

11-2017

Old School or Cutting Edge? An Examination of Ellen G. White's Views on Education from a Best Practice Twenty-First Century Perspective

Peter W. Kilgour

Avondale College, peter.kilgour@avondale.edu.au

Beverly J. Christian

Avondale College, bev.christian@avondale.edu.au

Follow this and additional works at: <https://research.avondale.edu.au/teach>



Part of the [Other Education Commons](#)

Recommended Citation

Kilgour, Peter W. and Christian, Beverly J. (2017) "Old School or Cutting Edge? An Examination of Ellen G. White's Views on Education from a Best Practice Twenty-First Century Perspective," *TEACH Journal of Christian Education*: Vol. 11 : Iss. 2 , Article 7. Available at: <https://research.avondale.edu.au/teach/vol11/iss2/7>

This Research & Scholarship is brought to you for free and open access by ResearchOnline@Avondale. It has been accepted for inclusion in TEACH Journal of Christian Education by an authorized editor of ResearchOnline@Avondale. For more information, please contact alicia.starr@avondale.edu.au.

TEACH^R

Old school or cutting edge? An examination of Ellen G. White's views on education from a best practice twenty-first century perspective

Peter Kilgour

Director of the Christian Education Research Centre and senior lecturer in the Discipline of Education, Avondale College of Higher Education, Cooranbong, NSW

Beverly J. Christian

Head of the Discipline of Education and senior lecturer in the Discipline of Education, Avondale College of Higher Education, Cooranbong, NSW

Key words: Ellen G. White, twenty-first century learning, neuroplasticity, metacognition, well-being

Abstract

Ellen G. White was an inspired writer who was influential in the development of Adventist education in the late nineteenth century. She wrote prolifically on the philosophy of Christian education, its goals and its practice. This article explores her views, as written over a century ago, and compares them with several twenty-first century educational concepts that impact pedagogical practice today. The concepts chosen are: neuroplasticity, differentiation, holistic education and well-being, metacognition, education for employability, visible learning and heutagogy. The comparison revealed that when White's views were analysed in terms of purpose or in terms of underlying principles, they aligned with several educational concepts that are driving pedagogical practice in the twenty-first century.

Introduction

How would Ellen G. White, founder of Avondale College of Higher Education, and the most inspired, important, and influential advisor to Adventist education in the nineteenth century, relate to some of the most innovative education concepts and practices of the twenty-first century?

This paper seeks to report and expand on some of the most significant educational innovations of this century and relate them to the ideas and concepts that White presented as guiding principles for

Christian education over a century ago. There could easily be a tendency to analyse some of her advice and instruction and make one of two conclusions. The first conclusion could be that some of the advice she gave is no longer followed by Adventist schools today. The other is that the advice she gave is not relevant to Adventist schools today.

There is a third alternative, however, which is the focus of this article. If the guidance White gave to Adventist education in the nineteenth century were to be analysed in terms of its purpose or in terms of its underlying principles, how would some of our modern day pedagogy align with the more than century old advice offered by White?

Overview of twenty-first century learning

The world of teaching and learning in the twenty-first century has become more complex than ever before. The casual observer would not know or understand the multiple layers of expertise and accountability that drive a teacher today (Darling-Hammond, 2006). This century has also seen the introduction of a national regulatory body in Australia, the Australian Institute of Teaching and School Leadership (AITSL, 2017). Established to monitor standards for teachers and school leaders, AITSL has imposed on teachers seven key standards (Australian Professional Standards for Teachers, n.d.), each with multiple sub points, totaling 37 in all. In an attempt to meet these standards, teachers and schools are continually looking towards research and pedagogical approaches that indicate best practice for teaching and learning.

“
how would
some of our
modern day
pedagogy
align with
the more
than century
old advice
offered by
White?”

This article explores a range of current educational concepts that impact contemporary pedagogical approaches, and contrasts them to the advice that White gave to Adventist schools as they were established more than a century earlier. The educational concepts that form the focus of this paper are: neuroplasticity, differentiation, holistic education and well-being, metacognition, education for employability, visible learning and heutagogy.

It needs to be remembered that White gave this advice at a tumultuous time in American history when conservatism and traditional values were being challenged. To put things in perspective, the era being discussed includes the California gold rush, the civil war, abolition of slavery, and the invention of dynamite, the light globe and basketball. To even consider comparing twenty-first century pedagogy to educational advice given by somebody from that era is in many ways an unlikely endeavour, but that is exactly the purpose of this

article. Table 1 summarises the main educational concepts and corresponding ideas promoted by White that are further elaborated in this article.

Neuroplasticity and implications for learning

During the second half of the 1800s, and around the turn of the century in the period when White was writing, it was widely believed that intelligence was fixed as a result of genetics. This resulted in a preoccupation with intelligence testing in order to be able to categorise children or to facilitate the choice or quality of the school they would attend (Chitty & Benn, 2007). Further, this was used as support for racist categorization and differentiation of opportunity.

Despite the result of the American Civil War that had the dual purpose of consolidating the states of America and also emancipating the African American slaves, slave owners and traffickers were enculturated with the belief that blacks were

Table 1: Summary of educational concepts promoted by both twenty-first century educational leaders and Ellen G. White

Twenty-first century educational concepts	Twenty-first century educational position	Ellen G. White's nineteenth century position
Neuroplasticity	Intelligence is not fixed; therefore everybody can improve their learning capacity. (Doidge, 2007; Ganguly & Poo, 2013).	Exercising the mind develops it (White, 1903, p. 17).
Unlocking student potential through differentiation	Each student is unique; therefore teaching should be differentiated (NSW Education and Communities, 2015).	Each student is created uniquely in God's image (White, 1903, p. 17).
Holistic education and well-being	There is a strong connection between the body, the brain and the emotions; therefore all should be considered in the learning process (Seligman, 2011; Seligman, 2017).	"It [education] is the harmonious development of the physical, the mental, and the spiritual power" (White, 1903, p. 17) and prepares students for service (White, 1903, pp.29-30).
Metacognition	Knowledge is easily accessible; therefore educators should spend more time teaching higher order thinking skills (Kratwohl, 2002; Caine, Caine, McClintic, Klimek & Costa, 2015).	It is important to teach youth to be thinkers (White, 1903, p. 17).
Education for employability	An outcome of education is employability; therefore schools need to be preparing students for success in the workplace (Ministerial Council on Education, Employment, Training and Youth Affairs [MCEETYA], 2008).	Educate for usefulness and employability (White, 1903, pp.29-30; E. G. White, personal communication, Letter 15, November 9, 1867).
Visible learning and heutagogy	Students need to take responsibility for their own learning; therefore student self-regulation and direction are essential (Hase, 2009; Hattie, 2009)	Discerning teachers will encourage students to discover their talents and take responsibility for using them to learn (White, 1903, p. 232).

“a pre-occupation with intelligence testing ... was used as support for racist categorization and differentiation of opportunity.”

genetically inferior. Many believed that slavery was the natural order and indeed the very fabric of society for the good of all, including the slaves (Boxill, 2010). These racist ideas permeated western society and persisted into the twentieth century causing many written, verbal and even physically violent clashes with those who claimed that environment was the sole input into a person's intelligence.

While there are still white supremacist groups arguing in favour of genetic fixed ability, the far more popular perception today is that of an expanding brain and one where learning capacity can be improved independent of genetics. Called neuroplasticity, this scientific term indicates the way the brain actually grows as a result of certain stimuli. Ganguly and Poo (2013) define it as follows:

Neural plasticity can be broadly defined as the ability of the nervous system to adopt a new functional or structural state in response to extrinsic and intrinsic factors. Such plasticity is essential for the development of the nervous system and normal functioning of the adult brain. (p. 729)

This understanding of how the brain can expand its capacity has changed the perspective of educators when it comes to learning, yet when we look back to the nineteenth century, we discover that White not only referred to the fact that the brain has the capacity to “expand and strengthen” (1903, p. 125), but she gave examples of both extrinsic and intrinsic factors that may cause this to happen. She refers to the Bible as a source of truth and to the avenues of naturalistic research as extrinsic motivators. Thinking about one's “duty and destiny” are sources of intrinsic motivation that, according to White (1903) will exercise the plasticity of the brain:

Instead of confining their study to that which men have said, or written, let the students be directed to the sources of truth, to the vast fields opened for research in nature and revelation, let them contemplate the great facts of duty and destiny and the mind will expand and strengthen. (p. 17)

The relationship between neuroplasticity and spirituality is further explored by Newberg and Waldman (2009), whose research at the University of Pennsylvania supports White's statement, and posits that “the more you think about God, the more you will alter the neural circuitry in specific parts of the brain” (p. 4). These researchers have tracked the effect of meditation on the brain and their findings indicate that contemplation has a positive effect on the brain, which increases

when participants meditate on a God of love. This includes growth in the pre-frontal cortex which process emotions and reasoning (Newberg & Waldman, 2009). Jennings (2013) comments on these findings, and posits that thinking about God, as in prayer or meditation, helps the brain to “heal and grow” (p. 27).

This idea of an expansionary mind as put forward by White is fundamental to the philosophies of twenty-first century education. In 2007, Doidge's book *The Brain That Changes Itself* became a turning point in widespread recognition of neuroplasticity and potential for learning. It is exciting to imagine the potential difference brought about by teachers recognizing that “every brain is unique and that current performance on a task simply reflects what the unique brain has acquired thus far – not its ultimate potential to succeed at that task” (Wilson & Conyers, 2013, p. 16). Barbara Arrowsmith-Young (2012) reports on her own life as one born with very serious learning disabilities including an inability to deal with logic. By applying the principles of neuroplasticity to herself, she was able to experience the results of neuroplasticity first hand, and was eventually successful in implementing the same techniques with others.

Neuroplasticity is an important concept for educators to understand as it is the premise on which current approaches to education are built. It was also foundational to White's understanding of education, and opens opportunities for learning that are not possible if one subscribes to the idea that intelligence is fixed.

Unlocking student potential through differentiation

Linked closely to the evidence that neuroscience offers for neuroplasticity is the recognition that learning occurs in different ways, at different times, for different individuals (Subban & Round, 2015). Called differentiation, the practice of recognising the uniqueness of each student and adjusting teaching strategies to suit their learning needs, was not acknowledged in the nineteenth century where a factory model of education prevailed (Rose, 2012, para. 2). Throughout the twentieth century, a gradual shift occurred, bringing some innovations with the ‘progressive education movement’. As a result, “educators became less focused on the outdated teaching methods of reading, memorizing and reciting; they instead experimented with new philosophies in order to better focus on the children” (Elliot, 2013, para. 2).

Towards the end of the 20th Century, differentiation, while already practised by some, became the focus of rigorous conversation in

“
current
performance
... reflects
what the
unique brain
has acquired
thus far – not
its ultimate
potential to
succeed at
that task”

education. Academics started trying to come to terms with what it actually meant. In 1996, Bearne stated:

While there is currently much emphasis on differentiation in schools, there is no clear consensus about what the term means or implies. It is linked in many teachers' minds with 'mixed ability teaching' but there is nevertheless considerable debate about just what differentiation might look like in the classroom. (p. 1)

By 2015 schools, school systems and the public education sector had started to disseminate resources, guidelines and directives for differentiation. The New South Wales Department of Education and Communities sent out a document in 2015 that outlined the process of differentiating not only content but also differentiating product and learning environment. Each one of these categories contains definitions, what is involved, and how to implement the differentiation (NSW Education and Communities, 2015).

Appropriating differentiation is strongly linked to how one views the individual, and White recognised that each student was unique. She argued, "Every human being, created in the image of God, is endowed with a power akin to that of the Creator – individuality, power to think and to do" (White, 1903, p. 17). The fact that White recognised the individuality of students in this era of education was somewhat groundbreaking. As quoted above, White highlighted the fact that all students are individuals not only in the way they think, but also in the way they apply their learning. While her ideas reflected forward thinking, differentiation, linked to the philosophy of Christian education that White espoused, is now a classroom expectation. As teachers recognise the uniqueness of each student, they are positioned to better facilitate learning for every child.

Holistic education for well-being

Accompanying the recognition that each student is unique is an emphasis on nurturing the whole person. Frequently heard within the education scene is the term well-being, a word that embraces not only intellectual competence, but also physical, and social-emotional capability (Seligman, 2011; Wilber, 2008), with an increasing number of educators also recognising a spiritual dimension to overall well-being (Barrett, 2012; Kessler, 2000).

In the twenty-first century, increasing recognition is being given to the idea of positive psychology, an idea pioneered by Martin Seligman who believed that removing unhappiness does not necessarily equate to happiness. Furthermore, there are many facets to

well-being that make up a balanced life. Seligman (2011) believes the components constituting a well-balanced life are positive emotions or the ability to be optimistic, engagement in activities, relationships or connections with other people, having a purpose or meaning in life, and having goals and ambitions. Of significance is Seligman's proposition that living a meaningful life, or knowing one's strengths and using them in service to others, is the factor that contributes to satisfaction and further, that the other elements of well-being will be stunted without the inclusion of a service component in the curriculum.

Like Seligman, but over a century earlier, White wrote about these aspects of well-being. For those who are familiar with the extensive publications of White in the area of education, one of her best known statements reads, "It [education] is the harmonious development of the physical, the mental, and the spiritual power" (White, 1903, p. 17).

Further, White maintains that apart from the physical, mental and spiritual development of the student, education should also develop values and character: "True education does not ignore the value of scientific knowledge or literary acquirements; but above information it values power; above power, goodness; above intellectual acquirements, character" (White, 1903, p. 225). Using twenty-first century language, it seems that White was really concerned with the well-being of students and with developing the whole person. While this is not new to current teachers and features in most Christian school philosophy statements today, in the early 1900s it was not included in the objectives of most schools.

The concept of positive psychology in the context of the Word of God appeared in many of White's books, journal papers and letters. An example of her understanding of the connection between positive emotions and happiness is:

God's law is the law of love. He has surrounded you with beauty to teach you that you are not placed on earth merely to delve for self, to dig and build, to toil and spin, but to make life bright and joyous and beautiful with the love of Christ—like the flowers, to gladden other lives by the ministry of love. (White, 1956, p.97)

With regard to Seligman's concept of the necessity for people to have relationships or positive connections with other people, White (1903) wrote: "In the Lord's plan human beings have been made necessary to one another" (E.G. White, personal communication, Letter 115, June 6, 1903). Furthermore, when writing specifically about education, she added: "Christian sociability is altogether too little cultivated by God's people. This

“Every human being, created in the image of God, is endowed with a power akin to that of the Creator – individuality, power to think and to do.”

branch of education should not be neglected or lost sight of in our schools” (White, 1948. p.172).

What Seligman (2017) calls “a meaningful life” (p. 249), is aspired to by schools who now create intentional service opportunities in an attempt to encourage “transformative learning” (Hullender, Hinck, Wood-Nartker, Burton & Bowlby, 2015, p. 18). Service learning results in a more profound sense of meaning and contribution for the students involved than if participating in more self-indulgent activities (Hullender et al., 2015). White suggests a similar idea in a letter she wrote in 1903:

To everyone God has entrusted talents. These talents we are to use to help one another to walk in the narrow path. In this work each one is connected with the other, and all are united with Christ. It is by unselfish service that we improve and increase our talent.

(E.G. White, personal communication, Letter 115, June 6, 1903)

“*Teachers who continue to limit teaching to the basic level of Blooms Taxonomy ... are ... superfluous to the real needs of their students.*”

Though White did not live at a time when student well-being was discussed or researched, the evidence from her writing indicates that each element of well-being put forward by Seligman is consistent with White, except for two differences: she wrote in the language style of her era, and she believed that God and his truth were the conduits through which each element of well-being was imparted to the individual.

Based on the understanding and recognition of the learning potential of students, well-being, achieved through a holistic approach to education has become a generally accepted aim of twenty-first century education.

Metacognition

Metacognition, also referred to as ‘thinking about thinking’ can be defined as “higher-order thinking that enables understanding, analysis, and control of one’s cognitive processes, especially when engaged in learning” (Metacognition, 2017). A hallmark of nineteenth century education was a strong focus on rote memorisation of subject material and it was not until 1956 when Bloom and Engelhart first put forward their hierarchy or taxonomy of educational objectives that the emphasis began to shift (Bloom & Engelhart, 1956).

This taxonomy was later revised and updated by Krathwohl in 2001. He included *creating* as a higher order objective (Krathwohl, 2002). Since then, the hierarchy has undergone further revisions and now offers verbs for each level that teachers can include in their classroom instructions to ensure balance across all the categories. Therefore, a teacher wanting to include metacognitive or higher

order thinking outcomes in an assessment may choose from thinking skills that require students, for example, to construct, design, create, develop, argue, or hypothesise.

This emphasis on higher order thinking skills accompanies the easy access to all manner of information and basic knowledge that students have from their personal devices. Teachers who continue to limit teaching to the basic level of Blooms Taxonomy of Educational Objectives are therefore superfluous to the real needs of their students. This is why organising classes to facilitate metacognitive or higher order thinking in students currently exemplifies ‘a good teacher’. One place where thinking skills can intentionally be taught is in the classroom. If teachers fail to rise to the challenge, and are satisfied with teaching only lower order thinking to their students, then Caine et al. (2015) pose the question, “Where exactly do we expect them to develop the kinds of skills that help students develop higher-order thinking skills and prepare them to become responsible, thinking adults living and working in a technology-saturated world?” (p. 3).

After several decades of thinking about education, refining her thoughts and seeking God’s guidance, Ellen White moved into the 20th Century convinced that higher order thinking was the key to quality education. Long before Bloom and Engelhart, and in an era of structured teaching and direct instruction, White (1903) was advising the teaching of metacognitive thought:

It is the work of true education to develop this power, to train the youth to be thinkers, and not mere reflectors of other men’s thought. Instead of confining their study to that which men have said or written, let students be directed to the sources of truth, to the vast fields opened for research in nature and revelation. (p. 17)

White recognised that students needed to develop their metacognitive skills in order to reach their full potential, a concept that placed her out of step with educational practice at that time. Today, however, metacognition is recognised as an important inclusion in teaching methods, with strategies such as Ritchhart, Church and Morrison’s (2011) *Making Thinking Visible*, Costa and Kallick’s (2009) *Habits of Mind* and De Bono’s (2000) *Six Thinking Hats* being implemented across the curriculum in many schools.

Education for employability

Education has many purposes, just one of which is to prepare students for employment. In an Australian context, the Melbourne Declaration for Educational Goals for Young Australians

articulated by the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) (2008) identifies two goals that set the educational directions for the period 2009-2018. The second of these goals is that ‘All young Australians become successful learners, confident and creative individuals, and active and informed citizens’ (MCEETYA, 2008, p.8). Closer examination reveals that included in this goal is the education of students, “leading to rewarding and productive employment” (MCEETYA, 2008, p. 9). Also embedded in this goal is the development of “personal values and attributes such as honesty, resilience, empathy and respect for others” (MCEETYA, 2008, p. 9).

In response to this and similar manifestos, there has been a push to introduce innovations that will bring learning and employment into alignment. In the same way that agriculture was still a key learning area in the late nineteenth and early twentieth centuries, information and communication technologies have become a student’s passage to most careers available to them today. In the current era even agriculture cannot be implemented efficiently, effectively, or competitively without the extensive use of technology (Reddy & Ankaiah, 2005). To this end innovations such as STEM and STEAM have become cutting edge applications of the curriculum in this century. These words are acronyms for creating a learning experience that integrates different combinations of science, technology, engineering, arts and mathematics and has students, usually in teams, using multi-disciplinary skills and knowledge to solve problems or be creative in making technology based applications. This approach replaces the ‘subjects in silos’ methodology of the last century, despite the fact that the Australian Curriculum still presents learning outcomes in this way.

Another innovation of this century that schools are gradually incorporating into their program is project or problem-based learning which simulates workplace teams. Similar to STEM but with protocols that aim to help students understand workplace conditions, Laur (2013, p. 30) puts forward what an authentic learning experience would look like using project-based learning. Such experiences would be founded on a realistic project that would require students to use twenty-first century skills along with natural student inquiry and innovation to work on a project in teams. Findings will be publically presented and then modified according to feedback received. The student voice becomes much more audible than the teacher voice and students develop the skills, both workplace related and personal, that are in demand from employers.

It is true that Ellen White promoted the idea

of students learning agriculture as a subject at school (White, 1913, p. 311), thereby engendering questions from some today as to why Adventist schools do not all currently teach agriculture. An examination of her writing reveals a primary reason for including agriculture in the school curriculum: to prepare students for employment beyond school. It must be remembered that when White was writing, she lived in a largely agrarian society. Therefore, if this idea is dealt with conceptually rather than literally, it is the manual labour, kinesthetic, employment-related tasks that are being referred to. White pointed out on multiple occasions that these additions to the curriculum should be included over and above “scientific knowledge or literary acquisitions” (White, 1903, p. 225). In more detail White wrote:

Useful manual labor is a part of the gospel plan. The Great Teacher, enshrouded in the pillar of cloud, gave directions to Israel that every youth should be taught some line of useful employment. Therefore it was the custom of the Jews, the wealthy as well as the poorer classes, to teach their sons and daughters some useful trade, so that, should adverse circumstances arise, they would not be dependent upon others, but would be able to provide for their own necessities. (White, 1913, p. 307)

Furthermore, White (1903) advised that all stakeholders who work for the education of children should endeavour to provide their students with the best of professional skills. Today she might recommend the inclusion of computer coding rather than book binding in the curriculum. Rather than denouncing the emphasis on integrated and project or problem-based learning that is gaining traction in schools today, it is quite possible that White would applaud these efforts to develop both the skills and character required for employment in the twenty-first century.

Visible learning and heutagogy

Two big ideas in education for the twenty first Century are those of making learning visible (Hattie, 2009) and heutagogy (Hase, 2009; Hase & Kenyon, 2001). Both of these educational concepts are about creating student independence and placing the responsibility for learning back on the student. This impacts the roles of both the student and teacher in the learning process, and creates an environment that prepares students to be self-determining.

Making learning visible is more than teaching and then moving on to the next topic. According to Hattie (2009), it is about: “ ‘what happens next’ – the manner in which the teacher reacts to how

“*This [STEM] approach replaces the ‘subjects in silos’ methodology of the last century, despite the fact that the Australian Curriculum still presents learning outcomes in this way.*”

the student interprets, accommodates, rejects and/or reinvents the content or skills, how the student relates and applies the content to other tasks, and how the student reacts in the light of success and failure ..." (p. 2). Teaching in a vacuum with no acknowledgement that students need to recognize and own their own learning is not effective. Learners need to understand what the learning intentions are for each class and what the success criteria look like in order to achieve the learning intentions (Nottingham & Nottingham, 2017). As stated by White above, the talents of many students 'lie hidden' because the learning process and the latent talents of individual students are not fostered by the teacher.

Taking the idea of placing the responsibility for learning back on the learner even further, the idea of *heutagogy* was introduced this century. "Heutagogy is the study of self-determined learning. It is also an attempt to challenge some ideas about teaching and learning that still prevail in teacher centred learning" (Hase & Kenyon, 2001, p. 44). The theory put forward by Hase (Hase, 2009; Hase & Kenyon, 2013) is that learning occurs at two levels. The first level is that of acquiring knowledge, skills and competencies which is more about pedagogy and more teacher-centred. The second level is more about deeper learning which is student initiated rather than teacher-directed. The objective is for students to take on the responsibility of learning, leading to positive outcomes:

Learning, then, is probably enhanced by excitement and enjoyment, and when there is a gap in understanding that creates curiosity, confusion or a gentle unease. Thus, it is the questions that the learning experience raises rather than the provision of answers that are the primary concern of heutagogy.

(Hase, 2009, p. 44)

This quest for students to design their own learning experiences caters for differentiation of learning as discussed earlier, but takes the concept further. This principle also espoused by White above, is about recognising that students may be far more than what teachers notice superficially, and by applying heutagogy, students may themselves exhibit that of which they are actually capable.

At the time that Ellen White wrote about education there was little talk about individuality and student responsibility for learning. Instead techniques revolved around whole of class learning with the teacher firmly in control. It was in this context that White wrote about the risk of 'untapped' potential if students are not considered

individually and given the opportunity to excel.

The same personal interest, the same attention to individual development, are needed in educational work today. Many apparently unpromising youth are richly endowed with talents that are put to no use. Their faculties lie hidden because of a lack of discernment on the part of their educators. In many a boy or girl outwardly as unattractive as a rough-hewn stone, may be found precious material that will stand the test of heat and storm and pressure. The true educator, keeping in view what his pupils may become, will recognize the value of the material upon which he is working.

(White, 1903, p. 232)

Keeping the concept of visible learning and heutagogy in mind, teachers can look forward to a changing role in relation to how learning is presented, as self-determination is fostered in a positive way within classrooms.

Conclusion

Much of what has been put forward in this article as underlying themes from the written work of White revolves around recognition of the uniqueness of each learner, the importance of catering for the individual needs of students and the roles students play in their own learning. These ideas have been replicated in the twenty-first century and have been considered in this article as: neuroplasticity, metacognition, differentiation, holistic education and well-being, education for employability, visible learning and heutagogy.

The power of the individual brain to expand with learning is a concept that impacts the understanding of educators and resonates with White's position of students being created in the image of God. The concept of using differentiation to unlock learning potential requires recognition of each learner as unique. This recognition motivates teachers to foster holistic student well-being. White's challenge that teachers inspire students to be thinkers rather than reflectors provides an incentive to use teaching methods that drive students beyond lower level thinking skills into the realm of possibilities, while educating for employability provides both a process to follow and an outcome to achieve. Finally, as students develop self-determination in their learning, the classroom becomes less teacher-centred, allowing students to develop their potential as learners.

It may have taken more than a century, but if educators today follow some of the current theories of effective teaching and learning, they are also aligning with what some people have labelled 'Ellen White's blueprint for Christian education.' **TEACH**

“
This principle also espoused by White... is about recognising that students may be far more than what teachers notice, ... applying heutagogy, students may ...exhibit that

References

- Arrowsmith-Young, B. (2012). *The woman who changed her brain: And other inspiring stories of pioneering brain transformation*. Sydney, Australia: Harper Collins.
- Australian Institute of Teaching and School Leadership (2017). We're here for teaching. Retrieved July 26, 2017 from <https://www.aitsl.edu.au/>
- Australian Professional Standards for Teachers. (n.d.). Retrieved April 19, 2017, from https://www.aitsl.edu.au/docs/default-source/general/australian_professional_standard_for_teachers_final.pdf?sfvrsn=399ae83c_2
- Barrett, J. L. (2012). *Born believers: The science of children's religious belief*. New York, NY: Free Press.
- Bearne, E. (1996). *Differentiation and diversity in the primary school*. New York, NY: Routledge.
- Bloom, B. S., & Engelhart, M. D. (1956). *The classification of educational goals: Handbook*. New York, NY: McKay.
- Boxill, B. R. (2010). A man's a man for all that. *Monist*, 93(2), 188-207. doi:10.5840/monist201093212
- Caine, R. N., Caine, G., McClintic, C., & Klimek, K. J. (2015). *12 brain/mind learning principles in action: Teach for the development of higher-order thinking and executive function*. Clinton Corners, NJ: Corwin.
- Chitty, C., & Benn, T. (2007). *Eugenics, race, and intelligence in education*. London, England: Continuum International.
- Costa, A. L., & Kallick, B. (Eds). (2009). *Learning and leading with habits of mind*. Moorabbin, Australia: Hawker Brownlow Education.
- Darling-Hammond, L. (2006). Constructing 21st-Century Teacher Education. *Journal of Teacher Education*, 57(3), 300-314. doi:10.1177/0022487105285962
- De Bono, E. (2000). *Six thinking hats*. London, England: Penguin.
- Doidge, N. (2007). *The brain that changes itself*. Carlton North, Australia: Scribe.
- Elliot, B. (2013). Education in the Early 1900s. *Mascot Moskovina*. Retrieved on April 19, 2017, from <https://mascotmoskovina.wordpress.com/>
- Ganguly, K., & Poo, M. (2013). Activity-dependent neural plasticity from bench to bedside. *Neuron*, 80(3), 729-741. doi:10.1016/j.neuron.2013.10.028
- Hase, S., & Kenyon, C. (2001). Moving from andragogy to heutagogy: Implications for VET. Proceedings of Research to Reality: Putting VET Research to Work: Australian Vocational Education and Training Research Association (AVET), Adelaide, SA, 28-30 March, AVET, Crows Nest, Australia.
- Hase, S. (2009). Heutagogy and e-learning in the workplace: Some challenges and opportunities. *Impact: Journal of Applied Research in Workplace E-learning*, 1(1), 43-52.
- Hase, S., & Kenyon, C. (2013). *Self-Determined learning: Heutagogy in action*. London, England: Bloomsbury.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London, England: Routledge.
- Hullender, R., Hinck, S., Wood-Nartker, J., Burton, T., & Bowlby, S. (2015). Evidences of transformative learning in service-learning reflections. *Journal of the Scholarship of Teaching and Learning*, 4(15), 58-82. doi: 10.14434/josotl.v15i4.13432.
- Jennings, T. R. (2013). *The God-shaped brain: How changing your view of God transforms your life*. Downers Grove, IL: InterVarsity Press.
- Kessler, R. (2000). *The soul of education*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory Into Practice*, 41(4), 212-218. doi:10.1207/s15430421tip4104_2
- Laur, D. (2013). *Authentic learning experiences: A real-world approach to project-based learning*. New York, NY: Taylor and Francis.
- Metacognition. (2017). In *Dictionary.com Unabridged*. Retrieved from www.dictionary.com
- Ministerial Council on Education, Employment, Training and Youth Affairs. (2008). *The Melbourne declaration on the educational goals for young Australians*. Melbourne, Australia: MCEETYA. Retrieved from http://www.curriculum.edu.au/verve/_resources/National_Declaration_on_the_Educational_Goals_for_Young_Australians.pdf
- Newberg, A., & Waldman, M. R. (2009). *How God changes your brain: Breakthrough findings from a leading neuroscientist*. New York, NY: Ballantine Books.
- Nottingham, J., & Nottingham, J. (2017). *Challenging learning through feedback: How to get the type, tone and quality of feedback right every time*. Thousand Oaks, CA: Corwin.
- NSW Education and Communities (2015). *Differentiating content, process, product, learning environment* [Fact sheet]. Retrieved from http://www.ssgt.nsw.edu.au/documents/3_content_pro_etal.pdf
- Reddy, P. K., & Ankaiah, R. (2005). A framework of information technology-based agriculture information dissemination system to improve crop productivity. *Current Science*, 88(12), 1905-1913.
- Ritchhart, R., Church, M., & Morrison, K. (2011). *Making thinking visible: How to promote engagement, understanding, and independence for all learners*. San Francisco, CA: Jossey-Bass.
- Rose, J. (2012, May 9). How to break free of our 19th-century factory-model education system. *The Atlantic*. Retrieved from <https://www.theatlantic.com/business/archive/2012/05/how-to-break-free-of-our-19th-century-factory-model-education-system/256881/2017-07-12>.
- Seligman, M. (2011). *Flourish: A visionary new understanding of happiness and well-being*. New York, NY: Simon & Schuster.
- Seligman, M. (2017). *Authentic happiness*. London, England: Hodder & Stoughton.
- Subban, P. K., & Round, P. N. (2015). Differentiated instruction at work. Reinforcing the art of classroom observation through the creation of a checklist for beginning and pre-service teachers. *Australian Journal of Teacher Education*, 40(5). <http://dx.doi.org/10.14221ajte.2015v40n5.7>
- White, E. G. (1903). *Education*. Mountain View, CA: Pacific Press.
- White, E. G. (1913). *Counsels to parents, teachers and students regarding Christian education*. Mountain View, CA: Pacific Press.
- White, E. G. (1948). *Testimonies for the church: Volume 6*. Mountain View, CA: Pacific Press. (First published in 1861. Battle Creek MI: Steam Press)
- White, E. G. (1956). *Thoughts from the Mount of Blessing*. Mountain View, CA: Pacific Press. (First published in 1896. International Tract Society. Pacific Press)
- Wilber, K. (2008). *Integral life practice: A twenty-first century blueprint for physical health, emotional balance, mental clarity, and spiritual awakening*. Boston MA: Shambhala.
- Wilson, D., & Conyers, M. (2013). *Five big ideas for effective teaching: Connecting mind, brain, and education research to classroom practice*. New York, NY: Teachers College.

Author information:

Beverly Christian is Head of the Discipline of Education at Avondale College of Education and a senior lecturer in the area of professional development. Her research interests include the culture and ethos of Christian education and nature-based learning.

Peter Kilgour is Director of the Christian Education Research Centre and a senior lecturer in the area of professional development at Avondale College of Higher Education. His research interests include STEM and Mathematics education.

Editor's note:

Reflections on *Stories from Sunnyside* (see pages 62-64) introduce some life experiences from Ellen White's interaction with her context and community while living in Cooranbong and supporting the establishment of Avondale College.