious of cultural knowledge and interacting with ... different cultural groups, further they felt more comfortable participating in multicultural groups.”

Case Study B: Business

The business unit chosen for this research project was a second year management subject: *Strategic Principles* (Avondale College of Higher Education, 2015a). The content of this unit explores the development of mission and vision statements, assessing both the internal and external business environments, crafting business strategy both domestically and internationally, and also explores cross border alliances, mergers, acquisitions and other cooperative strategies while considering new business ventures and strategic change. The researcher began preparation for this unit by determining how many international students were enrolled. Of the twelve enrolled students, two students were from New Zealand and the remaining ten were Australian citizens. An intentional focus was on aspects of national culture, and the impact this has on how business decisions and strategies are formed. In the first class the lecturer asked the students to research the cultural origins of their names, and to share examples of culture specific business practices that take place within those origins. This set the scene well for exploring culture within a business context.

The nature of this subject and the size of the class fitted in well with the planned approach to make use of corporate case studies that had a strong international flavour. Intentionally chosen were businesses such as Nokia, Lenovo, Apple, IKEA, Volkswagen, Virgin Mobile and QANTAS. By using case studies of corporations originating from different global locations, awareness of both international business practices and cultural diversity could be emphasised. These cases provided opportunities to generate better awareness and understanding of cross-cultural business practices, as well as the role of national culture in the chosen field of study for the student. Class discussions were lively and had a high level of contribution from across the student group. An exploration of cultural diversity and business practice was built into assessment for this unit. For example, students in groups of two were asked to address case study questions relating to the content explored in the unit, but to additionally highlight and lead discussion relating to cultural specific business practices and culture. A Lenovo case study proved to be a good example of student led discussion, with discussion ranging from the extended use of the practice of having family members on corporate boards, through to relationship building with international business partners, negotiation techniques and individualistic versus collective cultures, as well as short term versus long term culture orientations.

“be ... open to thinking about internationalisation in new ways, ... to anticipating different responses from students. Each intervention should be considered an open-ended learning experience.”

Twelve students were enrolled in this unit and seven voluntarily completed the anonymous survey undertaken in week 12 of the semester. In the section exploring cultural learning development, all seven respondents either agreed or strongly agreed that they had gained awareness of the role of culture in their chosen field of study, with six indicating that they had developed a greater awareness of cultural diversity. All seven students indicated that there had been opportunities for students to learn about different cultures. All students also indicated that they were now more conscious of the cultural knowledge they apply to cross-cultural interactions. Again, the students who completed the survey indicated that they felt better prepared to adjust their cultural knowledge as they interact with people from an unfamiliar culture.

In the section addressing perceptions of cultural inclusiveness, all seven students indicated that they perceived cultural differences to be respected at this institution, while also indicating that they felt their classmates were accepting of cultural differences. Only three students indicated that the lecturer understood the problems that international students encounter, while the other four students responded with “I don’t know” on the same question. Students also had difficulty determining whether the lecturer was making special effort to help international students, with two suggesting this was always the case, and the remaining five students indicating that they did not know.

Two key findings emerged from this research. Firstly, *the lecturer had to encourage the students to think outside of their own experiences* and to consider how cultural diversity and cultural factors led to different business practices. This process did not come as easily as anticipated. It is important, therefore, to recognise that some students will show more interest and awareness of cultural diversity and internationalisation than others. Secondly, a general consensus formed by the students was that *a more explicit statement of expectation for how to prepare and give consideration to the internationalisation elements focused on in the unit would have been beneficial.*

Through this intervention it can be concluded that lecturers must be not only open to thinking about internationalisation in new ways, but must be open to anticipating different responses from students. Each intervention should be considered an open-ended learning experience. Additionally, articulating expectations to students as they prepared their case study presentations was a challenge to be met. Students’ responses to internationalisation were often reflective of their general approach to the subject. Higher performing

students tended to embrace the idea of exploring culture and the subsequent links to business practice more than students who performed at a lower level. Lecturers may need to be prepared to work more closely with under-performing students to help such links appear meaningful.

Case Study C: Theology

From the mid 1990s increasing numbers of students with Pacific island background enrolled in Avondale's Christian ministry course. While they came from several Pacific islands, the majority were Samoan. A significant number of students came after some years of residence in New Zealand; however, some came directly from their respective islands. Pacific island students' gradually increasing presence was not met with any formal faculty-wide analysis of, or response to, their needs to be embedded into the academic culture. Their situation was the topic of frequent faculty discussions, however, and lecturers individually made ad hoc efforts to help them adjust and cope as they worked toward achieving course requirements. In response to faculty recommendation, Avondale College appointed to the faculty a culturally and academically well-qualified Samoan ministry lecturer. But after less than three years in the position, he was recruited to a different position at church headquarters.

Academic staff, individually and collectively, are 'at the coal face' of curriculum internationalisation. This self-evident 'truism' has recently been confirmed by a study published by Leask (2012, p.40, 41), especially in findings 4 (policy is not enough), 5 (influences external to a discipline exist) and 6 (IoC blockers and enablers must be managed). During second semester 2014 Christian ministry and theology lecturer Kayle de Waal mapped internationalising features and needs of his first-year Christian ministry subject titled *New Testament Epistles A* (Avondale College of Higher Education, 2015b). He kept a diary which was "designed to reflect on the international composition of the students in the class as they interacted with the unit material" (de Waal, 2014). This diary consisted mostly of reports of student comments made during weekly tutorials. He also administered to the class the student survey designed by the Avondale College internationalisation research team. Three of the 17 students in this class were female, and three were of Pacific island origin (one Fijian, two Samoans). The 10 respondents to the survey included two females, and the three of Pacific island origin.

Diary highlights included quite different responses, by culture, to attending a house

church. Those with island backgrounds reported it as providing a new source of "fellowship and friendship" while the Australians reported "no impact" from their attendance. Probing led to discussion of individualistic versus collectivistic societies and their respective responses to small groups, and of the Christian gift of hospitality (de Waal, 2014). In another highlight, one Samoan student shared his culture-bridging insight into the oratory style of the apostle Paul. Students were encouraged to reflect on the cultural context of a selected speech, and to consider it in the light of their own cultural context. This student responded in the following way:

Prior to this reading, I've always seen Paul as an incredible philosopher, teacher, and preacher. Now, after this reading, I'm convinced he is an elite orator...and possibly a Samoan? ...I'm reminded by the way Samoans are trained in speech when formally representing their family/village to address the audience of other family/families or village/s. You must first briefly introduce yourself, and briefly trace your history and by doing so (if you have done your research and are skilful), will mention names that connect you with the other family/village. This in turn breaks the hard ground and brings you to familiar terms. Credibility is won, and all the main content maybe addressed. Furthermore the closing is an affirmation. An absolute attempt to ensure that bridges are reinforced and none are burned. Romans [chapter] 1 has for the first time in my life, had Paul standing with a Samoan orator stick and fua, and has won me over even more so.

Responding to assigned reading by giving a post-colonial interpretation of Paul's letter to Romans, one Australian female student realised for the first time that Paul addressed a community in a specific time, place, and cultural context. She also disclosed that she gained insight into the way slave-owning readers of the letter might understand some of the apostle's declarations. A third student, aware that Paul tailored his addresses to the culture of his listeners and readers, asked rhetorically in a powerfully reflexive moment: "How significant is it for us to have a pre-[service] understanding of a culture/audience/place before we present the gospel?" In one of the final diary entries, the lecturer himself wrote: "I appreciated being more intentional about the various groups in the class... it was a privilege to reflect on and see the diversity in the class." On the need for internationalisation, he concluded: "There certainly is a need for lecturers to consider how they are engaging with students from varied cultural backgrounds and to be intentional about international integration in their unit outlines, class interactions and discussions

“Romans [chapter] 1 has for the first time in my life, had Paul standing with a Samoan orator stick and fua, and has won me over even more so.”

and assessment tasks.”

In the survey administered to this class, the first section featured questions on student-lecturer relationships and interactions. The majority of students strongly agreed that their lecturer encouraged and facilitated contact and cooperation (questions 1, 2, 8). At the same time, 40% felt their lecturer did not understand problems faced by international students. The other 60% responded “I do not know”. A majority of students reported in responses to two questions that classmates respected one another’s cultures, and worked together. However, the “I do not know” responses to six of the eight questions in this section by over 30% of students is perhaps representative of the first year class’s demographic, as they were still “getting to know the place”; it also possibly represents a tendency to submerge personal cultural features in order to better integrate with the dominant institutional culture.

The final questions explored students’ growing awareness of the need to recognise and allow for cultural difference. Overall responses to those questions indicate generally positive evaluation of other culture awareness and acceptance, and for inter-cultural communication and cooperation: 5% of students selected “strongly agree”, 40% “agree”, 30% neutral, and only 5% chose “disagree”. A key finding of this class’ response to the survey was their *lack of confidence that their lecturer was aware of the cultural problems they faced as they adjusted to first-year tertiary education*. This finding is consistent with those in Case Studies A and B, and indicates that there is more work to be done by lecturers to demonstrate cultural awareness and inspire confidence that unique, culturally-triggered issues will be met with understanding and appropriate action.

Conclusion

The first stage of interventions performed by ACHE lecturers has highlighted the need for intentionality in a curriculum-level approach to internationalisation. Of the three units described in this paper, none obviously lent themselves to internationalisation. However, setting goals to incorporate international perspectives and develop intercultural competencies destabilised routine practices, necessitating an innovative approach to teaching and learning. This kind of intentionality helped lecturers to see their units through “fresh eyes” and with global perspectives. There is strong evidence that these interventions also facilitated productive experiences for students as they were challenged to consider cultural features of texts and contexts. While levels of engagement ranged from

low to high, insightful responses from a number of students indicates that the interventions achieved their aim of producing culturally-informed readings and cross-cultural awareness.

This project has also reinforced that, as suggested by Jones and Killick (2013), a tailored, contextual approach is important when internationalising curriculum. Approaches taken responded to the particular needs of each lecturer and class as identified on a unit-by-unit basis. Importantly, each intervention also revealed areas that are in need of further development. These will be addressed in stage two of the research project, with particular focus being given to making internationalising practices explicit, so that students are aware that their competencies and knowledges are being developed and can work intentionally to maximise their own learning experiences.

These implications are relevant for educators at all levels. As has been observed, elements ranging from types of knowledge valued, to textbook choice, to opportunities for supported intercultural interactions are all part of the hidden curriculum (Leask, 2009). Internationalisation can begin to highlight areas that are often overlooked, and illuminate opportunities to produce more nuanced, culturally-inclusive and globally-oriented learning experiences for students and educators alike. **TEACH**

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“setting goals to incorporate international perspectives and develop intercultural competencies destabilised routine practices, necessitating an innovative approach to teaching and learning.”

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Key words: arousal, anxiety, instruction, learning, inverted U hypothesis

Abstract

High levels of arousal and anxiety can affect an individual's ability to process information and learn new skills. The present study used a high platform lunge task to examine the effect of task repetition on state anxiety and how an individual's ability to process visual and auditory information is affected by arousal level. Twenty-six females (21.8 ± 2.8 yrs) performed six lunges from a six-meter platform to a suspended trapeze. Measures of state anxiety were recorded during the 5-minute rest period between each attempt. During the 10-second countdown to jump, the subjects were exposed to five visual and five auditory pieces of information that they were asked to recall 60 seconds after the lunge. The results indicated that individuals' response to repeating an anxiety-evoking task is highly variable. When performing skills that induce anxiety, optimal information processing appears to occur in the third or fourth attempt, as high levels of anxiety occur in earlier attempts and complacency can occur with further attempts. Visual cues are processed more readily than auditory cues at all levels of arousal, highlighting the importance of

the inclusion of visual instructional strategies. The findings are informative for understanding best practice when teaching and learning skills that evoke anxiety.

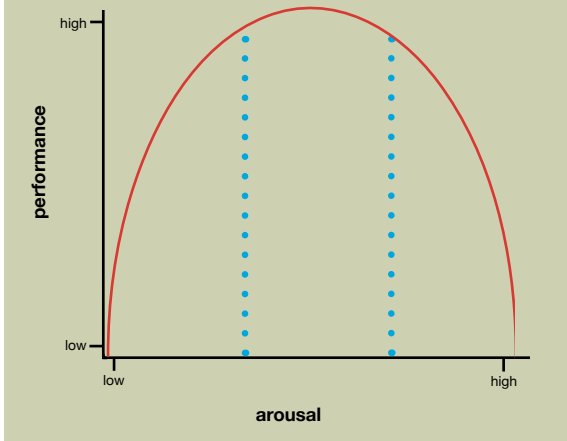
Introduction

Over one century ago, Yerkes and Dodson (1908) observed an "inverted U" relationship between arousal level and performance in various skills and tasks. The "Inverted U Hypothesis" asserts that performance improves with increasing levels of arousal up to an optimal point, after which it declines with further increases in arousal (see Figure 1). Accordingly, the Inverted U Hypothesis implies a zone of optimal functioning (Farnbach & Farnbach, 2001; Hanin, 2000; Morris & Summers, 2004; Schmidt & Wrisberg, 2004). Over the past century, several other theories have been developed to explain the arousal-performance relationship and its implications in the execution of both physical and mental tasks (Arent & Landers, 2003; Easterbrook, 1959; Eysenck, 1979; Eysenck, Derakshan, Santos & Calvo, 2007; Hanin, 2000), however, the Inverted U Hypothesis remains the most renowned.

Easterbrook (1959) explained the inverted U observation in terms of arousal-mediated changes in the width of the perceptual field perceived by the individual. During conditions of low arousal the perceptual field is wide and the person 'takes

“High levels of arousal and anxiety can affect an individual's ability to process information and learn new skills.”

Figure 1: Inverted U Hypothesis showing the region of optimal arousal



in' many cues that are irrelevant to the task. Conversely, moderate levels of arousal cause an individual to focus only on the cues relevant to the task, which coupled with ideal levels of stimulation of the central nervous system, results in an optimal ability to process information and make decisions. Finally, high levels of arousal cause a narrowing of the perceptual field resulting in many important cues being missed. High levels of arousal occur during periods of "anxiety" which is "an emotion characterized by feelings of tension, worried thoughts and physical changes" (American Psychological Association, 2015). Indeed, it is well established that during periods of anxiety, individuals tend to have a diminished ability to process information, make appropriate decisions and carry out skills (Mühlberger, Wieser & Pauli, 2008). Clearly these consequences can adversely impact skill performance, learning and in some instances may even be dangerous.

While the relationship between performance and arousal has been explored (Arent & Landers, 2003; Easterbrook, 1959; Eysenck, 1979; Hanin, 2000), several questions remain unanswered. Firstly, how does repeating an anxiety-inducing task affect an individual's level of arousal and associated ability to process information during the task? An understanding of the influence of task repetition on arousal would inform how many times an individual needs to repeat a task before moving on to more complex and challenging skills. Secondly, how does arousal level influence an individual's ability to process visual and auditory information? A greater understanding of this relationship would

be informative for determining the best modes of instruction when teaching and learning skills that evoke anxiety. In turn, this could improve safety as well as provide a basis for developing optimal educational strategies.

The aim of this study was, therefore, to examine how many repetitions of a task an individual needs to perform before their level of arousal subsides to that conducive to optimal performance and learning, and whether visual or auditory information is processed best during anxiety-evoking situations. A well-controlled but anxiety-inducing task known as the high platform lunge was used for the study.

Methods

Study Participants

Twenty-six female participants aged 18 to 30 (mean = 21.8 ± 2.8 yrs) were recruited for the study after giving informed written consent. The study was approved by the Avondale College of Higher Education Human Research Ethics Committee.

Testing Protocol

The testing occurred in an auditorium in which a six metre high platform lunge task was erected. Suspended in front of the platform was a trapeze handle fixed to an engineered beam. A screen was erected adjacent to the handle where images could be projected using a data projector (Figure 2). The participant was fitted with a heart rate monitor (Suunto Oy, Finland) that recorded their heart rate at 2-second intervals throughout the testing session. The subject was fitted with a harness that allowed

“during periods of anxiety, individuals tend to have a diminished ability to process information, make appropriate decisions and carry out skills”



Figure 2. Platform setup illustrating projector screen and safety mechanisms

them to be safely belayed throughout the testing session.

Prior to the first jump the participant's state anxiety, which refers to their anxiety at a particular time or in response to a particular event (Hackfort & Spielberger, 1989), was assessed using a modified version of the Competitive State Anxiety Inventory (CSAI-2) instrument (Martens, Vealey & Burton, 1990). The CSAI-2 asked the participant to rate their self-perceived symptoms of both somatic state anxiety (SA) and cognitive state anxiety (CA) on a four-point scale that included 'not at all', 'somewhat', 'moderately' and 'very much'. Somatic state anxiety refers to the physical symptoms of anxiety and an awareness of them (Weinberg & Gould, 2003), and items included questions about a pounding heart, nausea, clammy hands, trembling legs or a dry mouth (Bull, Albinson & Shambrook, 1996). Cognitive state anxiety relates to the mental component of anxiety and the questions asked about negative and worrying thoughts and poor self-evaluation (Shaw, Gorley & Corban, 2005).

The participant was then given a 10-second countdown during which five visual and five auditory pieces of information were presented in an alternate fashion (one each second). The images were projected onto the screen suspended adjacent to the handle and included miscellaneous but recognisable shapes including objects such as a bike, ball or cow. The sounds were emitted from speakers placed proximal to the subject and were also recognisable everyday noises such as a dog bark, ringing telephone or the chime of a doorbell. The subject was clearly instructed to remember the sights and sounds they were presented with during the countdown. At the conclusion of the 10-second countdown, the participant was required to jump and catch the trapeze bar. In the case that they did not leap on the command, the time before leaping was recorded. After successfully completing the lunge, the subject was lowered to ground level under belay. Sixty seconds after the completion of the jump the participant was asked to recall as many of the auditory and visual cues presented to them during the countdown as possible. Following a five minute rest period, the entire procedure was repeated a further five times.

The heart rate data was later downloaded from the heart rate monitor for analysis using Suunto Training Manager Version 1.3.3 (Suunto Oy, Finland), and the peak heart rate achieved during the countdown for each lunge was identified.

Statistical Analysis

Data analysis was performed using SPSS version 17 (SPSS, Inc.). Descriptive statistics involved

mean±standard deviation and the 0.05 level of significance was adopted.

Relationships between the somatic and cognitive anxiety measures, heart rate, time to jump (T_{jump}), and recall scores were assessed using Pearson's correlation coefficient. To optimise the power of the analyses, the data for all lunges for all subjects (total = 123 lunges) were pooled.

Only 13 of the 26 subjects were able to complete the required six lunges. Accordingly, the subjects were assigned into two groups for the analyses: "Complete Group" and "Withdraw Group". Differences between the groups were assessed using independent sample t-tests. Backward stepwise linear regression was used to identify factors that predicted which subjects withdrew from the testing protocol before the six attempts had been completed.

Changes in the various measures over the six jumps were assessed using General Linear Modelling repeated measures. Mauchly's test of sphericity was applied and if the test was significant the within-subject effect was determined using the Huynh-Feldt correction (if epsilon > 0.75) and the Greenhouse-Geisser correction (if epsilon < 0.75). Pairwise comparisons of main effects were applied with no confidence interval adjustment.

Results

The high platform lunge task used in the present study clearly evoked high levels of anxiety in the participants. On average, the subjects hesitated 488 seconds after being given the command to perform the first lunge and actually leaping. Further, only 13 (Complete Group) of the 26 subjects were able to complete the six lunges required by the study due to being too anxious to continue. The peak heart rate (HR_{jump}) immediately prior to performing the first lunge was 154 ± 8 bpm, which approximated 75% of predicted maximum heart rate, and the mean heart rate for the entire testing session of those who completed all six trials was 121 ± 24 bpm.

The participant's trait anxiety score (TA) reported in the classroom environment was significantly related to their somatic state anxiety score (SA; $r = 0.72, p < 0.01$) and cognitive state anxiety score (CA; $r = 0.73, p < 0.01$) measured immediately prior to the first jump.

When the data for all lunges and all subjects was pooled, several significant relationships were noted. The time to jump (T_{jump}) was positively correlated to the subjects' SA ($r = 0.36, p < 0.01$) and CA ($r = 0.46, p < 0.01$) but was unrelated to their HR_{jump} ($r = -0.05$). The subjects' SA and CA were highly related ($r = 0.82, p < 0.01$) and to a lesser extent SA was correlated to HR_{jump} ($r = 0.24, p < 0.05$) which is

“only 13 ... of the 26 subjects were able to complete the six lunges required by the study due to being too anxious to continue.”

Figure 3: Attrition rate across the six attempts

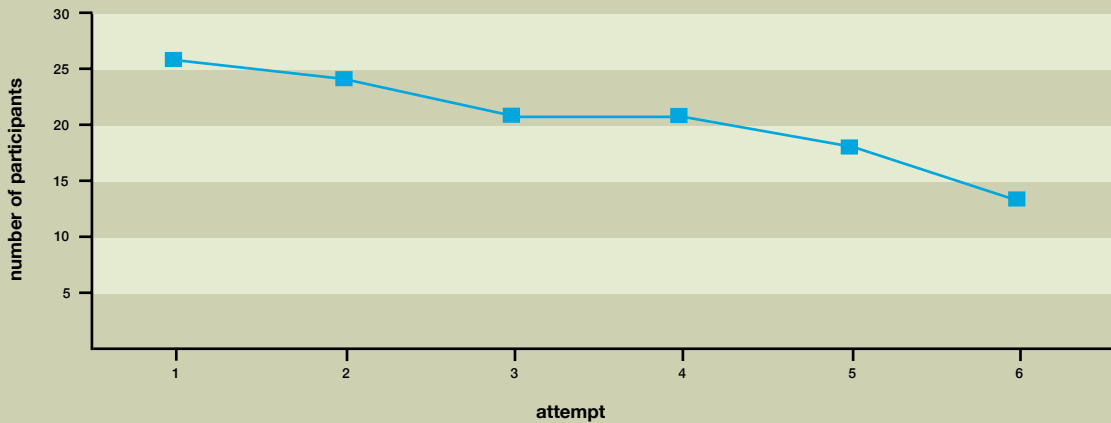
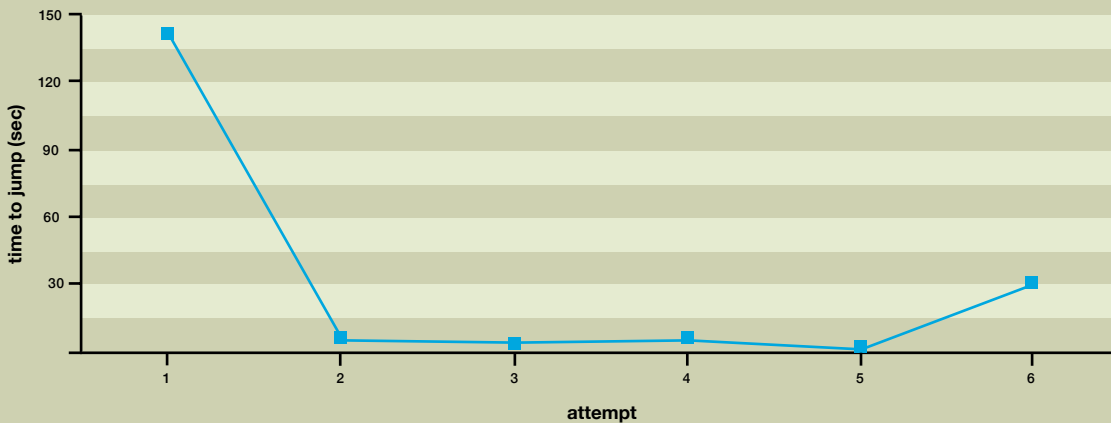


Figure 4: Time required for the participant to jump after countdown



“the only variable predicative of those who withdrew before completing the six attempts was [time to jump] on the first attempt”

noteworthy given that heart rate has been identified as a marker of somatic anxiety. HRjump was not related to CA ($r = 0.17$).

Attrition

The attrition rate across the six lunges is illustrated in Figure 3. It was unanticipated that over half the subjects who completed the first lunge would not be capable of following through to complete all attempts.

For further analyses, the subjects were grouped according to whether they completed the six attempts (Complete Group) or withdrew from the study (Withdraw Group). The only significant difference between the Complete and the Withdrawal group was the time required to perform

the first lunge (141 ± 476 versus 835 ± 945 seconds, $p = 0.03$). Similarly, regression analysis indicated that the only variable predicative of those who withdrew before completing the six attempts was Tjump on the first attempt ($\beta = 0.43$, $p = 0.04$). While there was a trend for TA and CA to be higher in the Withdraw Group the differences were not significant at the 0.05 level ($p = 0.11$ and 0.21 , respectively).

Repetition and arousal

Analysis of the effect of repetition on anxiety level was limited to the 13 subjects who were able to perform the required six lunges,

The time required for the subjects in the Complete Group to jump after receiving the countdown is shown in Figure 4. Despite the

indicated trend, the decrease in Tjump was not significantly different from the first to subsequent trials as a result of one subject who hesitated for 1725 seconds on the first trial but then jumped on command in the further trials. All other subjects in the Complete Group essentially jumped immediately on command for all the trials.

All measures of anxiety significantly decreased following the first attempt. The percentage reduction

in each of the anxiety measures with each attempt is shown in Table 1.

The profile of the changes in the anxiety measures is further illustrated in Figures 5-7. The analyses revealed a significant decrease in CA from attempt one ($p < 0.01$); however no further reductions occurred after attempt 4 (Figure 5). Somatic state anxiety significantly decreased after the first attempt ($p = 0.03$), and continued to decrease to the final attempt, although approximately 40 percent of the reduction had occurred by the third attempt (Figure 6). The heart rate data (Figure 7) demonstrated considerable between-subject variance yet there was still a significant decrease from the first to second attempt ($p < 0.01$).

Arousal and recall

The pooled data for all subjects for all attempts revealed a significant relationship between the subjects' level of somatic and cognitive state anxiety and their recall of both visual cues (Vscore) and auditory cues (Ascore) (Table 2).

When compared to memory-recall results collected in the classroom environment, the subjects' recall ability was significantly compromised

“one subject hesitated for 1725 seconds on the first trial but then jumped on command in the further trials. ...All measures of anxiety significantly decreased following the first attempt.”

Table 1: Decrease in measures of anxiety as a percentage (%) of the first attempt scores

attempt	1	2	3	4	5	6
CA	-	29	34	45	44	47
SA	-	19	39	39	46	46
Tjump	-	96	97	96	99	80
HRjump	-	6	5	8	14	10

Figure 5: Changes in CA the self-reported cognitive anxiety scores over the course of the six attempts

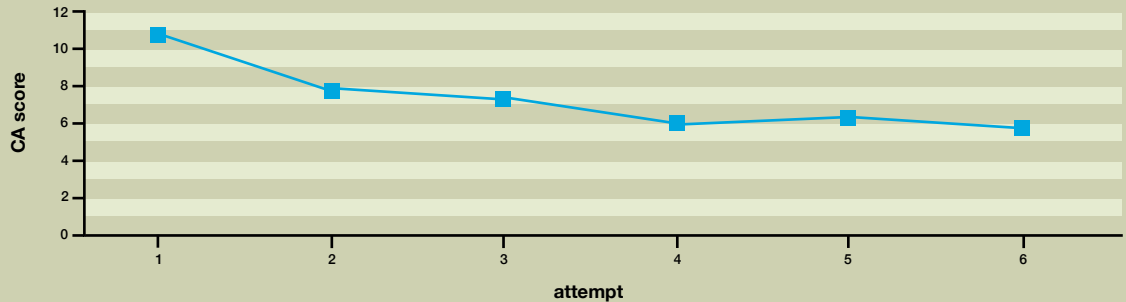
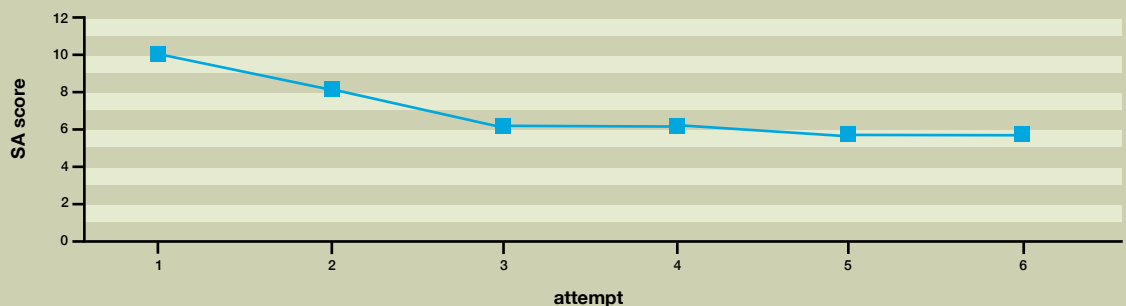


Figure 6: Changes in SA over the course of the six attempts



in the first attempt for both the visual cues (3.8 ± 0.9 versus 2.6 ± 0.9) and auditory cues (2.6 ± 1.4 versus 1.6 ± 0.9). However, by the second attempt their recall ability had improved such that there was no significant difference to the relaxed classroom data for the Ascore ($p = 0.60$) or Vscore ($p = 0.12$).

When compared to the first lunge, the Ascore was significantly higher in all subsequent attempts with the exception of the sixth (Figure 8). The best auditory recall results were achieved in the second attempt.

The Vscore results showed a similar trend to the Ascore results with a near significant increase from the first to second attempt ($p = 0.05$). The Vscore peaked in the fourth attempt after which there was a trend for it to drop off (Figure 9). The reason for the poor result in the fifth trial is unexplained.

Discussion

The present study investigated how repetition of an activity of perceived high risk impacts an individual’s level of arousal. A primary intent of the study was to determine how many repetitions of a task an individual needs to perform before their level of arousal subsides to be conducive to optimal performance and learning. Also of interest was the

degree to which visual and auditory information is processed during high arousal situations.

Attrition

The 50 percent attrition rate was unexpectedly high, especially considering that the subjects were enthusiastic about participating. Those subjects who constituted the Withdraw Group were in most cases quite determined, but simply not able to perform the required six lunges due to being too anxious. It is surprising that the subjects in the Withdraw Group were able to perform the initial jump before their anxiety became prohibitive. In fact, five of the

Table 2: Correlations between the measures of anxiety and recall. * denotes significance at the 0.05 and ** at the 0.01 level

	SAscore	CAscore	HR	Tm jump
Ascore	- 0.18*	- 0.33**	0.17	- 0.16
Vscore	- 0.18*	- 0.26**	0.09	- 0.16

“recall ability was significantly compromised in the first attempt ... for visual ... and auditory cues. However, by the second attempt ... there was no significant difference”

Figure 7: Changes in HRjump over the course of the six attempts

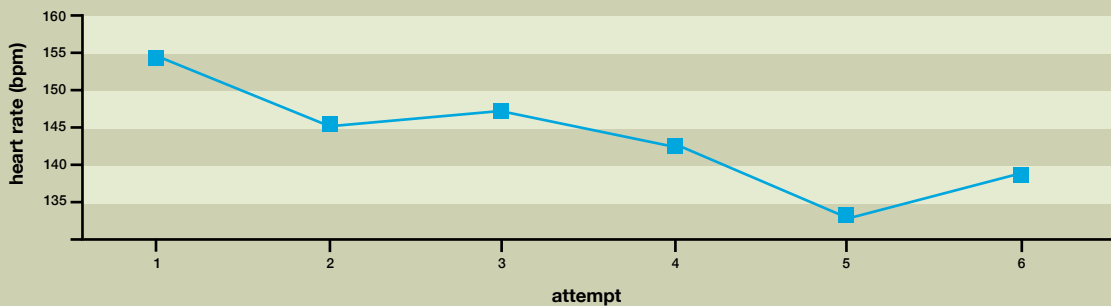
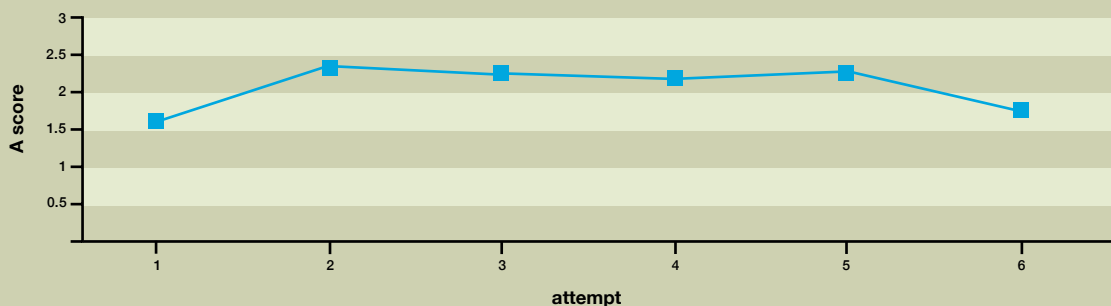


Figure 8: Mean auditory recall results (out of a possible score of five) for the six attempts



participants were able to complete the first five jumps before becoming too overwhelmed. None of the subjects had an apparent ‘bad’ experience on any of the attempts that could explain this unusual trend. One clear conclusion is that individuals can demonstrate markedly different responses when repeatedly exposed to an anxiety-producing situation.

Influence of repetition on arousal

The Tjump results (Figure 4) are somewhat misleading as they suggest a dramatic change for the Complete Group between attempts 1 and 2, however this was attributable to one subject hesitating for 1725 seconds on the first attempt but then leaping without hesitation on subsequent jumps. After the first attempt, all the Complete Group leapt on command except for the final attempt in which one individual inexplicably hesitated. Yet while the subjects in the Complete Group essentially leapt without hesitation after the first trial, the apparent reduction in anxiety was not immediately reflected in their CA, SA or HRjump data. These measures of anxiety showed a more progressive pattern of reduction across the six trials. Importantly, the results indicate that no further significant reductions in these measures of anxiety occurred after the fourth attempt. Accordingly, the experience of the first three trials resulted in anxiety levels that were not further reduced by subsequent trials. Hence, it would seem that when learning new anxiety-evoking skills it is beneficial to perform at least three attempts before pursuing more complex or advanced variants of the skill.

Anecdotally, it appeared that many of the Complete Group participants became bored with the activity by the fifth attempt. This may have been due to the turn-around time of each jump, or that the participants no longer felt challenged by the task. Indeed, heart rate was lowest during attempt five and the other markers of anxiety had essentially

reduced to their lowest levels. Yet, while it might be assumed that overcoming the anxiety of the earlier trials is desirable, the Inverted U Hypothesis asserts that performance may be compromised if the levels of arousal are too low. Certainly, the visual and auditory recall results suggest that the participants in the Complete Group may have been under-aroused by attempt five, suggesting that for these individuals, ideal skill progression should have occurred before the fifth attempt.

Influence of repetition on recall

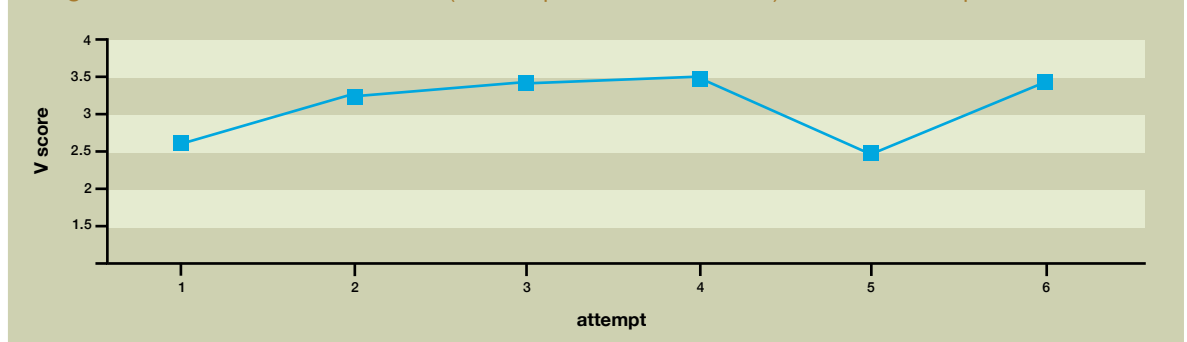
Yerkes & Dodson’s (1908) “Inverted U Hypothesis” appears to be reflected in the results of the recall data. An Inverted U pattern is evident in both the Ascore (Figure 8) and Vscore results (Figure 9), with the exception of the fifth attempt in which the Vscore results were unexplainably poor.

It is acknowledged that factors other than anxiety may have influenced the participants recall results. For example, not leaping on command increased the time over which the participant was required to remember the auditory and visual cues presented to them in the countdown. However, this was not a confounding factor for the Complete Group on which the analyses were performed as only one subject from that group recorded a lengthy time delay.

A second factor that may have influenced the subjects’ recall is the relevance of the cues to their current situation. Farrow (2007) noted that individuals commonly miss blatant cues if they are unrelated to the task at hand. He describes a case in point in which over half the individuals asked to count the number of basketball passes made by players did not notice another person dressed in a black gorilla suit walking through the middle of the play. One subject in the present study commented that the image of a cow (one of the visual cues) was easy to remember because they were scared of them. Being anxious (about leaping) made

“it would seem that when learning new anxiety-evoking skills it is beneficial to perform at least three attempts before pursuing more complex or advanced variants of the skill.”

Figure 9: Mean visual recall results (out of a possible score of five) for the six attempts



remembering the anxiety-inducing image easier to recall, testifying that relevant cues are more readily processed and remembered.

Despite the limitations associated with the recall data, there are several implications that arise from the findings. Firstly, while acknowledging the small scale of the study, it appears that processing visual and auditory cues is significantly compromised during the first attempt of an anxiety-evoking skill. Accordingly, providing individuals with too much instruction when learning a new task may be counter-productive as they are unlikely to be able to process excessive information (Pappas, 2009). While it is acknowledged that the 60 second recall was not a direct measure of information processing during the lunge, it is noteworthy that the subjects in the present study recalled on average 2.6 ± 0.9 pieces of visual information and 1.6 ± 0.9 pieces of auditory information (out of a possible 5) following the first lunge. Given the large standard deviation, it would, therefore, seem reasonable to suggest that when individuals are involved with a high arousal situation, they should be presented with no more than three new pieces of information.

A second implication of the recall results appearing to obey an Inverted U pattern, is that it implies a zone of optimal functioning. In the present study, the fourth attempt appears to be the point in which the Complete Group participants were achieving optimal information processing, as measured by their 60-second recall. By the fourth attempt, the bulk of the participants' reduction in anxiety had been achieved, but the task had not been repeated too many times to result in under-arousal or boredom. This would suggest that when progressing individuals to more complex and challenging skills, four successful attempts of transitional skills might be ideal.

The potential danger of requiring individuals to perform too many repetitions, is illustrated by the 'intermediate syndrome' commonly witnessed in the sport of hang gliding (Pagen, 1995). Intermediate pilots typically have not yet developed a high level of proficiency such that their responses are automatic, yet they become complacent. Essentially, while the pilots are still functioning in the verbal-cognitive stage of learning in which their responses require cognitive input (Schmidt and Lee, 2005), low levels of arousal due to familiarity results in poor attention and information processing. Pagen (1995) anecdotally notes that these pilots are at high risk of mishap. Applying the findings of the present study, it would suggest that beyond approximately four attempts it is important that learners are encouraged to remain vigilant.

Information processing and levels of arousal

One important observation of the study is that visual recall is better than auditory recall and this trend was the case at all levels of arousal, from the relaxed classroom environment to the anxious conditions of the first lunge. An obvious implication of this finding is that a visual mode of instruction is preferable to an auditory-based one. Interestingly, many instructional techniques rely exclusively on auditory methods. The results of this study suggest that whenever practical, educators and guides need to employ visual methods as the preferred mode of instruction. Visual techniques may include the use of illustrations, diagrams, flow charts and flash cards. Modelling is also an important visual instruction technique, whether the learner observes a skilled performer demonstrate the task, or through the use of multimedia facilities (Helterbran, 2008). Further, the value of visualisation for promoting the learner's visual engagement with the task should not be discounted.

In the present study, no attempt was made to ascertain the learning style of the participants, whether it be visual, auditory or kinaesthetic. An interesting direction for further research would be to include this element to determine whether visual recall is superior in high anxiety situations even for individuals with an auditory or kinaesthetic predisposition.

Conclusions and practical implications

While the present study only involved a relatively small sample size, the findings are novel and several practical implications arise from the data. These include:

- When individuals are asked to repeatedly perform a high anxiety task their level of anxiety might progressively decrease or conversely increase.
- When learning anxiety-evoking skills, it is advisable to perform at least three attempts before pursuing more complex or advanced variants of the skill.
- Individuals can become complacent after four attempts, even of a task that evokes anxiety on the first attempt. This complacency can influence information processing ability, which could in turn impede decision-making ability.
- Optimal information processing appears to occur on the third or fourth attempt of a task that initially evokes anxiety and this might offer an opportunity for optimal learning outcomes.
- Visual cues are more readily processed than auditory cues at all levels of arousal, highlighting the importance of employing visual instructional methods.

“providing individuals with too much instruction when learning a new task may be counter-productive as they are unlikely to be able to process excessive information”

“there is potential for much more work exploring the nature of high levels of arousal and anxiety and their impact upon skill performance.”

Indeed, there is potential for much more work exploring the nature of high levels of arousal and anxiety and their impact upon skill performance. The results of such studies would be well placed to inform best educative practice as well as to optimise safety.

Acknowledgements

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Exploring the interaction between Christianity and science

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This article is based on the 2014 *New College Lectures* presented by Professor Peter Harrison, Director of the Centre for the History of European Discourses (CHED), University of Queensland

September 9, 10 & 11, 2014 at New College, University of New South Wales

Key words: Christianity, conflict, natural, religion, science, theology

Abstract

The three lectures were entitled: *Is Christianity a Religion?, The Invention of Modern Science and Exploring the Territories of Science and Religion*. This lecture series explored new ways of thinking of both Christianity and science that emerge from the manner in which both entities have changed and developed over the last two millennia. It was proposed that an accurate perception of their contemporary interaction is predicated on an understanding of the nuances of this evolutionary, historical process.

Introduction

In 1570 the first printed atlas showed the Ottoman Empire containing both what is now modern Israel and Egypt. Of course, these countries did not then exist in anything like their modern form so it is meaningless to discuss 16th Century Israel or 16th Century Egypt. Clearly, however, an important ingredient of any understanding of these countries today, and of interactions between them, must be an appreciation of how these modern states emerged and how any boundaries or territories between them were established. In a similar manner these lectures argued that neither our modern concept of a religion, including Christianity, nor that of science would have been easily recognisable in earlier times. Similarly to matters geographical, in order to best understand the interaction between the two contemporary thought structures known today as “the Christian religion” and “science” we need to follow the processes involved in the development

and demarcation of these entities.

From Christian religion to “the” Christian religion

Religions today are primarily defined by sets of beliefs and practices and it is easy to suppose that this must always have been the case. However, evidence suggests that for the ancients, particularly the Greeks, *religio* was primarily a means towards personal virtue, intellectual culture, attainment and refinement, rather than relating to particular intellectual ideas of content. In this sense *religio* functioned in a similar manner to the muses of ancient Greece. Harrison suggests further that, while some theologising has been present since apostolic times, this feature of religion was also characteristic of Christianity during its early and middle eras.

This is suggested even in the Gospels. In John 4, in the context of contention over the preferred place of worship, Christ states that from then on, authentic worship would not be defined by place (a proposition) but by being “in spirit and in truth”. Allusions by Church Fathers are also indicative. **Jerome** (347-420 AD) makes reference to James 1:26-27, in which Christian worship is defined in terms of charitable acts rather than through ideas. **Augustine** (354-430 AD) notes that the defining feature of true religion is that it is directed towards God, reflecting rightly inspired inner piety. This is also demonstrated by the Epistle to Diognetus where, in a discussion of the distinguishing points of Christians, one finds reference to this “new race” and “new way of life.” Much later, **Thomas Aquinas** (1225-1274 AD) notes that *religio* is the “chief of the moral virtues” and that the internal or interior acts, such as devotion and prayer, have pre-eminence. Christianity then represents principally a virtuous internal state.

Of course it might be argued that the existence of ancient creeds opposes this thesis. Did not the apostle Paul clearly warn in places against false doctrine? And do not the fully developed creeds, which appeared soon after, appear to support the idea of some objectification of religion, even at the

“these lectures argued that neither our modern concept of a religion, ... nor that of science would have been easily recognisable in earlier times.”

cradle of Christianity? Harrison argued that, despite these superficial appearances, even creeds did not represent the typical propositional constraints of religion common in our age. He suggested that the creedal statements of early Christians carried a significance not unlike the pronouncement, “I do”, commonly heard at modern wedding ceremonies. This statement is intended as a binding, promissory action statement, rather than simply as an academic assent. Augustine noted that the observance of a creed ultimately helps its adherents understand better, and immerse themselves within, the central idea in which they believe. There was a sense in which, for Augustine, belief preceded understanding. In this perception he simply reflected a societal norm by which it was accepted that the first way to worship the gods was to believe in them. In this context it is also important to remember that in earlier ages ‘belief’ meant ‘trust’ rather than simply assent to the idea that something existed.

There was a certain unashamed circularity to this view: faith seeking understanding and understanding searching for faith. In this sense a creed was an aid to personal transformation. Augustine observed that, “in believing they may be made subject to God; that being made subject, they may rightly live; that in rightly living, they may make the heart pure; that with the heart made pure, they may understand that which they believe...”ⁱⁱⁱ It should also be noted that these confessional statements were frequently also ‘treaties.’ Creeds like the Nicene were really negotiated settlements and compromises between warring parties in Christendom whose primary differences related more to power struggles and background than doctrinal difference in a modern sense.

Harrison suggested that it was the period of the Renaissance and Reformation during the 16th and 17th centuries that represented a key turning point, providing the initial impetus for the propositional differentiation between religions. It was the emergence of Protestantism which first necessitated fine theological division and gave rise to such landmark gatherings as the prolonged Catholic Council of Trent. The subsequent proliferation of Protestant Churches and sects further fueled this trend. Also during the same period the great voyages of discovery revealed other world religions, between which one also needed to differentiate. Names such as Jew, Heathen, Mahomet, Buddhist and Hindu represent Western attempts to define and describe other religions. These terms were not used by, or even known to, their actual practitioners. Accordingly, all religions, including Christian faiths, became primarily constituted and defined by beliefs, i.e. by propositional content, rather than by

inner pieties. Thus modern religion as we know it came into existence. Harrison argues that this new conception of religion would have appeared strange to those of the apostolic era.

This objectivisation of faith also came about because Protestant reformers insisted that the laity understand the content of the theological beliefs, in contrast to what was seen as a besetting sin of Catholicism—blind faith by the laity in the clergy. For example, Calvin wrote that “true religion which is delivered in the Scriptures, and which all ought to hold, they (the Catholic priesthood) readily permit both themselves and others to be ignorant of, to neglect and despise; and they deem it of little moment what each man believes concerning God and Christ, or disbelieves, provided he submits to the judgment of the Church with what they call implicit faith...”^{iv} There were also political overtones. It was impossible to split Europe on the basis of inner pieties but it was certainly possible to do so on the basis of external, identifiable tenets. Such a view of religion was part of, and suited, the political division of Europe at that time. The truth of the propositions became all important.

Initially terms such as ‘Christian religion’ and ‘Christian worship’ were used without the definite article. Not surprisingly, however, this terminology changed to reflect the new situation. It appears that ‘the’ Christian religion was first described as such by Calvin, in his Institutes of the Christian Religion. This trend towards the use of the definite article is indicated by the graph shown in Figure 1, indicating usage of the definite article from 1550 to 1680 AD.

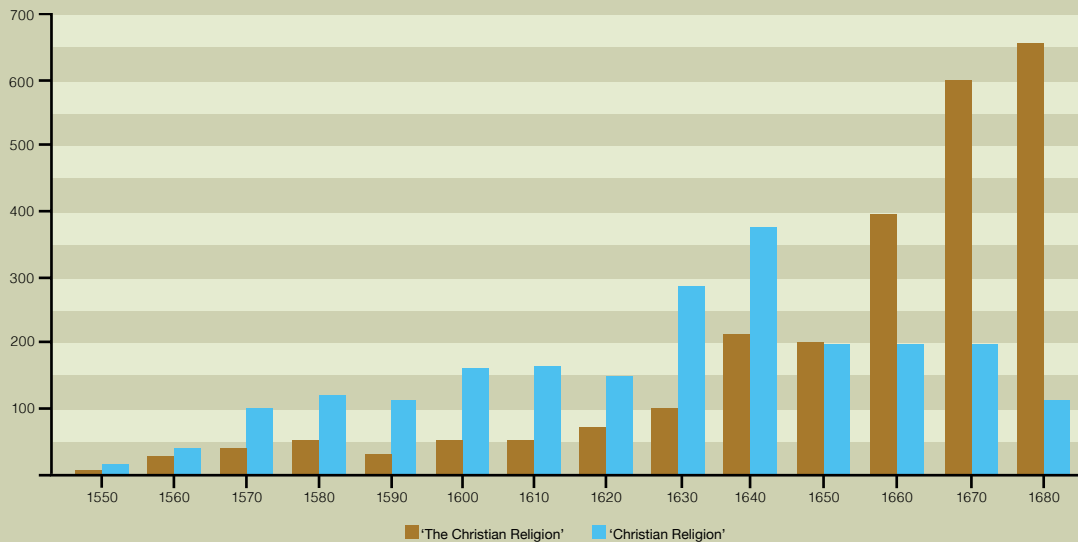
It may be seen that the usage of the term ‘Christian religion’ peaked in 1640 and then declined down to 1680. Over the same period the term ‘the Christian religion’ was employed more and more frequently. This change in emphasis was reflected in other aspects of Christian literature. For example, in his work on Christian apologetics Richard Baxter discussed both internal and external evidences. For him faith was now a rational and discursive act of the mind, an assent based upon evidence. David Hume’s *The Natural History of Religion* also presents an account of religion, principally in terms of propositions.^{vii}

There was, of course, some resistance to this trend, particularly from pietists. Methodists, and later American groups such as the Christian Connection movement and the early Seventh-day Adventist Church would express great opposition to creedal statements. Clearly not all those to whom the new paradigm substantially applied bought into it, at least not in their early years!

It is also important to note that in the case of religion conceived as an inner state there cannot be

“Protestant reformers insisted that the laity understand the content of theological beliefs, in contrast to what was seen as a besetting sin of Catholicism—blind faith by the laity in the clergy.”

Figure 1: Relative frequency of the expressions “Christian religion” and “the Christian religion” in English books, by decade, 1550 – 1680.^{vi}



the same relationships with other entities or states of controversy with them as are possible in the case of something objectifiable and consisting primarily of propositions.

The emergence of modern science: Science as a “virtue”

Elsewhere Harrison has stated that, “One of the biggest gaps in the history of science is the paucity of studies of the history of the meanings of “science” and other labels used by investigators of nature to describe their own activities”.^{viii} This situation is further complicated by the terminology employed. In contrast to *religio*, which was essentially a single idea, *scientia*, the general descriptor for knowledge, particularly of the natural realm, was accompanied by another differentiated label, *naturalis philosophiae*. Aristotle differentiated 3 forms or levels of knowledge (*scientia*):

- Theology - the queen of the sciences, dealing with that which was definitely eternal, immovable and totally separate from matter,
- Mathematics - the subject matter of which may also be considered at least in some sense to be eternal, immovable and separable from matter, and
- Physics - *naturalis philosophiae* (natural philosophy), which dealt with the finite, moveable realm which was inseparable from matter.

These distinctions and their associated terminology would dominate scientific investigation for almost 2,000 years, as demonstrated by Newton who, many centuries later entitled his seminal work concerning what today would be called physics: *Philosophiae Naturalis Principia Mathematica*.

Harrison suggests that, in a manner quite parallel to that noted above for religion, science also began as principally an inner quality to which one might aspire. This is really no surprise since it merely reflected the predominant mindset of that era. Support for this idea is readily forthcoming from the Greek philosophers and those in their heritage.

Plato (approx. 429-347 BC) taught that by studying and assimilating the harmonies and revolutions of the universe one might attain to the best life, i.e. the good and moral life (*Timaeus*). Seneca (1 BC – AD 65) taught that philosophy was not about popular epistemology or ontology but concerned living the moral life - even spiritual formation. Ptolemy (AD 90-168) said that this science (mathematical astronomy) lets men see clearly the constancy, order, symmetry and calm of the natural order and thus enables them to imbibe these qualities. Simplicius (AD 490-560) suggested that physics was a useful ladder leading to the superior part of the soul and was thus an “auxiliary for moral virtues”.^{ix}

In his Sermon 150 Augustine (AD 354-430) noted that philosophers strive to lay hold of the blessed life and that in a sense, this urge is common to both

“science also began as principally an inner quality to which one might aspire.”

philosophers and Christians. Much later, Aquinas perceived *scientia* as a virtuous intellectual addiction which increases with the practice and application of certain rational processes and activities, particularly geometry. Reflecting this understanding an early modern dictionary stated that “science is a habit of mind”, which is quite different from scientific knowledge. The role of the propositions is to inculcate the internal *scientia* – i.e. a habit. A 17th century English dictionary defined *scientia* as “properly the act of him that knoweth, ... a habit of knowledge got by demonstration...”^x These understandings of *scientia* prevailed up to the early modern period.

The early modern period: Natural theology and natural philosophy

During this period a strong link was perceived between natural theology and natural philosophy, as evidenced by a huge increase in the use of the term ‘natural theology’ from 1560-1760, particularly from 1680. It is interesting to note that while science did arise in China and medieval Islam, it only took off in the West. It has been argued that this is because of its status as part of the religious dialectic. In this sense natural theology gave natural philosophy legs. Gaukroger has suggested that the coming together of natural philosophy and theology in the early modern period was foundational in establishing western scientific culture, a view supported by Henry. Links have also been established between Puritanism and science. Indeed, according to its first founders the Royal Society of London, which remains one of the world’s premier scientific institutions, was set up to follow the same methods for establishing truth as had been earlier laid down by the Church of England.^{xii}

There is no doubt that many of the well-known figures of this period were devout Christians whose view of religion was very similar to that described in the previous section and whose faith very definitely informed their view of what they did in their observatories and laboratories. Francis Bacon (1561-1626) took the view that the losses of both innocence and dominion stemming from man’s fall could be partially restored by religion and natural philosophy respectively! In this sense he saw science as redemptive.^{xiii} It is important to note that for most people at this time science was not self-evidently useful, as it is today. There were no noticeable technologies, medical spinoffs or lifestyle benefits arising from it. This Baconian view of science was to be enormously influential, as discussed below. Kepler (1571-1630) stated, “I wished to be a theologian; for a long time I was troubled, but now see how God is also praised

through my work in astronomy.”

In a similar vein Robert Boyle (1627-1691) noted that “discovering to others the perfections of God displayed in the creatures is a more acceptable act of religion, than the burning of sacrifices or perfumes upon his alters”. He appreciated that the rational contemplation of nature is “philosophical worship of God”. He also left a legacy for “proving the Christian religion against notorious infidels”.^{xiv} Newton (1642-1727) claimed that the business of true philosophy was “to enquire after those laws on which the Great Creator actually chose to found this most beautiful Frame of the World, not those by which he might have done the same, had he so pleased”. William Paley (1743-1805) noted in turn that there seemed to be a uniformity of plan observable in the universe. John Herschel (1792-1871) said that “the natural philosopher is led to the conception of a Power and Intelligence superior to his own which tranquilises and reassures the mind . . .”^{xv}

However, it appears that around this time the whole teleological idea of the Aristotelian virtues – those beneficial and moral attainments which might be acquired by assiduous application and discipline - began to lose favour in intellectual Europe. This Aristotelian idea of acquired virtue had been easily assimilated into Christian thought, as conspicuously represented on the front of some cathedrals, for example at Bath, England, by the motif of Jacob’s ladder. It was widely supposed that moral virtue in the Christian sense could also be acquired by consistent application and that salvation was substantially by this means. In fact, in one sense intellectual Christendom had commandeered this Greek notion to the point where it was argued that *only* Christianity really possessed such a ladder and that *only* Christian virtues were worth the attainment. In this sense the Christian way was seen by practitioners as the only real means to achieve this unfulfilled goal of pagan philosophy.

However, these Aristotelian ideas were to some extent repudiated by the Reformation theme of justification by faith (reckoned to one rather than possessed by one) in contrast to sanctification (something acquired). Harrison has advanced the idea that it was this Reformation theology, with its rejection of subtle sophistries and symbolisms and its emphasis on plain reading of the textual data, which was instrumental in establishing the value of empirical investigation within modern science. The plain reading of scripture carried over into the plain reading of nature.^{xvi}

More recently Harrison has argued, even more specifically, that another primary factor at this time was the strong influence of the Augustinian view of the depravity of man. He builds a strong case,

“It is interesting to note that while science did arise in China and medieval Islam, it only took off in the West.”

urging that from the early modern period, the views of Bacon earlier noted, i.e. that science was a way of restoring what was lost in the primeval fall and “ameliorating the cognitive damage wrought by human sin” enormously empowered the developing scientific enterprise.^{xvii} Such considerations imparted to science almost a divine imprimatur.

From natural philosophy to modern science

In the context outlined above it might seem surprising that science has come to substantially exclude God as a causal factor in the natural realm. Certainly it was characteristic of Greek natural philosophy to exclude the actions of the gods and this idea appears to have been somewhat

carried over into Medieval Christianity. The term “*de naturalibus naturaliter*”, was first employed by Albert the Great, teacher of Thomas Aquinas, to “convey the idea that it is legitimate to study nature as if God does not intervene”.^{xviii} This term comes down to us today as “methodological naturalism” - the idea that, even under the philosophical umbrella of theism, God plays no part in the secondary causations of nature. However, particularly over the last few hundred years, as it has become even more experimental, science has gone on to more actively exclude the religious, moral and philosophical dimensions from its ‘day to day’ practice.

The term ‘scientific method’, which tacitly assumed at least the framework of methodological

Figure 2: Frequency of the expression ‘scientific method’ in English books from 1800 – 2000

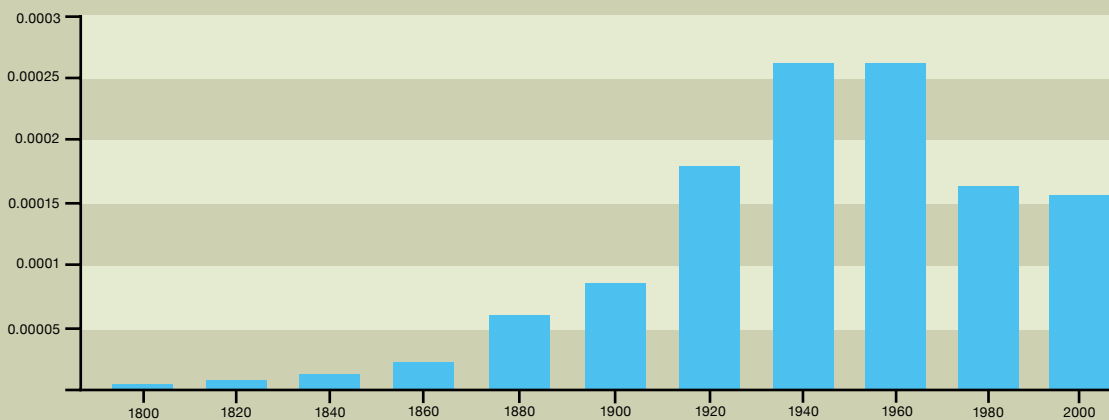
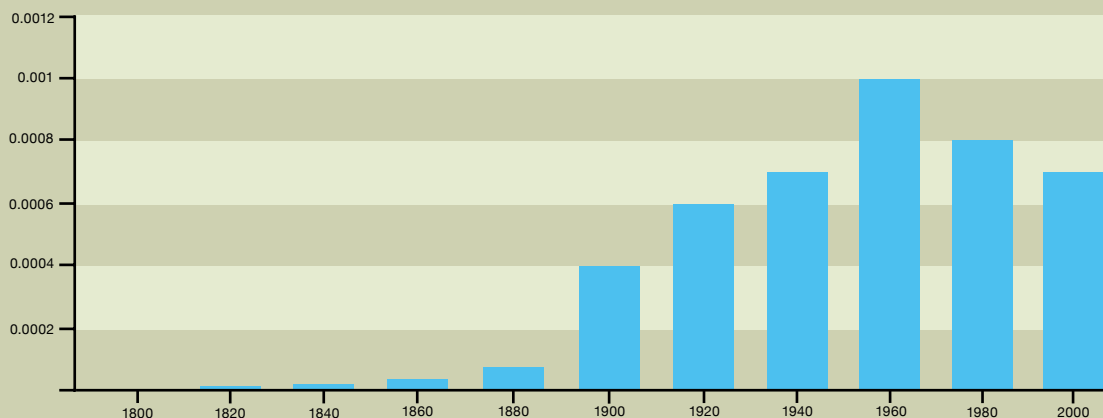


Figure 3: Frequency of the expression ‘scientist’ in English books from 1800 – 2000.^{xix}



“ science was a way of restoring what was lost in the primeval fall and “ameliorating the cognitive damage wrought by human sin” ”

naturalism, first appears about 1800 AD and soon dominates, as shown in Figure 2. The term ‘scientist’, with similar connotations, first appears in English books in 1837, its usage taking off particularly about 1860 after initial hesitation, as shown in Figure 3.

By the late 19th century the terms ‘science’ or ‘natural science’, with their more secular connotations, had largely taken over from ‘natural philosophy’. Reflecting this transition, by 1900 the term ‘biology’ had become more common than the term ‘natural history’ and the movement from theological-metaphysical-scientific to just science was substantially complete.

By the middle of the 19th century it was increasingly perceived that the scientific method represented the only means available to determine any truth that mattered. Science was seen as progressive and representative of the most advanced stage of civilization. Religion appeared to have been left behind.

It is not difficult to understand how these developments contributed to an essential change of character for *scientia*, now science. One factor was the externalization of science with the disappearance of its significance for personal piety. Another factor was its very success, resulting in its proliferation and diversification into sub-categories such as astronomy, physics, chemistry and more lately, geology, which gave rise to a complex taxonomy. Hierarchies emerged. Inevitably there was a certain amount of rivalry between different kinds of scientists and the guarding of intellectual turf. This was exacerbated in the 19th Century when the social, political and military power of science became apparent. Differentiations such as “experimental” and “theoretical” also became widely recognised.

Thus the combined thesis of the first two lectures in this series is that, beginning in the early modern periods, both the virtues of *religio* and *scientia* became objectified and externalised into beliefs, doctrines and sets of orthodox practices. Clearly, this mutual transition of *religio* and *scientia* opens the possibility for another kind of relationship between them.

Exploring the interaction between Christianity and science

Early interactions

Although a number of the world’s religions have interacted with science this section focusses on the modern interaction between Christianity and science. For the Greeks, *religio* and *scientia* were not in conflict, since their naturalistic explanations did not displace or threaten their mythological ones.

It is clear that *scientia* and *philosophiae* could have been seen as competitors with Christianity (*religio*) in that they were, in a sense, rival spiritual practices. However, this seems not to have occurred to any substantial extent in the early Christian era.

A number of authors, including Draper, White and Gilson^{xx} have sought to establish an adversarial attitude on the part of the patristic fathers to the science of their day by citing Tertullian but, as pointed out by Lindberg, the latter was not typical. Other leading figures of the period, including Augustine, whose influence was to be pervasive, took a much more sympathetic view, regarding the natural sciences as ‘handmaidens of religion and the church’. Later, beginning during the 13th Century, the Christian Church largely assumed sponsorship of the universities as they were established, hence responsibility for scientific learning. During this period there was a significant revival of interest in the classic traditions, including the Greek sciences, as translations became available. With the exception of an incident at the University of Paris involving an attempt to suppress some Aristotelian ideas that were perceived to be dangerously liberal, few stresses arose between learning and the Church. It must also be pointed out that most of the 219 “heresies” under discussion at that time were not scientific in nature. For the most part peaceful co-existence between science and faith predominated.^{xii}

Inventing the “Conflict” Myth

One of the most significant consequences of failing to appreciate the complexity of the development of modern religion and science was the nineteenth century invention by Protestants of what may be called the “conflict” myth. In 1874 J. W. Draper, an American chemist & physician published his *History of the Conflict between Religion and Science*. This was followed in 1896 by A. D White’s even more influential *A History of the Warfare of Science with Theology in Christendom*.^{xxii} These books stressed the intrinsic incompatibility of science with Christianity, reflecting the earlier statement of T. H. Huxley to the effect that “extinguished theologians lie about the cradle of every science as the strangled snakes about that of Hercules”^{xxiii}. Such authors sought to use this seemingly obvious and very much at hand argument to further their agendas of promoting the authority of science, hence its social impact, and lessening the risk of any governance or control by religion. The science-religion controversy has also frequently been used as a proxy for the far deeper atheism-theism debate. To similar ends Karl Popper once asserted that science was started by Thales, oppressed by Christianity and most lately revived during the Renaissance. More recently

“extinguished theologians lie about the cradle of every science as the strangled snakes about that of Hercules”

Davies has called science the second great attempt to explain the world, religion being the first.^{xxiv}

These authors substantially fail to recognise that “the boundaries between science and religion were drawn rather differently in the past and this complicates the way in which we interpret particular historical episodes”. In this connection Harrison notes that Newton, for example, regarded arguments over the existence of God as properly pertaining to the domain of science, a view which few modern scientists would affirm, Christians among them!^{xxv}

There are a number of additional factors which also make such generalisations difficult. Firstly, it is important to note that neither ‘science’ nor ‘religion’, including ‘Christianity’, are unified structures. Each shows a range of expressions with varying degrees of sympathy or symbiosis to the other. This has been the case throughout their history and remains so. Further, some entities, on both sides, have also been quicker to learn from their mistakes than others. Secondly, the range of scientific positions on the realism–instrumentalism spectrum also complicates this picture. Realists believe that their progressively refined theories genuinely reflect reality more accurately. On the other hand, instrumentalists take the view that their sequences of scientific models are best understood not so much as being true but as increasingly convenient fictions, primarily useful for making predictions about the manner the universe will behave. Clearly there is a greater risk of conflict

between Christianity and scientific realists than between Christian belief and instrumentalists since the former accept the objective truth or falsehood of their propositions.^{xxvi} The conflict myth fails to address such issues in any way, simply presenting caricatures of the two protagonists.

It is certainly true that over the last few hundred years, particularly since the controversies over geology and the origin of species, the mutual discussion of science and religion has become commonplace, and at times heated. This is evidenced by the increasing usage of the phrase ‘science and religion’, as shown in Figure 4.

Modern Expressions of Conflict

Although the taxonomy of the interaction between science and Christianity remains complex there are two main expressions of conflict between science and religion evident today. The first is where science accuses religion as being impotent, even fraudulent, and itself lays claim to the realms of ultimate meaning, values and morality. The second is where religion accuses science of invading its space and refuses to concede the authority to science which it deserves. This view fails to recognize the strengths of scientific methodology and its successes in accessing and revealing many of nature’s secrets. Both views frequently demonstrate a failure to recognise that significant numbers of modern scientists espouse a Christian faith, as shown in

“Both views frequently demonstrate a failure to recognise that significant numbers of modern scientists espouse a Christian faith”

Figure 4: Usage of the phrase ‘science and religion’ in English books 1800 – 2000

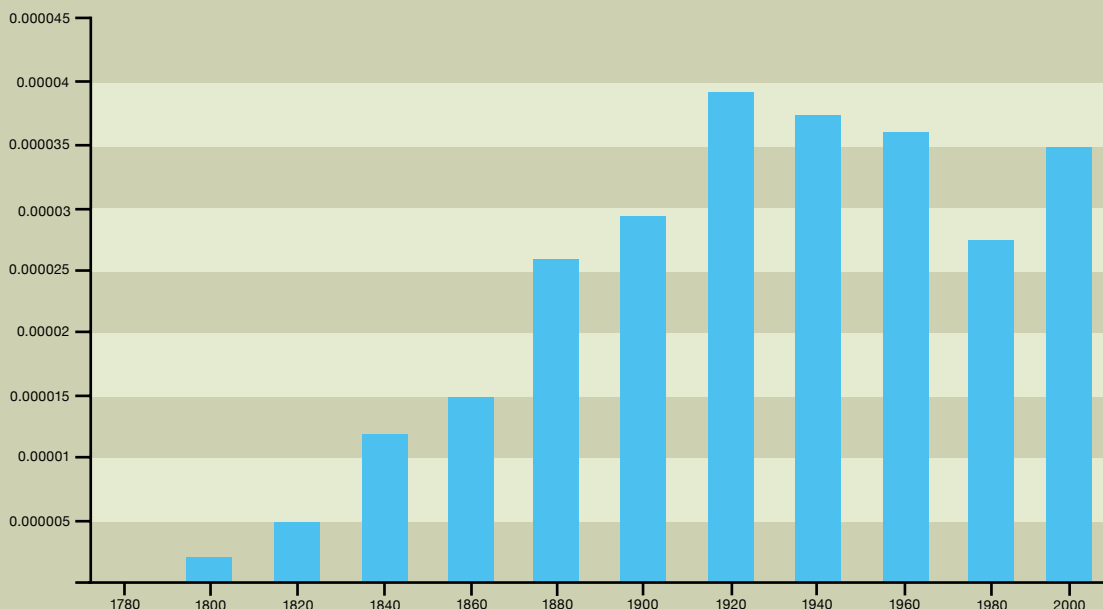


Figure 5: Faith affiliation by scientific discipline.¹

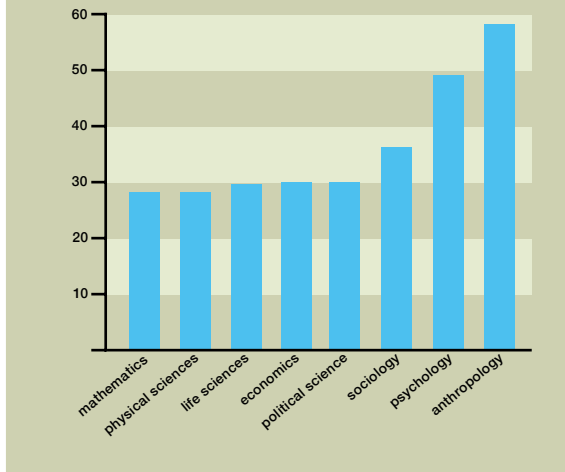


Figure 5. Scientific Critics of Religion
 This viewpoint tends to cast religious truth in scientific terms. Its most visible form is the militant “New Atheism” movement, spearheaded by Richard Dawkins, Daniel Dennett, Sam Harris, Christopher Hitchens, Polly Toynbee, Jerry Coyne, Martin Amis and Stephen Hawking. E. O. Wilson was an earlier, although less blatant exponent of this view. Science is promoted not only as the one way of determining truth about nature but as the only guide to, and arbiter of, truth and morality. Religion is denigrated and despised as an outdated vestigial remainder of earlier, more superstitious times. Science is used in this way, as for Huxley, as a proxy for atheism. This viewpoint insists on philosophical naturalism and does not recognise any validity for methodological naturalism alone. Typical of this genre, Coyne writes: “science and faith are fundamentally incompatible, and for precisely the same reason that irrationality and rationality are incompatible. They are different forms of enquiry, with only one, science, equipped to find real truth. ... And any progress—not just scientific progress—is easier when we’re not yoked to religious dogma.”^{xxviii}

Religious Critics of Science
 This position, which tends to cast scientific truth in religious terms, is associated with some proponents of recent creation and Intelligent Design. It, too, is also typically uncomfortable with the idea of methodological naturalism, again seeing it as being too ‘weak’ although obviously in a different sense to the scientific critics of religion! Exponents generally take the view that God’s activity can

legitimately be the subject of scientific investigation and that His footprints are unambiguously visible in obvious ways. While accepting much of modern science those holding such views typically dismiss scientific evidence which does not support their worldview, often on the basis of the fact that scientific understandings have frequently changed with new discoveries, sometimes quite substantially. A continuum exists between the more extreme expressions of this stance and main-stream Christianity, with individual Christians adopting viewpoints more or less in this category depending on the issue.

Conclusion

Clearly, Christians should unambiguously oppose the new Atheism. However, while the “conflict” myth has been substantially debunked, as earlier noted, there is no doubt that over the centuries Christian perceptions of what the Bible teaches have been forced to change on a number of issues, including some scientific challenges. A number of such incidents are documented by A. D. White, and others. Perhaps the most significant of these has been the revolutionary Copernican idea that the Earth moves around the Sun. After all, the Bible contains a number of texts, such as Joshua 10:13, II Kings 20:10, Ps 19:4-6, and Eccl 1:5 which appear to teach that the Sun moves. There are also texts such as Ps 93:1 and Ps 104:5 which were clearly understood as implying that the Earth was immovably fixed. It took 200 years before Christians could substantially agree with Galileo’s statement (actually borrowed from Caesar Baronius, the Vatican Librarian) to the effect that the Bible was given to teach us how to go to heaven, not to teach us how the heavens go.

Science continues to confront modern Christians with a number of difficult dilemmas, among them complex medical issues, baffling environmental challenges, and confusing data concerning origins. We must be careful. As Christians we must ensure that our positions on matters related to science and its interface with faith are defensible, well thought out and carefully expressed. Christians have sometimes been accused of believing “six impossible things before breakfast” and this is unfortunate.^{xxx} Former British Chief Rabbi, Jonathan Sacks, argues that this need not be so, that faith and science operate in complimentary spheres like the left and right hemispheres of the brain, and that there should be no essential conflict between them. He suggests that “Science takes things apart to see how they work. Religion puts things together to see what they mean”.^{xxxi} **TEACH**

“Science is promoted not only as the one way of determining truth about nature but as the only guide to, and arbiter of, truth and morality.”

Endnotes

ⁱ See Dixon, T. (2008). *Science and Religion: A Very Short Introduction*. Oxford, UK: Oxford University Press; and Harrison, P. (2015). *The Territories of Science and Religion*. Chicago and London: University of Chicago Press.

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ⁱⁱⁱ Augustine. *A Treatise on the Faith and the Creed* 10.25. Cited by Harrison P. (2014). *New College Lectures: Lecture 1, Op cit*.

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^v Calvin, J. (1536). *The Institution of the Christian Religion: in Four Books*. Basel: Thomam Platteru & Balthasarem Lasium. Cited by Harrison P. (2014). *New College Lectures: Lecture 1, Op cit*.

^{vi} Cited by Harrison P. (2014). *New College Lectures: Lecture 1, Op cit*.

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^{xi} See Gaukroger, S. (2006). *The Emergence of a Scientific Culture*. Oxford: Clarendon Press, 506, 3; Henry, J. (2010). "Religion and the Scientific Revolution", in Harrison, P. (ed.). (2010). *The Cambridge Companion to Science and Religion*, Cambridge, UK: Cambridge University Press, 42-45.

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^{xix} Figures 2 & 3 from Harrison P. (2014). *New College Lectures: Lecture 2, Op cit*.

^{xx} See Draper, J. W. (1874). *History of the Conflict between Religion and Science*. New York: Appleton & Co, Ch 2; White, A. D. (1896). *A History of the Warfare of Science with Theology in Christendom*. New York: Appleton & Co, Vol II 31,32; Gilsen, E. (1938). *Reason and Revelation in the Middle Ages*. New York: C, Scribner's Sons, 5-15.

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^{xxii} See Draper, J. (1874). *Op cit* and White, A. D. (1896). *Op cit*.

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“
Science takes things apart to see how they work. Religion puts things together to see what they mean”

Pilgrims and progress

James Standish

Parent, Wahroonga Adventist School, Wahroonga, NSW

I've never been a fan of *The Pilgrim's Progress*. Yes, I know Samuel Johnson, one of the greatest literary figures in the English language, said "this is the great merit of [*The Pilgrims Progress*], that the most cultivated man cannot find anything to praise more highly, and the child knows nothing more amusing." And I know Ellen White called it a "wonderful allegory."

I know John Bunyan wrote it while suffering valiantly for religious freedom in prison. And I know it eloquently paints Protestant principles in a manner widely appreciated.

I know it's been translated into over 200 languages. And I know references to it literally litter the literary landscape.

And I like all of that.

It is the book itself I do not like.

It's just too dense and overwrought. I feel as burdened as the pilgrim himself as I read along. In comparison, the King James Bible makes for veritable light reading! And it's for that reason, I suppose, that I've never read *The Pilgrim's Progress* from start to finish. And it's been a very long time since I tried.

So when my children came home and announced Wahroonga Adventist School's musical this year was going to be based on *The Pilgrim's Progress*, my enthusiasm stemmed from a sense of parental duty, not personal pleasure.

I was rather chuffed when my oldest daughter scored a fairly large part in the production, until I realised that it would fall upon me to practice her lines with her. Spare me! Not only was I in for a nightly dose of *Pilgrim's Progress* – but precisely the same dose. Add dreariness to drudgery.

She asked me to come to the full dress rehearsal. Happily, I had work. And besides, my wife was going to be there. Surely it was better that just one of us should suffer.

And then the big night came. Wahroonga holds their concerts in the Hornsby RSL showroom. I don't know why. Now I love the country, the troops, the flag and I'm even more or less ok with the Queen. But I hate the RSL. Why? Because you have to file past all those filthy pokies where zombied adults sit throwing their gold away with one hand and throwing golden poison down their throats with their other. If ever you are feeling optimistic about the human condition, one

trip to the RSL will cure you.

The concert room was jammed packed with families when I arrived. Above on the right a portrait of Her Majesty. On the left a large white cross. I imagine the Queen might like a turn at the pokies – she likes a wager now and again. But I think Jesus would be more likely to go through the place with a whip, turning over thieving machines.

My daughter and her fellow actor walk on the stage. The show begins. The story unfolds. And not just story. This is a musical, with a full band, choirs, costumes. There's humour. Pathos. Tragedy. No one forgets their lines. Everyone is full of life. Every single child has a part. And for the first time. The very first time in my life. I feel the magic that is *The Pilgrim's Progress*.

Mr. Worldly Wiseman? I have met that guy so many times in my life I can't count! I've met a few Hypocrisies over the years, too, and I've been one myself on more than one occasion. And, yep, I've had my share of Faithfuls in life – people who pulled me back onto the straight and narrow when I've stumbled. I've visited Vanity Fair and I've fallen desperately at the foot of the cross. All of it. I've got to tell you, that *Pilgrim's Progress* story? It is powerful stuff!

And that's when it hits me. My kids have been bathed in this "wonderful allegory" for months. They know the story backwards and forward. They can quote the lines. And sing the songs. And that's no coincidence. Their teachers have been praying and planning all year for just this result. What a beautiful thing this Christian education is!

The performance ends as it begins - flawless and amazing. The kids bring the house down. Parents, grandparents, friends and neighbours are on their feet cheering. Flashes are going off all over the hall. There's smiles and laughter, pictures and poses. This is what live theatre should feel like.

On the way out, we walk by the pokies. I glance over. "That's Vanity Fair," I say. "We know that, Dad," my youngest pipes up with just a hint of pre-adolescent weariness in her voice as if to say: "Don't you get it Dad. We've spent months mulling this story over. We know what it's about. We've got the lessons loud and clear. And we know exactly how to apply them in the real world."

That's the thing about that book *The Pilgrim's Progress*. I can't "praise it more highly. And my children have found nothing more amusing." **TEACH**

“
That's Vanity Fair, I say. We know that, Dad ... Don't you get it Dad. We've spent months mulling this story over. We know what it's about. We've got the lessons loud and clear. And we know exactly how to apply them in the real world.”

Ytraveli, A travel blog

In between: A literary reflection on the experience of travel

Lara Campbell - Sunday, August 23, 2015

The most important reason for going from one place to another is to see what's in between.

Norton Juster (1964), *The Phantom Tollbooth*

Bangalore, India

I take a seat just in time. The bus jerks forward and I have to stick a hand up against the warm, greasy bar in front to stop myself shooting forward. She is squashed against me. As the bus careens through roundabouts, I can feel soft, maternal flesh beneath her chiffon sari. She prattles Hindi into her mobile phone, gazing out the window. A long, animated conversation—perhaps philosophy, or gossip.

Indian music wobbles over the speakers like the heat waving off the cars outside. The off-green colour inside the bus compliments the fake flowers decorating the front windscreen. The bust of an Indian female stenciled onto the wall above the window stares at me, notifying the segregated seated plan. Women to the front, men to the back. It's a short trip. The bus stalls to a halt and I stumble off as others stumble on. The air is dusty and dry and smells like a mixture of curry spices, exhaust and sewerage.

Trans-Siberian Railway, Mongolia

Human noise has quieted. Passengers have been lulled into a hypnotic trance, the soothing rhythm created between train and tracks. The extensive desert miles of repeated journeys through Russia, Mongolia and China have not wearied the continual clatter created upon the tracks. Like film on a reel, the Gobi rolls past the window. The fluorescent blue of a cloudless day sits starkly above the dull desert dirt below. An unending fence bounces and bobs along the bottom of the window's view. Contained and protected from the wilderness of extremities beyond, I am rocked to sleep.

Paris, France

The air is thick in the tunnel. Heat, bodies, crêpes and rubber. It's early evening on New Year's Eve and already the underground at Alma-Marceau is packed with people waiting to board packed trains. We're going to the Champs De Elyse to see the lights and the sights and the people on the popular street. The train arrives in a bluster of warm air.

The chatter onboard is ecstatic. Families, couples and friends cluster around themselves, excitedly anticipating what the night will bring. Scarves and down jackets do little to disguise party dresses and feet in stockings and heels.

“
Indian music wobbles over the speakers like the heat waving off the cars outside.
”



Wahroonga Adventist School students: Jayde Boehm, Amelia Buechner, Emily Miller, Claudia Granger, Charisse Prineas & Sophie Johnson. Photography: WAS images

Reflections, Impressions & Experiences

“Bonne année (Happy New Year).” A young African man greets me from behind. He sits alongside his two African companions, dark pupils in bright eyes fixed and moving along us. Their over-friendliness is a symptom of an early start to the evening’s drinking, evidenced by a brown paper bag hugging the figure of a wine bottle swinging in a relaxed pair of hands.

The train rocks and sways, bringing the riders into a group dance. Everyone sways together, moving as one.

Rome, Italy

Like a herd of cattle, the local passengers unashamedly cram against each other, hungry for a spot on the crowded bus. A common claustrophobic bus has replaced the sights of civilisation and grandeur. My legs are weary from traversing cobbled streets between Colosseum and cathedrals. Foolishly, I am the last one on, defying the demands of the driver to wait for the next one.

“Allora!”

I’ve backed in—I’m wearing a backpack and use it as my battering ram to move into the masses. The doors judder to a shut in front of my nose. The bus lurches into the traffic; a collective groan arises from its passengers. Suddenly conscious of the sticky fingers of gypsies, I sense the vulnerability of my backpack within many arms’ reach. I swivel around to discover I am squashed between the front windscreen and a nun. All is well.

The journey in retrospect

Lawson Hull - Sunday, August 30, 2015

Up and stumbling, I wake from weightless slumber to a knock on my door. It is 4.27 am and my companions are avidly campaigning for a scooter ride to the mountains to see the sunrise. I could sleep all day in my peaceful palace-cave, made dark by heavy curtains blocking the sun and a high-rise view. For fear of missing something unforgettable, I accept.

The streets are dark yet busy; market stallholders are setting up for the day. The early air is cool and pleasant. It is hard to imagine in just a few hours, the streets will be smouldering in the raw heat of Thailand. Only the bravest of foreigners will be seen contently folded in a Starbucks lounge, double-shot mocha in hand and a laptop in sight.

Racing down the highway involves a great deal of squinting—I have no goggles and the wind is thick and dry, but I can see the blue mountain silhouettes where we are headed.

The ascent is dreamy.

After fuelling up for the equivalent of four Australian dollars and setting our bearings straight, we leave the bewildering maze of Chiang Mai.

I feel, if I close my eyes, I could be sailing any winding mountain range on earth—the Alps or the Rockies. The rainforest air is cleansing despite intermittent air pockets fumed by dirty diesel trucks rumbling up the way.

Not yet to the peak, we make it to a lookout where the city spreads thousands of buildings below. We wait, only to be disenchanted—a tall ridge divides our view of the sunrise. Bothered, we take some blurry throwaway photographs and continue upwards.

Still early—the top is a peaceful and placid tourist niche. The locals are readying their handmade goods for the hopeful day of business ahead. Orange-robed Buddhist monks slowly wander by.

After strolling awhile we discover a famous sanctuary nearby. We pay a dollar to look inside the sacred and eerie courtyard of the Wat Phra That Doi Suthep. Layered gold are the shrines of this holy place. The statues and murals are breathtaking.

After staggering up some stairs, we approach a sea of golden-glazed tiles covering a platform that opens to an expanse much greater than my digital-driven eyes can gather. A belated sunrise awaits us here. It is a magnificent panorama from the highlands to the outer suburbs; the elegant towers of the city and beyond, where the mountains cross back and forth, forever into the distance.

I glance back upon the golden domes. To me, they resemble the shiny heads of robed deities. For 600 years this place has stayed the same, regardless of the ever-expanding conglomerate at the feet of its resting place.

No, I do not ponder life or its often unanswerable questions.

We leave, not making a sound.

ⁱ Ytravel, a travel blog, is written by Avondale College of Higher Education students who want to share their love of the world with anyone who will read about it.

“
I sense the vulnerability of my backpack ... I swivel around to discover I am squashed between the front windscreen and a nun. All is well.”



Photography: Lawson Hull

BOOK REVIEWS

Encyclopedia of Christian Education

Edited by George Kurian and Mark Lampport (2015). Lanham Maryland: Rowman and Littlefield. 1678 pp
ISBN-13: 978-0810884922

Barry Hill

Education Director (retired), South Pacific Division of Seventh-day Adventists, Wahroonga, NSW

Having neither seen an Encyclopedia of Christian Education, nor even alas sought one out in my educational career, I was heartened to sight the Encyclopedia of Christian Education, a three-volume set of 1630 pages in length, that includes over 1200 articles by 400 contributors. I shall briefly comment on its purpose, audience, range of entries, quality of entries, and overall appeal.

Purpose

The encyclopedia is on one hand diachronic, attempting to trace the history of Christian education, schools and training in all significant Christian denominations over 2000 years. On the other hand it aims to profile the state of contemporary Christian education worldwide. These two objectives require the gathering of massive data, selection of good contributors, and skilful editing to make the work manageable. The encyclopedia organises its information clearly and concisely, and appears to achieve its objectives. However I think it achieves its historical objective better than its contemporary one. Overall I think the editors have managed their role very well.

Audience

The stated audience are the 21,000 Christian education institutions in English-speaking countries and churches, denominational leadership and para-church organisations worldwide. Although I see the encyclopedia as being useful for a range of institutions, and despite its brave attempt to survey the state of Christian education globally, its orientation and appeal reflects a strong American focus. This orientation shows itself in aspects such as terminology,

selection of contributors, universities described in main alphabetical entries, and American-style discussion of key elements of education such as curriculum, learning, character education and emotion.

Range of Entries

The authors have managed to include an admirable range of entries in this encyclopedia. In scanning the three volumes I notice entries on a broad range of diverse topics such as Blooms' taxonomies, children's spirituality, consciousness, constructivism, faith, generational issues in education, metacognition, neuropsychology, phenomenology, post-modernism, spiritual formation and values education.

The work also attempts to profile the main Christian school systems around the globe. Although various contributors generally provide helpful succinct summaries, useful information can be omitted. For example apart from Lisa Beardsly-Hardy's account, I notice little if any mention of the Adventist contribution to Pacific Christian education, nor to Christian tertiary education globally, and this is significant. Neither do Adventist authorities like George Knight receive mention, though Knight's publications do appear in several bibliographies. Of course my observations here reflect my Adventist bias.

In my view the encyclopedia presents a reasonable set of profiles of significant Christian and occasionally other educators. I note a range of people like Karl Bath, Parker Palmer, William James, and even Australians such as Graham Rossiter, Marissa Crawford and John Hull. Overall though I think these profiles favour the historical perspective over the contemporary, and I would wish for more balance.

In general, I think that despite a sprinkling of significant omissions and the American bias, the editors have made a brave fist of addressing the range of issues and data required in such a comprehensive work.

Quality of Entries

This encyclopedia appears stronger in some content areas than others. For example its whole Christian education section including its sections on research and publications is fairly comprehensive and potentially useful. And it



Reflections, Impressions & Experiences

seems that that the history, philosophy, theology, nexus between theology and education, and the evangelical thrust of Christian education, particularly in America, are well represented.

That said, my perusal of some topics of particular interest to me raised some questions. For example although the section on learning gave a helpful introduction to the topic, there could have been more definition, more mention of experts like Guy Claxton and Eric Jensen, and discussion of more recent developments. The work on emotional education could also present more on the current state of play including more key issues. Likewise sections on curriculum, character education and values education could feel more current and inclusive. These and many other entries could also include more current references. Of course there is always a time lag between writing encyclopedia entries, editing, and publication, so any encyclopedia will feel slightly dated on publication.

Overall usefulness

Articles in these three volumes are generally concise, clearly written, and present the essential bones of topics that either provide essential

information or help get readers started on a journey of inquiry. They also provide a broad brush stroke of Christian education globally.

In the minus column, the work feels rather American in its selection of content topics and issues. It also appears to favour the historical over the current educational scene, and lacks some currency in sketching the essentials of some areas of education.

However in summary, encyclopedias are limited by their need to be concise and introductory in their treatment of information and issues, so they cannot be all things to all people. Overall, this one presents numerous instructive entries on a range of helpful topics. I think that the contributors have carried out their brief well. This work fills an important gap in the literature, and I would have it in my Christian college or university library. **TEACH**

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