A study of the relationship between 'Habits of Mind' and 'Performance Task' achievement in an International School in South-east Asia

By

Philip Gregory Muscott (Student Number: J00045174)

A research project submitted for the Master of Arts in Learning and Teaching

Department of Education

University of Roehampton London

2018

DECLARATION FORM

I hereby confirm that the work I have submitted for assessment is entirely my own. I certify that the origin and provenance of all the materials in this submission that is not my own work has been identified and acknowledged. No materials are included for which academic credit has been previously conferred upon me.

20/6/2018

Signed
Philip Gregory Muscott

Date

Abstract

The trend in global education is moving away from content acquisition and traditional exams, and towards '21st Century' cognitive skills and performance assessments (PAs), where students are required to transfer knowledge, skills and understandings to solve real-world problems. There is a large body of theoretical literature which indicates that these '21st Century' skills should be beneficial for student learning; however, there is a paucity of empirical evidence on the matter. The question remains is "Is there empirical data that indicates that development of 21st Century skills improves achievement in performance assessments?"

This study focuses on a K-12 international school in South-east Asia which uses Understanding by Design (UbD) as a framework for learning and teaching, and has adopted Costa and Kallick's Habits of Mind (HoMs) as a set of '21st Century' skills. The research utilised a quantitative correlational design in an attempt to determine whether there is a correlation between the HoMs and student achievement in PAs. Assessment data from 354 students in middle school social studies and 246 students in high school English Language Arts was collected. The data was analysed using multiple linear regression (MLR) with the goal of determining the extent to which achievement in the HoMs affects achievement in PAs, compared to knowledge acquisition, and the development of understandings of the big conceptual ideas of a unit.

The major challenges for the study were ensuring that the data collected genuinely measured what it claimed, and the elimination of bias due to the researcher's vested interest in the research. The former was tackled by rigorous vetting of assessment criteria and collaborative calibration of grading, whilst the latter was mitigated by the use of a transparent reflective journal throughout all stages of the investigation.

The study found a high level of correlation between the HoMs and PA achievement, although more so in middle school social studies than in high school ELA. The reasons behind the findings are discussed, and recommendations are made for implementation, and for further research.

Contents

Table of Figures

Acknowledgements

I would like to say huge thank you to both Bena Kallick (co-author of the Habits of Mind) and Jay McTighe (co-author of Understanding by Design) for being a great inspiration for my work in this area.

In addition, acknowledgement is given to Katie Marquardt (Middle School Social Studies Subject Coordinator), Emma Rochelle Carr-Gardner (High School English Language Arts Subject Coordinator), Daryl Thompson (Middle School Level Coordinator) and Norman Still (High School Level Coordinator) for their hard work and support throughout the project.

Finally, credit is due to all of the middle school social studies and high school English language arts teachers at the project school, for their part in moving education forward to meet the needs of learners in the 21st Century.

Chapter 1 : Introduction, Organisational Context, and Research Objectives

It is abundantly evident that the world is changing rapidly, and that the educational landscape must also change if we are to prepare young people to be successful in the challenges that they will face. There are three main factors which are agents of this necessary change. Firstly, the sheer amount of information which is available to people through advances in technology, particularly the internet. Secondly, the fact that computers, machines and robots are already taking the place of humans in many jobs. Thirdly, as a consequence of the former two factors, in schooling we are attempting to prepare students for jobs which do not yet exist (Voogt and Roblin, 2012). The combination of these factors means that educational models are shifting toward a focus on transferable cognitive skills and performance assessments (PAs), where students are required to transfer knowledge, skills, and understandings to solve real-world problems.

A fascinating fact to support the first point is that between 2003 and 2009, there was an increase in the amount of information available online of 10,000%, and if the amount of information available in 2009 were to be published in physical books, it would stretch thirteen times the distance between the Earth and Pluto (Infowhelm: Global Digital Citizen, 2013). This means that a person can no longer be an 'expert' in anything (in the knowledge sense), and that acquisition and recall of knowledge is largely obsolete, as we can 'Google' it to acquire any information which we need. This naturally means that educational systems must shift away from models where students memorise facts in order to recall them for traditional examinations. Due to technological advances, 21st Century education must prepare students by lessening the emphasis on simple procedures, and instead use them as a foundation for mastery of extended complex performances, which will be requited in the future workplace (Dede, 2010).

Although there is some debate as to which cognitive skills are essential for 21st Century success, much research has been carried out in this domain (Donovan, Green and Mason, 2014; Kereluik et al., 2013), and they are generally articulated as "creativity & innovation, critical thinking & problem solving, and communication & collaboration" (Partnership for 21st Century Learning, 2007: 2). Although schools appear to agree on what changes need to occur *(the intended curriculum)*, they are often unsure as to how to implement new practices in the classroom *(the implemented curriculum)*, and finally how to determine if the goals have been met *(the attained curriculum)* (Voogt and Roblin, 2012). The educational researchers and writers, Art Costa and Bena Kallick have carried out much work in this area. They have formulated the 16 Habits of Mind (HoMs) (Costa and Kallick, 2008), which are a set of 16 cognitive dispositions which research indicates are necessary to create self-directed and life-long learners prepared for the challenges of the modern world.

If we are to prepare students for as yet unknown vocations, where they are required to solve problems and perform complex mental processes, then it stands to reason that assessment methods in schools should reflect this change (Center for Collaborative Education, CCE, 2017). For the past 20 years, the Understanding by Design Framework (Wiggins and McTighe, 2005) has supported the importance of both the shift towards conceptual understandings and authentic performance assessments. Within the Understanding by Design (UbD) framework, desired unit outcomes are categorised as knowledge and skills (acquisition - A), understandings (meaning-making - M) and transfer goals (T). In this framework, the goal is for students independently to transfer their learning to new situations, and the most important form of assessment is through authentic performance tasks.

Although there is a wealth of research (Campbell, 2006; Edwards, 2014) which indicates that students' attainment of 21st Century Skills, and in particular the HoMs should in theory increase their achievement in performance assessments, there is a lack of empirical evidence on the

matter. The real crux of the topic is whether or not research can indicate that students' internalisation and habitualisation of these cognitive dispositions enhances their performance in authentic assessment. This leads to the research question *"To what extent does student performance in Habits of Mind assessment account for variance in performance task achievement?"* A progressive international school in South-east Asia was chosen in which to conduct the study for a number of reasons. The school is accredited by the Western Association of Schools and Colleges (WASC) (Accrediting Commission for Schools, 2016), which ensures academic integrity and quality of instruction. Current educational standards have been adopted including the Common Core State Standards (CCSS) for ELA, and American Education Reaches Out (AERO) for social studies, which were the domains investigated. In addition, all of the units of study are designed using the UbD framework, and furthermore the school has not only adopted the HoMs, but has included them in the desired unit goals, links learning activities to them, and has designed and implemented robust summative assessments to measure students attainment of them. Knowledge and Skills (K&S) assessments are used to measure students' acquisition of key skills and processes. Contributions to Essential Question (EQ) discussions are used to assess students' development of conceptual understandings and abstract ideas. Finally, HoM summative assessments (in the form of a self-assessment, reflection, and goal-setting journal) are utilised in order to ascertain students' abilities to identify, apply, and reflect on the HoMs. These assessments are in turn used to ascertain students' readiness to tackle authentic performance tasks (PTs). This study is of high significance due to the large amount of secondary achievement data related to performance in the HoMs and PTs in the project school, enabling a large-scale quantitative correlational study to be carried out. Furthermore, this is the first empirical study of its kind which investigates the impact of the HoMs on students' performance in authentic transfer tasks.

The purpose of the study was to attempt to ascertain if there is a relationship between students' habitualisation of the HoMs and their achievement in performance assessments, and also to ascertain whether acquisition of knowledge and skills, development of abstract understandings, or attainment of the HoMs has a greater effect on performance task achievement.

Chapter 2 : Critical Literature review

The 16 Habits of Mind (HoMs) are a collection of cognitive dispositions which the authors assert embody "having a disposition toward behaving intelligently when confronted with problems" (Costa and Kallick, 2000:1). The full list is *Persisting, Managing Impulsivity, Listening with Understanding and Empathy, Thinking Flexibly, Thinking About our Thinking, Striving for Accuracy, Questioning and Problem Posing, Applying Past Knowledge, Thinking and Communicating with Clarity and Precision, Gathering Data through All Senses, Creating, Imagining and Innovating, Responding with Wonderment and Awe, Taking Responsible Risks, Finding Humour, Thinking Interdependently,* and *Remaining Open to Continuous Learning.* The theory is that if a student values these patterns of thinking, can determine in which situation they might be useful, can skilfully employ them, and strives to reflect and improve on them, then this will lead to success in learning, employment and life in general.

Even though the Habits of Mind (HoMs) (Costa and Kallick, 2008) have been with us for almost 30 years, albeit beginning with a list of 12 rather than 16 (Costa, 1991), research into the importance of which cognitive functions are important goes back much further (Feuerstein, 1980). It could even be argued that this quest began with the classical philosophers Socrates, Plato and Aristotle (Bransford, Brown and Cocking, 2000); however, there is still some debate as to whether the HoMs are supported by a sufficient amount of academic research (Campbell, 2006). When critically appraising the available literature, it is important to investigate the theoretical research underpinning the formation of the HoMs, both educators' and students' *perceptions of* the benefits of their implementation, and any empirical evidence of their positive effect on student learning. Thus this critical literature review is organized accordingly.

Theoretical Literature

In his paper *Theorising the Habits of Mind as a Framework for Learning*, Campbell (2006) does an excellent job of relating the HOMs to "theories on the nature of intelligence, cognitive learning theories, social learning theories and brain research" (p.4).

The Nature of Intelligence

In essence, in the section on the nature of intelligence, Campbell draws on a multitude of previous researchers' assertions (Beyer, 1998; Perkins, 1995; Langer, 1989; Sternberg, 1985; Whimbey, 1975; Dewey, 1933) that intelligence, rather than a single mental ability, is a complex combination of thinking skills which can be learned and practiced, including the ability to reflect, draw on experiences, create and revise goals, and adjust to situations. The argument can be made that these cognitive abilities are synonymous with the HoMs of *Metacognition, Applying Past Knowledge, Remaining open to Continuous Learning* and *Thinking Flexibly*.

Cognitive Learning Theories

The cognitive learning theories which inform the HoMs can roughly be categorized into information processing models, metacognitive models, cognitive styles, and constructivism (Campbell, 2006).

Researchers have theorized about the ways in which we process information. Schneider et al. (2003) posit that all information initially is received into the sensory register before we attend to it and move it to other storage compartments. Others have conjectured about 'working memory' (Baddeley, 1986) and different types of 'long-term memory' (Tulving, 1985). Further connectionist models (Ellis and Humphreys, 1999; McClelland, Rumelhart and Hinton, 1986) assert that the brain is a complex interconnected series of storage compartments between which information moves. For the purposes of this literature review, it is not necessary to delve

in to these theories in any great detail, it simply suffices to note that these information processing models have informed the HoMs of *Gathering Data through All Senses*, *Applying Past Knowledge to New Situations* and *Thinking and Communicating with Clarity and Precision.*

One can state this simply by asserting that when information is received into the sensory register, we apply *Gathering Data through All Senses*, when we move information from the various storage compartments, we utilize *Applying Past Knowledge to New Situations* and then in turn we apply *Thinking and Communicating with Clarity and Precision* to organize the information and use it in meaningful ways.

If we take a look at the 16 HoMs, it can be seen that the HoM *Metacognition* is essentially a pre-cursor to the other 15. If one consciously thinks about one's own thinking, then one can determine which of the other HoMs need to be employed for success in a particular task. Researchers have broadly categorized *Metacognition* into self-monitoring and self-regulation thinking processes (Schneider and Bjorklund, 1998; Nelson and Narens, 1994). Another way of categorizing *Metacognition* is into planning, monitoring and evaluation processes (Pintrich, 2000; Pintrich and De Groot, 1990). The authors of the HoMs claim that a major goal of the adoption of the HoMs is to create self-directed, life-long learners (Costa and Kallick, 2008). It is clear that to achieve this, learners need to be able to self-monitor and self-regulate. It can be seen later in this review that in addition to theoretical models, there is also empirical evidence which indicates that learners who are trained in, and demonstrate metacognitive abilities have increased performance in assessments.

Cognitive learning theories (Bouckenooghe et al., 2016; Sternberg, 2001; Singh, 2017) also support usage of the HoMs; for example, *Managing Impulsivity* and *Striving for Accuracy* could aid learners who lack the ability to sit back, reflect, and carefully check their work. *Questioning and Posing Problems* could aid students who have a propensity to passively receive information

rather than critically appraising it for validity and reliability, and *Taking Responsible Risks* could be beneficial for students who are too conservative in their approaches to learning; for example, those who do not search for information outside of course resources, or are reluctant to try new ways of organizing their writing. In addition, *Gathering Data through all Senses* could help learners who are strongly on one side of the visual/verbal spectrum (Felder and Soloman, n.d.). This brings up an interesting point, which whilst outside of the scope of this paper, is one which is worth mentioning. Not to mention the fact that many educators confuse Multiple Intelligences (Gardner, 2011) with learning preferences (Gardner, 1995), and the fact that research indicates that attempting to match instruction with preferences is not supported by evidence (Pashler et al., 2008), there appears to be a trend for teachers to focus on the preference where the learner is already strong, where in fact perhaps the focus should be to develop learners where they need the most assistance. In this sense, the HoMs could be a useful set of tools to achieve just that.

Constructivism & Social Learning Theories

If we take the broad definition of constructivist theory as "learning takes place when new information is built into and added onto an individual's current structure of knowledge, understanding and skills. We learn best when we actively construct our own understanding" (Pritchard, 2009: 17), then it logically follows that the HoMs *Metacognition, Thinking Interdependently, Questioning and Posing Problems,* and *Applying Past Knowledge to New Situations* should all be attributes which aid learning. The work of the researchers Lave and Wenger (1991) asserts that learning occurs best when students can relate content to their own lives, which lends itself to the integration of *Applying Past Knowledge to New Situations.*

In addition, the HoMs align well with social learning theories. Social learning theory states that "learners use observation, language and self-talk to make sense of the world and assist in their

choice of behaviours" (Campbell, 2006: 9). Furthermore, the concept of emotional intelligence has gained prominence in educational theory in recent years. We can use the definition of emotional intelligence as the ability to recognise the importance of emotions in ourselves and others, and to use these understandings to solve problems (Mayer, Caruso and Salovey, 1999). Traits which have been linked with emotional intelligence are the abilities to empathise, control impulses, and persist (Goleman, 1996), which once again link well to the HoMs. The dispositions of *Metacognition, Managing Impulsivity, Listening with Understanding and Empathy, Finding Humour, Persisting, Thinking Interdependently*, and *Responding with Wonderment an Awe* all incorporate the significance of emotions within the learning process, and are therefore supported by theories of social learning and emotional intelligence.

Brain Research

Advances in neuroscientific research should also be considered when evaluating the credibility of the HoMs, and there are four key developments which we should take into consideration. Firstly, that the brain has plasticity and intelligence is not fixed but can be learned (Zull, 2004). This lends credence to the HoMs *Remaining Open to Continuous Learning* and *Taking Responsible Risks.* Secondly, learning can cause physical changes in the brain by making new and stronger connections (Jensen, 2005). This suggests that a learning environment should be rich with stimuli, which supports *Gathering Data Through all Senses.* Thirdly, learning is maximized when we can make connections to prior experiences (Hardiman, 2010), which aligns with *Applying Past Knowledge to New Situations.* Lastly, the fact that our thoughts and emotions are linked to physical changes in our bodies through brain chemicals (Zull, 2004). When we experience physical changes, these in turn send messages back to our brains which affect our learning. Therefore, if we can manage our own thoughts and emotions (*Metacognition*), and understand those of others (*Listening with Understanding and Empathy*), then it is likely that learning will be maximized.

Importance across the Domains

There is also an abundance of literature which suggests that leaders in the field across a number of domains support the idea of the HoMs being integrated in curricula. Edwards (2014) asserts that the HoMs are necessary for success in a number of subjects. In engineering, "systems thinking, creativity, optimism, collaboration, communication, and attention to ethical considerations" (Loveland and Dunn, 2014, cited in Edwards 2014: 17) are listed as essential habits. In mathematics, "creativity, work ethic, thinking interdependently, critical thinking, lifelong learning, and curiosity" (Charbonneau et al., 2009, cited in Edwards 2014: 17) are listed as indispensable for mathematical success. In science "curiosity, honesty, openness, and skepticism must also be nurtured, modeled, and practiced continuously in science classrooms at all levels until they become deeply entrenched and respected" (Liftig, 2009, cited in Edwards 2014:18). Sullivan (2012) declares that the HoMs are more important for university readiness than standardized test scores and even academic writing skills.

After reviewing the literature, it is my assertion that the HoMs are built upon a very strong foundation of theoretical research. The next question is whether or not stakeholders in schools, where the HoMs have been implemented, perceive them to be an effective set of tools to aid learning.

Perceptions on HoM Implementation

Now it has been established that there is a substantial theoretical basis upon which to base adoption, the next question that arises is if there is any research literature which indicates the HoMs effectiveness in terms of student achievement. More importantly, what really matters for educators is whether a focus on the HoMs is worth the undoubted time and effort involved in

implementation, and time spent in the classroom. Here we find that unfortunately the research is somewhat deficient.

Several studies research the perceptions of stakeholders as to whether the HoMs increase learning (Lesperance, n.d.; Charbonneau et al., 2009; Vollrath, 2016; Osman, 2016). Although in general, the perceptions were positive, these investigations have a number of flaws. Lesperance's work included very broad and unfocused research questions which did not appear synonymous with the data collection methodology. An ethnographic approach based on interviews and observations was used to ascertain classroom effectiveness after teachers were trained on the HoMs. The sample size of nine teachers was small, and there was a risk of obsequiousness bias, as the teachers most likely felt that they *should* have improved their behaviour after having received the training. However, the study does indicate improvements in both teacher perception and observed behaviour in the posttest results. Unfortunately students' perceptions and behaviours were not considered. The researcher has acknowledged the limitations of the investigation, stating: "Further research should be conducted on student outcomes such as assessing the learning styles of students, assessing the change in thinking after the Habits of Mind are learned and practiced, and assessing how students perceive the Habits of Mind" (Lesperance, n.d. : 22). Similarly, Charbonneau's (2009) study, which investigated dispositions synonymous with the HoMs implemented by teachers in the Department of Mathematical Sciences at the United States Military Academy at West Point, found that teachers' perceptions of students' thinking improved, but unfortunately there was no quantitative analysis. Likewise, the research by Vollrath (2016), which investigated the perceptions of both students and teachers using a phenomenological approach in a special needs environment, utilized self-assessment and interviews to determine if positive benefits were perceived. Yet again, there was no investigation into actual student achievement. Lastly, the investigation by Osman (2016) used experimental methodology with a group who received

coaching in the HoMs and a control group who did not, of first-year university physical education teachers. The medium to ascertain effectiveness this time was positive-thinking tests, rather than any investigation into student achievement. The experimental group perceived that they benefitted from the training.

Do these studies really tell us anything about the value of the HoMs in terms of student achievement? These investigations all conclude that if the HoMs are included in the curriculum, then the perception is that students display them. When one considers this, it appears rather obvious that this would be the case, but it tells us nothing about the *value* of the HoMs. To take a hypothetical case, if the HoM *Ignoring Others' Opinions* (which is clearly fictitious) were to be modelled by teachers and students were required to apply it, then it could be assumed that students would become rather good at doing so. Of course, this HoM is negative, and would most likely have a negative effect on students' attainment of desired learning outcomes. What we are attempting to ascertain is whether or not embedding the HoMs into our learning and teaching actually has a positive effect on students' attainment of 21st Century curricular goals, and specifically their ability to solve real-world problems in authentic performance assessments. This leads to the next part of the review, which looks at whether there is any *empirical* evidence that student's display of the HoMs improves their performance in assessments.

Empirical Research on Critical Thinking and Metacognition

At the time of writing, there are no empirical studies which attempt to determine a correlation between HoM performance and any kind of assessment achievement. Furthermore, no investigations have been conducted which investigate HoM implementation and student achievement. These are important distinctions, as even if the HoMs have been implemented, and even if there is a perception that they have impacted learning, this still really tells us nothing about whether application of the HoMs has a positive influence on achievement.

There have, however, been numerous recent studies which have attempted to determine if there is a correlation between metacognitive strategies and student performance in mathematics (Cornoldi et al., 2015; Zakaria, Yazid and Ahmad, 2009; Pennequin et al., 2010; Onu et al., 2012). These studies are highly relevant to the research question, as metacognitive skills are at the very heart of the HoMs. According to Costa and Kallick, *Thinking about Thinking (Metacognition)* is "our ability to know what we know and what we don't know. It is our ability to plan a strategy for producing the information that is needed, to be conscious of our own steps and strategies during the act of problem solving, and to reflect on and evaluate the productiveness of our own thinking" (2008: Chapter 2). It is clear that in many ways, *Metacognition* is the precursor to all of the other HoMs, as students will employ it to evaluate their progress during task completion, and also to choose which of the HoMs are needed for success. The study by Zakaria, Yazid and Ahmad (2009) is of particular interest. The researchers investigated 378 pre-university students in Malaysia, and attempted to determine a correlation between metacognitive awareness and students' performance on mathematical problem-solving assessments. The study used a Metacognitive Awareness Questionnaire (MAQ) which was modified based on that developed by the researchers Schraw and Dennison (1994) to determine students' metacognitive skills, and a Mathematical Problem Solving Test (MPST) including probability topics to ascertain students' mathematical problem solving abilities. Pearson's correlation coefficient was used to determine the relationship between metacognitive awareness and performance, revealing a significant positive correlation. In other words, the higher the students' metacognitive awareness, the higher their achievement in the test. This study is highly relevant to the research question, as the assessments involved problem solving, although it is not clear how authentic the problems in the test were.

Another fascinating study is that carried out by Cornoldi et al. (2015). The research involved 135 fourth and fifth-grade students at a school in Northern Italy using an experimental design, where

the experimental group received training on both metacognition and working memory (WM), and the control group received the training at a later date to avoid ethical issues. This study is also particularly relevant to the research question, as all participants were assessed on both the two aspects involved in the training, which is metacognitive beliefs about math and WM updating capacity, and arithmetical problem-solving ability both pre and post-training. Furthermore, regression analysis was employed in an attempt to determine which gains had the most effect on problem-solving performance. The study also outlines the content of both the metacognitive and WM sessions, including activities such as listening to stories and then recalling information whilst being asked to consider the importance of working memory in problem solving, which could be of use to educators who wish to implement similar programmes. The results of the study showed not only statistically significant gains in metacognition and WM, but also in the 'transfer' to the arithmetical problem solving task after the training. However, when regression analysis was applied, the only significant predictor for problem solving from the training was the gain in WM. The researchers conclude that the results support the use of this kind of training on metacognition and WM in mathematics programmes, particularly for struggling learners. The conclusions support the hypothesis of this study that training in the HoMs (particularly *Metacognition*) should in theory result in gains in problem-solving performance, at least in mathematics.

There are two further relevant quantitative studies (Pennequin et al., 2010; Onu et al., 2012) which investigated whether training in metacognitive strategies positively affect students' performance in mathematics courses. The former used an experimental approach and revealed that the experimental group which had the training significantly outperformed the control group in problem solving posttests. The study by Onu et al. (2012) used a similar approach and also returned positive results, although the nature of the posttests is unclear, and some of the

strategies, such as the use of acronyms to aid memory of processes are questionably metacognitive.

Although 'critical thinking' is not included in the 16 HoMs, *Questioning and Problem Posing* is certainly a part of the more general set of critical thinking skills, as students need to formulate questions to determine validity, credibility and reliability of sources, and *Listening with Understanding and Empathy* is needed in order to critically ascertain bias and purpose of information. In a paper by O'Hare and McGuinness (2015), the authors hypothesized that critical thinking tests would be a stronger predictor than Cambridge 'A' level results of success in degree programmes. The study found that 'A' levels were the stronger predictor in the first year, but the critical thinking tests surpassed their predictability at the end of the third year, in particular the skill of making inferences. The study used sound methodology, although the degree achievement was limited to one university psychology course. This study is relevant as one of the purposes of this paper is to help determine what the focus of learning activities should be, in relation to how far the goals can predict future success of students.

Conclusions

The conclusions of this critical literature review are that the HoMs are solidly grounded in an abundance of theoretical research, there is a perception amongst stakeholders of the positive impact of HoM implementation on student learning, and that there is some strong empirical evidence of gains in mathematical problem solving when training in metacognitive strategies is administered. However, there is a gap in the academic literature with regards to the specific effect of students' demonstration of the HoMs on authentic performance task achievement, which validates the purpose of this research.

Chapter 3 : Research Methodology

Research Question, Hypothesis and Null Hypothesis

Research Question:

"To what extent does student performance in Habits of Mind assessment account for variance in performance task achievement?"

Hypothesis:

An increase in performance in Habits of Mind assessment will result in an increase in performance task achievement.

Null Hypothesis:

There is no difference in performance task achievement when Habits of Mind performance varies.

Conceptual Framework

It is first important to articulate the conceptual framework upon which the study is based. The school in question uses Understanding by Design (UbD) (Wiggins and McTighe, 2005) as a framework for the curriculum. UbD is essentially three things. Firstly it is a framework for curriculum planning, secondly it is a way of thinking about learning and teaching, and thirdly it is a set of useful tools and templates to facilitate planning and teaching (Hawker Brownlow Education, 2013). Stage 1 of UbD is the 'desired results' section. Within UbD, the desired learning outcomes are broken down into three distinct sections, 'Acquisition' (A), 'Understanding' (U) and 'Transfer' (T)[1]. The 'Acquisition' section designates the essential knowledge and skills that students will be required to know, and be able to do by the end of the unit of study. 'Knowledge' in this context refers to facts, definitions. and formulae which can be

[1] A Glossary of Terms has been provided to explain all acronyms used in more detail.

assessed via recall questions. Examples within the social studies context could be knowledge of major historical events, knowledge about the key 'players' within an era, and definitions of key academic vocabulary such as 'propaganda' and 'censorship'. 'Skills' within this section refers to the set of physical or cognitive abilities which require acquisition and practice, and can be assessed in isolation. Within the social studies domain, examples of skills are the ability to determine cause and effect, the capability of ascertaining bias in a primary source, and the skill of constructing a timeline to represent chronology.

The 'Understandings' section refers to abstract conceptual understandings about big ideas within a unit. The understandings are paired with Essential Questions (EQs) which are overarching, open-ended questions designed to promote inquiry, discussion and debate around the big ideas. Examples of Essential Questions are "Is there a best form of government?", "How can we deal with scarcity?", and "How can we mitigate conflict and misunderstandings?" An example of an understanding which may stem from the first EQ is "Students will understand that different types of government have been implemented throughout different times and locations throughout history, and have differing strengths and weaknesses in terms of their ability to serve the needs of all people." These abstract understandings will develop and deepen over time, both within and across units, and can be transferred to new and different situations.

Author Jay McTighe describes 'Transfer' as "effective uses of understanding, knowledge, and skill that we seek in the long run; i.e., what we want students to be able to do when they confront new challenges – both in and outside of school" and "Transfer is about intelligently and effectively drawing from your repertoire, independently, to handle new contexts on your own" (McTighe, 2014: 1). Adopters of UbD are encouraged to create a set of 'Long-term Transfer Goals' which are a list of overarching aims, which students should be able to *independently* perform without the assistance of a teacher or other adult. These are synonymous with the concept of 'School-wide Learner Outcomes' (SLOs), which are a part of the ACS WASC Focus

on Learning protocol (Accrediting Commission for Schools, Western Association of Schools and Colleges, 2014). As an ACS WASC accredited institution, the school chosen for the study has articulated a set of twelve overarching SLOs (Appendix 1: *School-wide Learner Outcomes*), a selection of which populate the 'Transfer' section of the UbD unit planning template and drive all curriculum planning. Jay McTighe also asserts that "Transfer calls for the use of habits of mind; i.e., good judgment, self-regulation, persistence along with academic understanding, knowledge and skill" (McTighe, 2014: 1) and therefore the school involved in the investigation has added a section for the HoMs in Stage 1 of the UbD design process, so that these cognitive habits are also made explicit, and are taught and assessed along with the knowledge, skills, understandings and transfer.

Research Methodology

A correlational quantitative study was carried out using Multiple Linear Regression (MLR) as the design strategy. Utilising MLR, a researcher can ascertain which independent variables (IVs) can account for the most and least variance in the dependent variable (DV) (Punch and Oancea, 2014). As within the conceptual framework, acquisition of knowledge and skills, development of enduring understandings, and display of the HoMs are all considered necessary milestones on the way to success in the Performance Task (PT) assessment, the PT assessment was designated as the DV, and the other three assessments as the IVs. In other words, the research attempted to determine whether a students' acquisition of knowledge and skills, attainment of abstract conceptual understandings, or display of cognitive dispositions has a greater effect on their ability to solve real-world problems through PT assessment. The conceptual framework can be illustrated as follows:

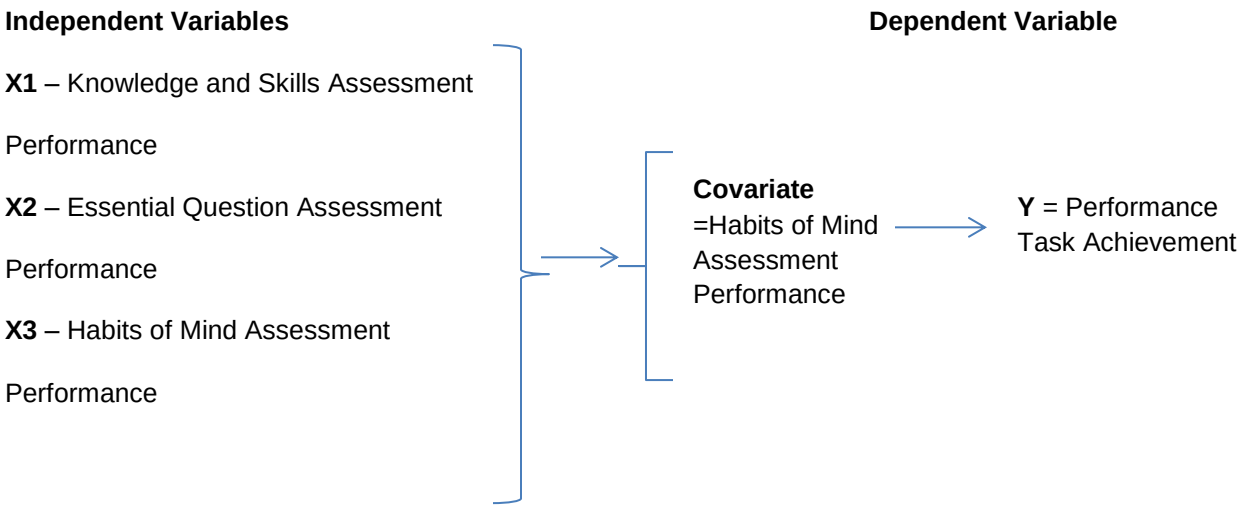

Figure 3.1 Conceptual Framework

Pearson's correlation coefficient was used to determine the strength and direction of any relationship between the IVs and DV (Field, 2009). Firstly, the squared multiple correlation coefficient, R^2 was estimated which gave an estimate of how much variance in PT achievement can be accounted for by variance in the other three forms of summative assessment. Secondly, standardized partial regression coefficients (beta weights) were attached to the IVs in order to indicate how important each of the three assessment types were in predicting the PT score. In this way, the beta weight for the HoM assesment told us how much of a change we would expect to see in PT achievement for one unit of change in the HoM score, if all of the other independent variables were kept constant.

Ethical Considerations

With regards to ethical considerations, the data needed for the research was categorized as secondary data, as all the student achievement data is stored for grade book reporting purposes in the school's Student Information System (SIS), and would have been so irrespective of the investigation (University of Surrey, n.d.). Furthermore, no students' personal data was required as no disaggregation of data was performed based on student demographics; therefore all data

was completely anonymised, and no consent was needed to be obtained from students or parents. (University of Roehampton, London, 2014) (Appendix 2: *Approved Ethics Response Form*). The consent of the school owners to perform the research was obtained via a signed official letter (Appendix 3: *Authorisation Letter from the Board of Directors*).

To address ethical considerations regarding that of potential bias, subjectivity and a vested interest in the results (Punch and Oancea, 2014), two major steps were taken. Firstly, a reflective research journal was kept documenting all of the events throughout the project, including the thoughts and decisions made. This journal had particular repercussions with regards to the validity and reliability of the data, as can been seen in a later section of the paper. In this way, it can be claimed that the researcher's inside knowledge increased the objectivity of the study, as it was documented how personal interest was separated from an objective analysis of the data (Ortlipp, 2008). Secondly, as the primary researcher has an in-depth knowledge of the processes involved in collecting the data and a stake in the analysis, the Middle School Social Studies Subject Coordinator, the High School English Language Arts Subject Coordinator, the Middle School Level Coordinator, and the High School Level Coordinator were recruited as 'critical friends' to check the data collection, analysis, results, and conclusions to eliminate bias.

Data Collection Sources

The school in question uses four summative assessments within each unit to measure student achievement of the three independent variables and the dependent variable, and all of the student achievement data required was exported from the school's SIS, and subsequently uploaded to the Statistical Package for the Social Sciences (SPSS) for analysis. Knowledge and Skills (K&S) assessments are used to measure students' acquisition of the essential knowledge and skills required for success in the PT. The K&S variable is assessed through multiple choice,

matching, and short response questions, and an X out of Y score is given which is then converted into a percentage.

Students' attainment of the Enduring Understandings (EU) of the unit are measured both by an analysis of discourse in online discussions in Google Classroom around the EQs, coupled with evaluation of an EQ summary sheet (Appendix 4: *Essential Questions Summary Sheet*), where students summarise their understandings of the big ideas, framed around the six facets of understanding *Explanation*, *Interpretation*, *Empathy*, *Perspective*, *Application* and *Self-knowledge* (Wiggins and McTighe, 2005). Students' responses are evaluated via a rubric (Appendix 5: *Essential Questions Discussion Rubric*) with criteria for *Frequency and Quality of Contributions*, *Collaboration*, *Critical Thinking*, and one criteria for each of the *Enduring Understandings*, where each criteria is evaluated on a 0 to 4 scale. A score of 4 indicates expectations have been exceeded, 3 indicates that they have been met, 2 indicates that they have been approached, 1 indicates that they have been attempted, and 0 indicates no attempt has been made. A final score for the EUs is given as a percentage by first calculating the X out of Y score and then dividing the numerator by the denominator. Although it could be argued that only the criteria *Enduring Understandings* measures the extent to which students understand the conceptual big ideas, it was decided to include the other criteria, as engaging in debate, critiquing others' opinions and building off others' ideas are also instrumental in developing understandings

Students' display of the HoMs are evaluated by the following criteria:

a) Teacher observation of student behaviour throughout the unit.
b) Student provided evidence of where they have displayed the HoMs linked to unit outcomes, and missed opportunities where they believe that their performance could have been improved by employing a particular HoM.

c) A self-assessment and goal-setting section.

(Appendix 6: *Habits of Mind Journal and Rubric*)

The performance descriptors are quantified on the same scale as for the EUs, an X out of Y score is calculated, and this is converted into a percentage.

PTs for each unit are developed using the GRASPS template, where *G = Goal, R = Role, A = Audience, S = Situation, P = Product,* and *S = Specifications*. The concept is to provide students with an authentic context where they are required to transfer their knowledge, skills, understandings and HoMs to a new situation in order to solve a real-world problem. Achievement in PTs is assessed using analytic rubrics ,where criteria are linked to Long-Term Transfer Goals, or SLOs (Wiggins and McTighe, 2012), academic standards, and the HoMs. In this way, each student's ability to transfer their learning to new situations is measured using the same scale as for the EUs and HoMs. These scores are also converted to an X out of Y figure, and then into a percentage.

Validity & Reliability

Reliability

Reliability of data can be described as how consistent the measure of the quality is, if the measurements were taken at different times by the same rater (intra-rater reliability) and also by different raters (inter-rater reliability). There are two main attributes to reliability, *stability* and *equivalence* (Heale and Twycross, 2015). Stability is "the consistency of results using an instrument with repeated testing" (p.67) and equivalence is "consistency among responses of multiple users of an instrument, or among alternate forms of an instrument" (p.67). The initial plan was to collect and analyse data from Semester 1 of Academic Year 2017-2018; however, due to a number of new teachers joining the relevant departments at the beginning of the year,

the main researcher realised that more practice and professional development was required to maximise the reliability of the measures. This was noted in the reflective journal, and the decision was taken to collect data from the first unit of Semester 2, after professional development had been administered, and the teachers already had experience grading Semester 1 assessments. In addition, to attempt to maximise the reliability of the data collected in the study, teachers within a course attended grading calibration sessions where they all graded the HoM journals, EQ discussions and PTs silently and separately before sharing their scores with the rest of the group. Subsequently, any divergences were discussed and it was attempted to reach a consensus. This was carried out to attempt to ensure that the analytic rubrics were being interpreted in the same way across all raters. The main researcher also attended some of these sessions and journaled his experiences and observations. As the answers to the K&S assessments were generally graded as either correct or incorrect, it was not deemed necessary to hold grading calibration sessions for these assessments.

Whilst attending calibration sessions for the EQ discussions, two major points related to reliability were noted by the researcher. Firstly, there was an instance with the Grade 7 social studies unit, where although students were providing detailed answers framed by the six facets, it was debatable whether the EQ was being adequately addressed. One of the EQs for the unit was “Who owns what and why?” and was designed to lead to understandings regarding the mechanisms which can lead to land, resource, and wealth ownership. In their answers, some students focused on the *purpose* of the land ownership, i.e. the different ways land is used, rather than the ways in which the owners came to be awarded ‘ownership’ of the land. This was clarified by the researcher amongst the participating teachers. Secondly, during the same calibration sessions, it became apparent that there were some misconceptions regarding the facet of understanding *application.* When students demonstrate understanding through application, they “use knowledge in diverse situations and new contexts” (Mongan-Rallis, 2005).

The misconception which became apparent was that some teachers were giving credit for student examples of application of understandings by protagonists in the topical unit content, rather than examples of application by the students themselves. Again, this was clarified by the researcher to the teachers.

During the HoM calibration sessions, three major points arose. Firstly, some teachers had the tendency either to compare the same student's different submissions with each other, or to compare different students' submisisons in order to determine a score. It was clarified that the grading should always be 'standards-based' rather than 'norm-referenced', i.e. the submissions should be graded according to the analytic rubric rather than any comparison being employed. The second question that arose was with regards to the self-assessment and goal-setting criterion. It was unclear to some teachers the timescale that the students were required to goal-set within. It was clarified that they are asked to make a general statement about how they intend to improve their display of a particular HoM, and how they intend to measure success. Finally, the question was brought up of how much detail was required in the HoM evidence statements. In one example, the HoM was *Thinking and Communicating with Clarity and Precision*. A student had performed well, reflecting and giving evidence that they had added specific detail in a speech (even adding what that detail was) to improve communication and clarity. The question then arose whether the detail given was sufficient at that grade level. The researcher responded that the answer was to look at the academic standards for ELA to determine what level of complexity should be expected for supporting detail at this grade level. It became evident that the level of detail was sufficient, and credit should be given for the submission. These steps underlie the importance of reliability checks when utilising analytic rubrics for grading complex assessments.

Internal Validity

Validity can be described as “the extent to which a concept is accurately measured in a quantitative study” (Heale and Twycross, 2015: 66), or in other words, whether or not we are truly measuring what it is that we claim we are. The first point to address here is a philosophical one. When we are discussing the concepts of ‘abstract understandings’, ‘Habits of Mind performance’, and ‘Transfer’, the question is whether or not these are variables that can actually be measured. We can trace this debate back to the Italian mathematician Galileo Galilei (and probably further) whose maxim was famously “'to measure everything measurable and to make what is not measurable capable of being measured”. A more recent relevant quote is “if it happens you can count it” (Whiting, 1980, cited in Turner and Schechner, 1988: 2). The argument could be made that these three variables are not directly observable, and therefore cannot be measured. This is the problem of the so-called ‘latent variable’ within the social sciences, and Bollen (2002) does an excellent job of discussing the varying definitions of latent variables, and how they can be treated in investigations. A very useful informal definition of the latent variable is one of a data reduction device (Bollen, 2002) and that “the latent variable or factor is a convenient means of summarizing a number of variables in many fewer factors” (p. 608). We can see that abstract understandings, HoM performance and Transfer fit this description well. A student’s conceptual understanding of a big idea can be measured by the extent to which they can write about the concept through the lens of the six facets (Wiggins and McTighe, 2005). A student’s ability to display an HoM within the context of particular learning outcomes can be measured by their observable behaviours in class, their ability to provide evidence of application, and their ability to self-reflect, self-assess, and goal-set. Finally, as the school chosen for the study has articulated a set of twelve Long-term Transfer Goals (synonymous with the SLOs within the ACS WASC Focus on Learning framework), ‘Transfer’ can be measured via the use of analytic rubrics which assess the extent to which a student has combined acquired knowledge and skills, understandings, and the HoMs to demonstrate one or more of the SLOs in a real-world context.

It is also useful to describe the assumptions which have been made for the purposes of the research. There could also be debate as to whether the variables measured are categorical, continuous, or a hybrid of the two. For example, within a PT, should we be evaluating whether a student has demonstrated Transfer or not (categorical), or evaluating the extent to which the student has demonstrated Transfer (continuous)? As can be seen in the appendices, analytic rubrics have been designed to determine five different levels of performance, so therefore the assumption has been made that the variables are continuous. In addition, it is useful to mention the problems surrounding the use of latent variables in a multiple regression model, and this again has been discussed in depth by Bollen (2002) who states profoundly "we readily see that much of psychology and the social sciences routinely use such unobserved or latent variables in their statistical modelling. Hence, to purge our models of unobservable or latent variables would require that we eliminate virtually all of the statistical techniques common in the social sciences" (p. 618). Now that these debates and assumptions have been raised, it is up to the reader to determine their own standpoint on the matter, and therefore their view on the validity of the data used.

When considering the validity of the assessment tools used, it is important to consider content, construct, and criterion validity (Heale and Twycross, 2015). Firstly, content validity is "the extent to which a research instrument accurately measures all aspects of a construct" (p.66). As previously stated, content validity was a concern of the primary researcher at the beginning of the study, and caused a delay in the research as peer-review of unit plans and assessment were carried out in conjunction with professional development for teachers on interpreting and rubrics and calibrating grading. As the primary goal of the research was to determine the extent to which performance in HoM assessment accounts for variance in PT achievement, it was important for the PT to actually require demonstration of the HoMs selected. An example of poor content validity in this context would be assessment of *Thinking Flexibly* through the HoM

Journal and attempting to determine correlation between that measure and a PT which does not require flexible thinking for success. In this case, it could be imagined that a student may excel in her application of flexible thinking, but still perform poorly in the PT, as other HoMs were required for success, thus revealing no correlation. In fact, during the peer-review process to check internal validity, it was observed that the high school English Language Arts (ELA) unit for Level 1 (which is studied in either grade 9 or 10) (Appendix 7: *EHS1S2U1 PT – Perceptions of Social Media +Rubric*) was lacking to a degree in content validity. This unit is based around the novel *A Picture of Dorian Gray* , and in the PT students are required to write a feature article for a magazine arguing for or against the statement "The way beauty is portrayed in social media is not only a reflection of the shallow nature of society, but it is also a contributing factor." In Stage 1 of the UbD unit plan, the SLOs "Communicate effectively for a wide variety of purposes and audiences within and across cultures" and "Convey appreciation of the arts, sciences and the beauty of the natural world" are selected, alongside the HoMs *Managing Impulsivity, Questioning and Problem Posing* and *Finding Humor*. However, when alignment was attempted between the PT assessment criteria and the SLOs and HoMs, it was revealed that only the communication SLO is assessed, and only the questioning HoM required for success. In other words, students could potentially succeed in the PT without managing their impulsivity or finding humour. In this case, content validity was determined to be weak. The decision was made to include the Level 1 unit in the research, as it could serve as a useful indicator as to whether alignment does indeed account for variance in the correlation between the HoMs and PT achievement.

The content validity of the Grades 6, 7 and 8 social studies units and the high school Foundation, Level 2 and Level 3 units was determined to be high and they were included in the study (Appendices 8-13 p.86). The issue of unit plan alignment and content validity is further

discussed in Chapter 4, and is a key point of the main recommendations made in Chapter 5 p.55.

Construct validity is “whether you can draw inferences about test scores related to the concept being studied” (Heale and Twycross, 2015: 66). Construct validity can furthermore be broken down into homogeneity, convergence and theory evidence. Homogeneity is whether or not the instrument measures one construct, and there certainly could be some debate around this point in relation to the study. For example, with the HoM Journal, students are required to self-reflect, self-assess and goal-set in addition to displaying the HoM, and to give evidence of application. With the self-reflection element, it is clear that *Metacognition* is additionally required to the specific HoM being measured, as it is really a precursor to all of the other HoMs as discussed in Chapter 2. In this sense, homogeneity was considered valid. With regards to Transfer, this construct is (or rather should be) a combination of the three other variables, and this is the very reason that correlation was hypothesised. Convergence is when an instrument measures concepts similar to other instruments, and as the assessments utilised are unique to the school, it was not possible to ascertain this within the scope of the research. Lastly, theory evidence is when behaviour is observed which is “similar to theoretical propositions of the construct measured in the instrument” (p.66). This would certainly be possible to measure, and should be considered for further research in this area. The last category of validity is criterion validity, which is “the extent to which a research instrument is related to other instruments that measure the same variables” (p.66). This is certainly an interesting proposition, and forms part of the recommendations in Chapter 5 p.56.

When preliminary data sets were analysed, it was decided to eliminate any data points where the value was 0. A mean score of 0 indicated that the summative assessment (or part thereof) had not been submitted. Therefore, the 0 would actually tell us nothing about whether the student had acquired the relevant knowledge and skills, attained the required understandings,

or displayed the HoMs, and thus inclusion would serve to invalidate the data. Finally, the project school has a policy of a late submission penalty, and these submissions were also excluded for the same reason.

External Validity

An experiment is deemed to have external validity when the results "are generalizable to groups, environments, and contexts outside of the experimental settings" (Onwuegbuzie, 2000: 3). Onwuegbuzie also states pertinently that, "Even if a particular finding has high internal validity, this does not mean that it can be generalized outside the study context" (p.7). Twelve threats to external validity have been identified, although in the interests of brevity, the main five which were deemed to be threats are addressed here. *Population validity* is deemed to be relatively high as the sample size used was random and large. However, as the school's student population is made up largely of Cambodian students, and almost all are English Language Learners (ELLs), further research is needed across different student populations p.55. *Ecological validity* is also assumed as both UbD and the HoMs are frameworks used in educational institutions globally. However, as with population validity, as no educational context is identical, further research is recommended across different schools, districts and nations p.55. *Temporal validity* refers to whether findings can be generalised across time, and is a threat to this study in so far as it is to almost all educational studies. *Multiple-treatment interference* is important as students' general exposure to and amount of training in the HoMs could certainly affect the predictability potential of the HoMs for other forms of performance. It could be hypothesised that the more training a student has had, the more proficient she would become, and therefore more able to apply the HoMs to successfully complete diverse tasks. *Researcher bias* was identified early on as a potential threat, and was addressed through the reflective journal, and peer-review of the results, analysis, and interpretation.

Chapter 4 : Findings, Analysis, Limitations and Evaluation

After the data had been cleaned of all scores which had been adjusted for late submission or which were scored as zero for non-submission, there was data for 354 students in middle school social studies across 19 classes, and 246 students in high school ELA across 18 classes. Due to a change in teacher mid-year, three classes from middle school social studies were excluded from the study due to temporal validity issues, as their knowledge and skills assessments were graded after the performance task.

The mathematical model used was as follows:

$$y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + e_j$$

Where:

y is the dependent variable (PT achievement)

x_1, x_2, x_3 are the independent variables (HoM, EQ and K&S achievement)

b_0 is the intercept coefficient

b_1, b_2, b_3 are the slope coefficients

e_j is the error term for the $_j$th student

Findings

Findings for Middle School Social Studies

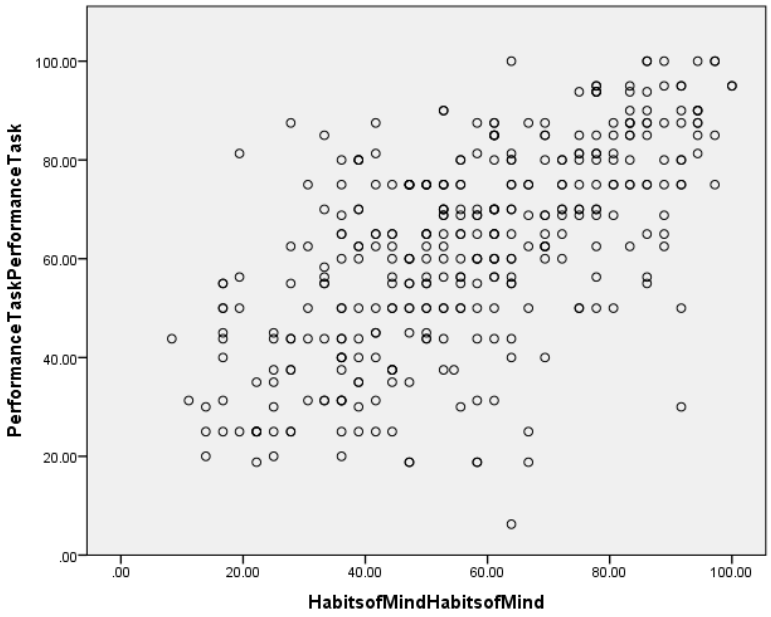

Figure 4.1 Middle School Social Studies PT vs HoM Scatterplot

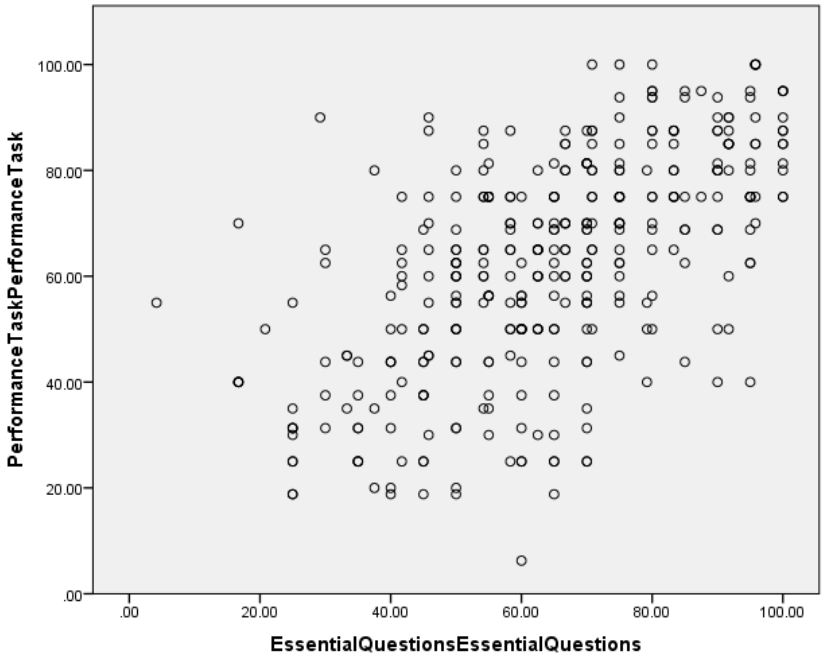

Figure 4.2 Middle School Social Studies PT vs EQs Scatterplot

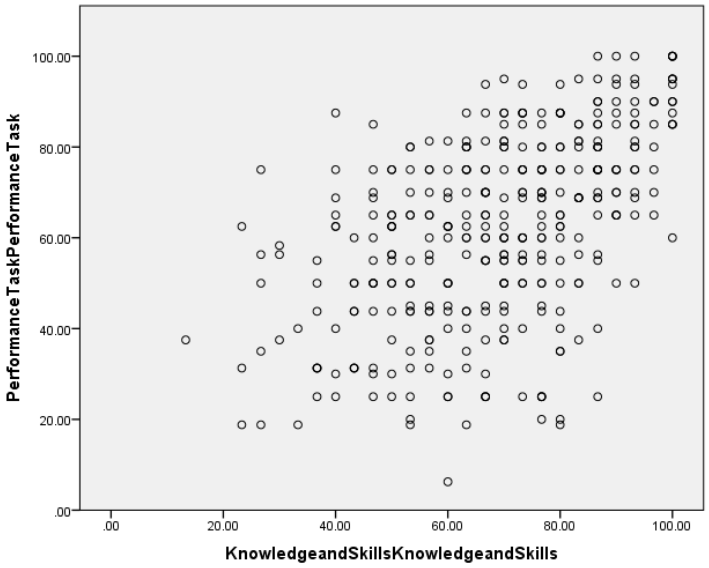

Figure 4.3 Middle School Social Studies PT vs K&S Scatterplot

For middle school social studies, the correlation between achievement in the HoM, EQ and K&S assessments and performance in the PT is clear from the scatterplots. The data shows clear 'cigar-shaped' patterns including some outliers where either students didn't perform well in the milestone assessments but did so in the PT, and vice versa. The correlation is clearest for the HoMs, followed by EQs and then K&S. The scores for K&S are grouped more in the higher end of achievement, which could be expected due to the nature of the assessment requiring recall and display of basic skills.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.702[a]	.492	488	14.70464	1.816

a. Predictors: (Constant), Habits of Mind, Knowledge and Skills, Essential Questions

b. Dependent Variable: Performance Task

Figure 4.4 Middle School Social Studies Model Summary

For middle school social studies, the summary shows that the model used is strong, with an R Square figure of .492 which means that 49.2% of variation in PT performance can be explained by variation in HoM, EQ and K&S achievement. Therefore, 50.8% of the variation was due to additional independent variables, and random error.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.085	3.216		3.136	.002
	Essential Questions	.267	.054	.262	4.926	.000
	Knowledge and Skills	.215	.053	.191	4.080	.000
	Habits of Mind	.355	.049	.370	7.314	.000

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Essential Questions	.512	1.953
	Knowledge and Skills	.657	1.522
	Habits of Mind	.564	1.772

Figure 4.5 Middle School Social Studies Coefficients & Collinearity

For middle school social studies, multiple linear regression was carried out to investigate the relationship between achievement in HoM, EQ and K&S assessments, and performance in PT assessment. The model is:

PT achievement (y) = 10.085 + 0.267*(EQ achievement) + 0.215*(K&S achievement) + 0.355 * (HoM achievement).

There was a significant relationship between all three independent variables and the dependent variable ($p < 0.001$). We know this as the Sig column contains the p-values for each of the

independent variables. The hypothesis being tested for each is that the coefficient (B) is 0 after controlling for the other variables. In this case, for example, the effects of Knowledge and Skills achievement and Essential Question achievement were removed before assessing the relationship between HoM achievement and Performance Task achievement. A p-value < 0.05, provides evidence that the coefficient is different to 0. The HoMs had the highest predictive power, with a 1% increase in HoM achievement resulting in a .355% increase in PT performance. This was followed by EQs, with a 1% increase in EQ achievement resulting in a .267% increase in PT performance. Finally, a 1% increase in K&S achievement resulted in a .215% increase in PT performance. A practical example of this would be that if a student scored 50% in all three summative assessments, their PT score would be 51.935%. If their HoM scores rose by 30% to 80%, their PT score would rise to 62.585% if the EQ and K&S scores remained the same.

In the collinearity statistics, the VIF scores for all independent variables are close to 1, which shows that multicollinearity was not a problem. In other words, the variance in the independent variables could not be accounted for by variance in the other independent variables.

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	28.5986	91.3761	62.2241	14.41720	355
Residual	-55.45407	46.70341	.00000	14.64220	355
Std. Predicted Value	-2.332	2.022	.000	1.000	355
Std. Residual	-3.771	3.176	.000	.996	355

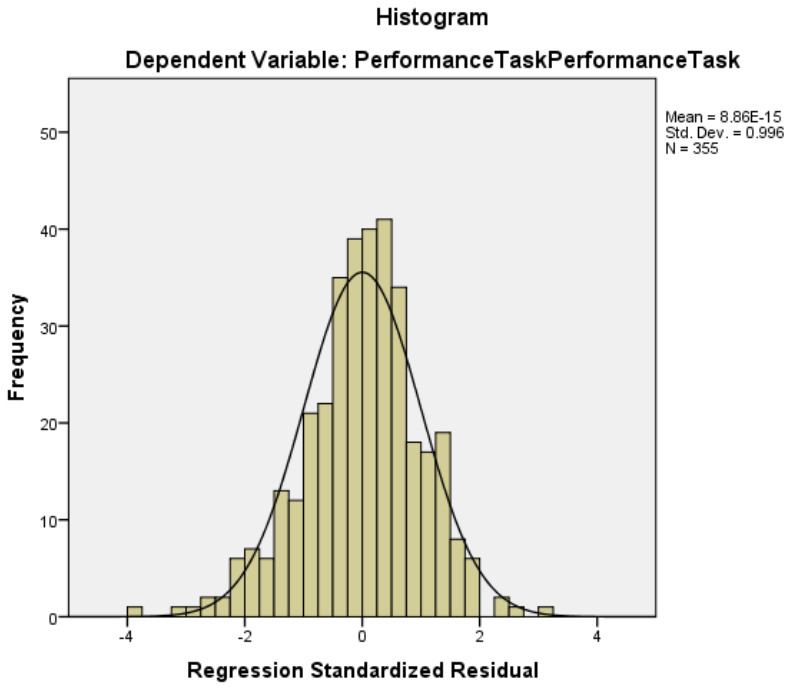

Figure 4.6 Middle School Social Studies Residuals Statistics & Normality of Residuals

For middle school social studies, the histogram shows that the residuals were approximately normally distributed. As residuals are elements of variation unexplained by the fitted model, the assumption is that they are roughly independently distributed. If they are not then this indicates structure in the residuals, which means that the model would need adjusting to explain this. As we can see, this is not an issue for the model used in the research.

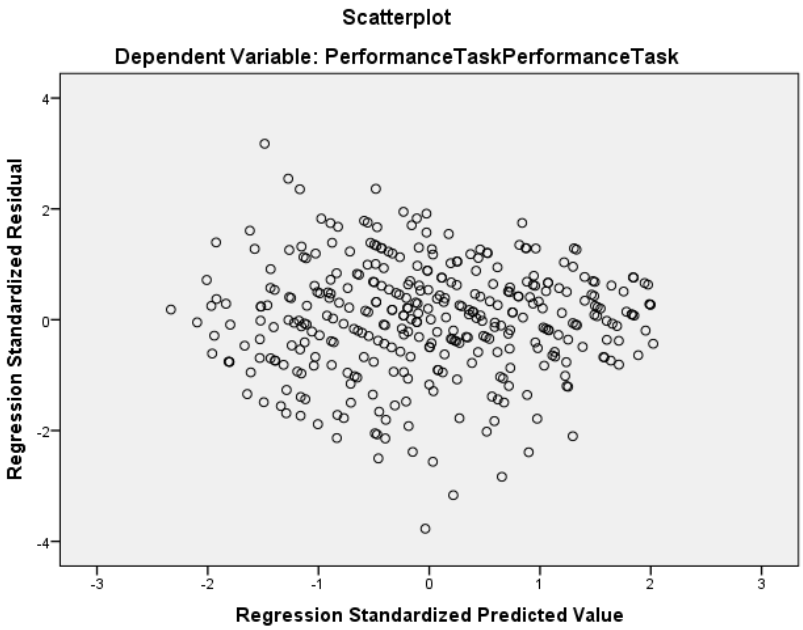

Figure 4.7 Middle School Social Studies Homoscedasticity

For middle school social studies, there is no pattern in the scatter. The width of the scatter as predicted values increase is roughly the same so the assumption of homogeneity of variance and linearity has been met.

Findings for High School ELA

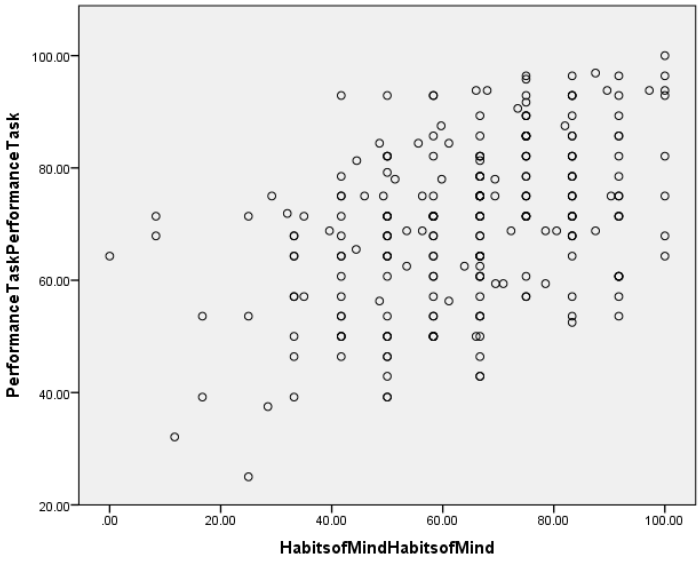

Figure 4.8 High School ELA PT vs HoMs Scatterplot

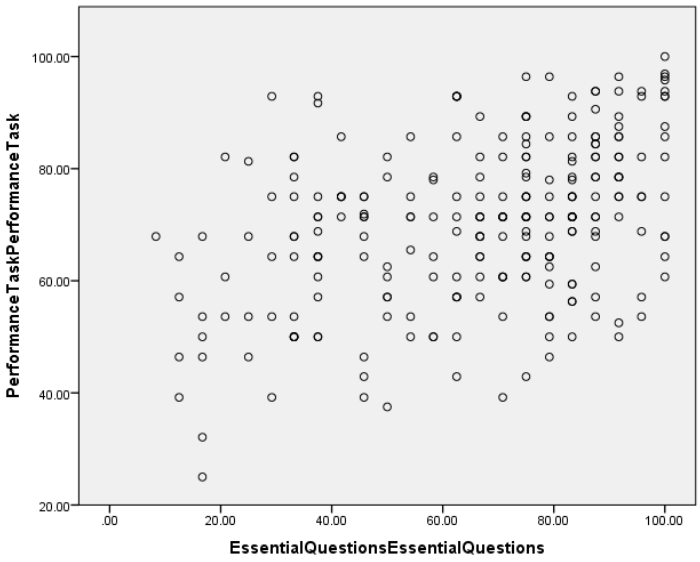

Figure 4.9 High School ELA PT vs EQs Scatterplot

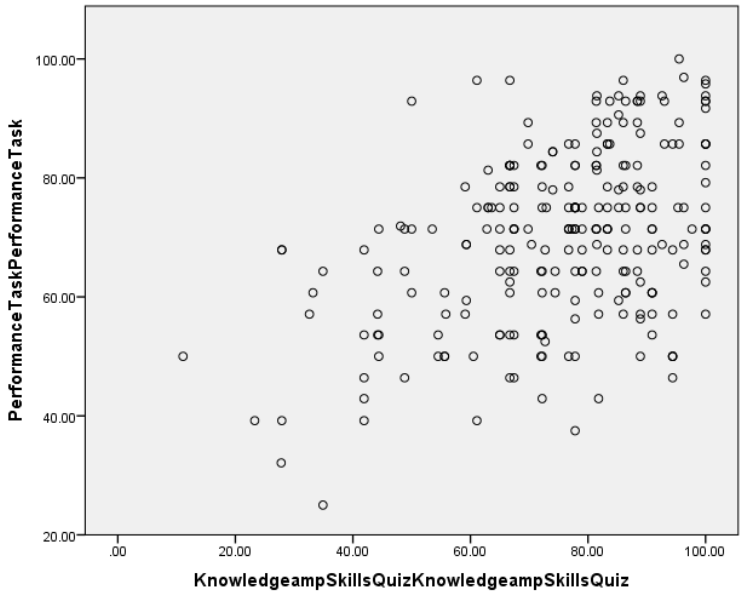

Figure 4.10 High School ELA PT vs K&S

For high school ELA, the correlation between achievement in the HoM, EQ and K&S assessments and performance in the PT is clear from the scatterplots, although less so than in middle school social studies. The correlation is clearest for K&S, followed by HoMs and then EQs, which differs from middle school social studies. Possible reasons for this are discussed in the analysis.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.539[a]	.290	.282	12.24395	1.484

a. Predictors: (Constant), Knowledge and Skills, Essential Questions, Habits of Mind

b. Dependent Variable: Performance Task

Figure 4.11 High School ELA Model Summary

For high school ELA, the model summary shows that the model used was moderately strong, with an R Square figure of .29 which means that 29% of variation in PT performance could be explained by variation in HoM, EQ and K&S achievement. Therefore, 71% of the variation was

due to additional independent variables, and random error. This unexplained variance is 20% higher than in middle school social studies, which is discussed in the analysis.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	36.012	3.668		9.818	.000
	Essential Questions	.110	.041	.181	2.678	.008
	Habits of Mind	.170	.050	.232	3.378	.001
	Knowledge and Skills	.212	.050	.260	4.261	.000

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Essential Questions	.641	1.559
	Habits of Mind	.620	1.612
	Knowledge and Skills	.786	1.272

a. Dependent Variable: Performance Task

Figure 4.12 High School ELA Coefficients & Collinearity

For high school ELA, multiple linear regression was carried out to investigate the relationship between achievement in HoM, EQ and K&S assessments and performance in PT. The model is:

$$\text{PT achievement } (y) = 36.012 + 0.11*(\text{EQ achievement}) + 0.17*(\text{HoM achievement}) + 0.212*(\text{K\&S achievement}).$$

There was a significant relationship between K&S and PT achievement ($p < 0.001$), HoM and PT achievement ($p = 0.001$) and EQ and PT achievement ($p = 0.008$). The K&S had the highest predictive power, with a 1% increase in K&S achievement resulting in a .212% increase in PT performance. This was followed by HoMs, with a 1% increase in EQ achievement resulting in a .17% increase in PT performance. Finally, a 1% increase in EQ achievement resulted in a .11%

increase in PT performance. . A practical example of this would be that if a student scored 50% in all three summative assessments, their PT score would be 60.612%. If their HoM scores rose by 30% to 80%, their PT score would rise to 65.712% if the EQ and K&S scores remained the same.

As for middle school social studies, in the collinearity statistics, the VIF scores for all independent variables are close to 1, which shows that multicollinearity was not a problem. In other words, the variance in the independent variables could not be accounted for by variance in the other independent variables.

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	45.7452	84.3080	70.2628	7.78422	247
Residual	-30.08418	26.88979	.00000	12.16907	247
Std. Predicted Value	-3.150	1.804	.000	1.000	247
Std. Residual	-2.457	2.196	.000	.994	247

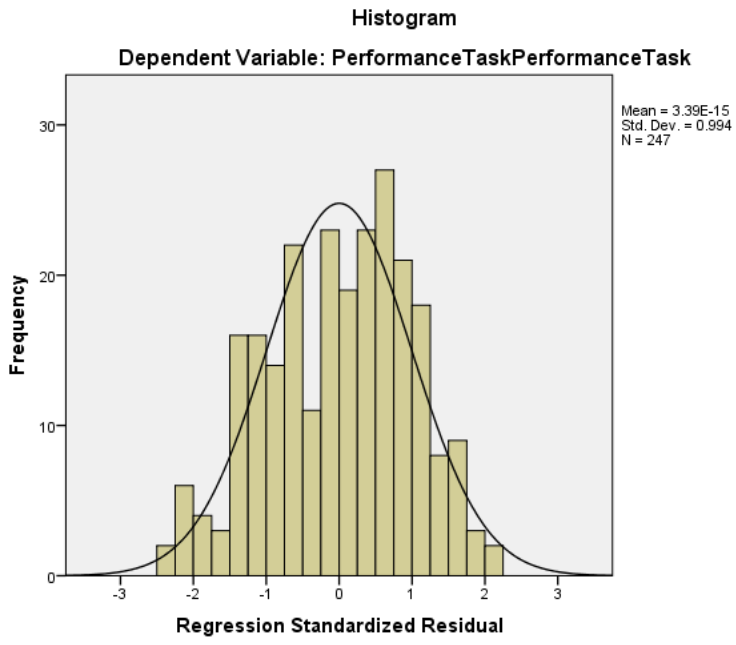

Figure 4.13 High School ELA Residuals Statistics & Normality of Residuals

For high school ELA, the histogram shows that the residuals were approximately normally distributed. Again, this is important as there does not appear to be any structure unexplained by the model.

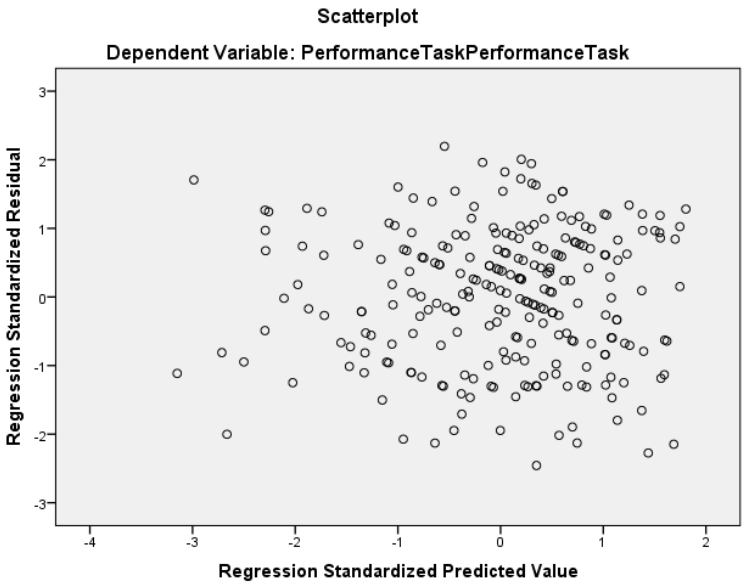

Figure 4.14 High School ELA Homoscedasticity

For high school ELA, there is no pattern in the scatter. The width of the scatter as predicted values increase is roughly the same so the assumption of homogeneity of variance and linearity has been met.

Analysis

The findings indicate that the null hypothesis can be rejected, and also indicate a high level of correlation between achievement in the HoMs and the PT. Although the particular focus of this research is new, the findings complement both the perception data from previous studies in schools where HoMs have been implemented (Lesperance, n.d.; Charbonneau et al., 2009; Vollrath, 2016; Osman, 2016), and studies where training in metacognitive strategies improved assessment performance (Cornoldi et al., 2015; Zakaria, Yazid and Ahmad, 2009; Pennequin et al., 2010; Onu et al., 2012). Three particularly interesting points for discussion are the

differences in results between the two subjects and school level, the lack of multicollinearity for the independent variables, and the degree of success of the model itself.

The question arises as to why there is a difference in the correlations between the two subjects and school levels. It is possible that this can be explained by the internal validity issues described in Chapter 3 p.33. More specifically, it became evident during peer review that there was a higher level of alignment between Stage 1 (Desired Results) and Stage 2 (Evidence Collection) in the middle school social studies units than in the high school ELA units. This difference also supports the hypothesis in some way, as the results indicate that when the HoMs are directly required to be displayed in the performance assessment, a higher level of achievement in them will lead to a greater variance in performance. Furthermore, the higher correlation between the K&S assessment and the PT in high school ELA could be explained by the fact that the PTs in this subject were generally writing tasks, which are more skills-based (assessed on criteria such as writing organisation),which were also assessed in the K&S assessments.

The second point worthy of discussion is that the study revealed a lack of correlation between the independent variables themselves. This could be counter-intuitive to some readers, who may assume, for example, that if a student acquires knowledge and skills, then automatically his or her conceptual understandings would increase. The study does not support that theory, and although the different categories of desired results are, of course, interrelated to some degree, there is enough of a difference for them to be treated separately in planning, instruction and assessment. This does align with the concept of differentiating between Acquisition (A), Understanding (U) and Transfer (T) within the UbD framework (Wiggins and McTighe, 2005) and also leads to the recommendation that the HoMs should be included in Stage 1, and treated separately from A, M and T. This is further discussed in Chapter 5 p.55.

The aggregated predictability value from the two models was around 40%, which is by no means insignificant. However, to look at this another way, around 60% of the variability in PT achievement could not be explained by the independent variables. This leads to the question of what the other independent variables are which can account for further variance. Some assumptions were made for the study regarding variables such as general (or multiple) intelligence(s), English language proficiency, and lexile reading range competency. The assumption was that these variables would have a relatively equal effect on each of the independent variables, causing multicollinearity, and therefore should be excluded. As there is still 60% of the variance to account for, further research should include adding these as further independent variables into the model to see what the results yield. The higher unexplained variance for high school ELA could possibly be explained by the fact that the ELA PTs were more language dependent, and the student body in the project school were largely English Language Learners (ELLs).

Limitations

One limitation of the investigation was that it did not attempt to account for either the potential differences between groups, or the teachers who taught and graded each of the classes. This could be achieved in both cases by the use of hierarchical regression. By adding a categorical variable into the data set to indicate the specific teacher, it could be ascertained whether the individual teachers had a significant impact on the model. This method could also be used to determine whether there were significant differences between the teaching groups, which could point towards additional factors which account for variance. Although outside of the scope of this study, further research should incorporate these ideas.

Further limitations of the study are that only two school levels and subjects were included. Additional research should include elementary school, and STEM subjects in particular, to see

whether there are any significant differences across age-groups and academic domains. Furthermore, the study was carried out in one particular school in the SE Asian region, so to increase external validity the research needs to be broadened to include multiple schools across multiple regions.

Evaluation

At this point in the evaluation, it is useful to take a step back and consider the original and overall purpose of the study. Time is the eternal enemy of educators, and it needs to be decided which areas they should focus their time and effort upon. Is a focus on the HoMs in planning, instruction and assessment worth the effort? Upon analysis of the results, the answer would appear to be a categorical 'yes'; however, the matter is complex and depends upon a number of factors. The HoMs themselves fall under the category of epistemic cognition, or "how people acquire, understand, justify, change, and use knowledge in formal and informal contexts" (Greene, Sandoval and Bråten, 2016: 1). The findings appear to support a comprehensive meta-analytic review on the relationship between epistemic cognition and academic achievement (Greene, Cartiff and Duke, 2018). The authors reported "a small […] but statistically significant overall correlation between epistemic cognition and academic achievement, which could be better understood via investigations of several theoretical and methodological moderators" (p.13).

Greene, Cartiff and Duke's work revealed four particularly relevant findings to this study. The first is that the effect sizes were higher for domain-specific measurements as opposed to domain-general measurements. This could indicate that there is an element of domain-specificity to epistemic cognition, and therefore, as within this study, it should be measured per domain rather than as a general measure. Secondly, the effect sizes were also higher when both the measures for epistemic cognition and academic achievement were aligned (domain-

general, domain-specific or topic specific). This again is supported by this study, where alignment of desired outcomes and assessments were key to the extent of correlation. Thirdly, there was a higher effect size where the academic subject within the study was aligned to the subject used in the measurement. This may indicate that just because a student can exhibit high epistemic cognitive traits in, for example, mathematics, it does not automatically follow that they can do so in say, social studies. Further study in this area is recommended by the author p.55. Finally, and of high importance, achievement instruments which measured higher order thinking, such as conceptual understandings and argumentation correlated more highly with epistemic cognition than measures of declarative or procedural knowledge. This then brings educators back to the question of what it is we value in terms of desired results. If performance assessments where students are required to transfer their learning to solve real-world problems are valued, then epistemic cognition (such as the HoMs) should be a focus of the curriculum. If we are content with students acquiring basic knowledge and skills, then they are of less importance.

It is important to note that within Greene, Cartiff and Duke's study (2018), most of the measures of epistemic cognition were actually based on epistemic *beliefs* as opposed to epistemic *cognition.* The authors themselves recognise this in their conclusions when they assert “it seems unwise to continue uncritically using self-report measures of epistemic cognition” (p. 21). Sinatra (2016) agrees, stating “researchers must move towards defining and capturing the process of epistemic cognition in action in more nuanced ways than dichotomized belief dimensions” (p. 7). Furthermore, Sinatra espouses a move towards the measurement of epistemic *practices* which are defined as “how individuals use their epistemic beliefs and conceptions of knowledge in reasoning, problem solving, and decision-making” (p.12). Additional researchers (Chinn, Rinehart and Buckland, 2014) have developed the AIR model of epistemic cognition, highlighting the three components of *Aims*, *Ideals* and *Reliable Epistemic*

Processes. These broadly equate to goals (what students hope to achieve), beliefs (how students believe knowledge is attained), and practices (the thought processes students utilise when engaging with information). Through the development and implementation of the HoM Journal used in this study, it is the author's assertion that these have been addressed to some extent, although further refining is desirable. One example of how the HoM Journal could be refined is to build on the work of Kelly (2016) and expand the Observable Behaviour criterion to include a more detailed analysis of the discourse and social interaction of the students throughout the course of a unit, to enable both a more accurate measurement of HoM application ,and a mechanism through which to give high quality constructive feedback at both the process and self-regulation levels (Hattie and Timperley, 2007). In summary, the research outlined in this paper supports and furthers the recent literature on the importance of epistemic cognition, and also points towards necessary areas of further research.

Chapter 5 : Conclusions and Recommendations

Conclusions

This study points towards the HoMs being a very powerful framework of cognitive traits to integrate into the curriculum. If schools are willing to acknowledge the necessity to modify the curriculum to cater for a rapidly changing world where access to almost any information necessary is at one's fingertips, and where artificial intelligence and robots will be capable of carrying out the tasks required for a large percentage of jobs in today's markets (Huang and Rust, 2018), then the focus of education should shift away from declarative and procedural knowledge towards a focus on the cognitive skills which are embodied in Costa and Kallick's (2008) HoMs. The Partnership for 21st Century Skills (2008) states "Advanced economies, innovative industries and firms, and high-growth jobs require more educated workers with the

ability to respond flexibly to complex problems, communicate effectively, manage information, work in teams and produce new knowledge" (p.6). One only has to analyse this statement briefly, and it can be seen that the HoMs *Thinking Flexibly, Thinking and Communicating with Clarity and Precision, Question and Problem Posing, Applying Past Knowledge, Thinking Interpedently and Creating, Imagining & Innovating,* are not only desirable, but absolutely necessary to achieve these aims.

Whilst there is little debate that this is the direction K-12 education should take, much more work needs to be done to determine what practical changes are necessary in our classrooms to make these goals a reality. Standards movements such as the Common Core State Standards (Common Core State Standards Initiative, 2018), the Next Generation Science Standards (NGSS Lead States, 2013) and C3 (The Washington State Council for the Social Studies, n.d.) have gone some way towards this, by reframing domain-specific educational goals. The Understanding by Design framework (Wiggins and McTighe, 2005) has also contributed positively by providing both a framework, and a useful set of tools and templates to enable educators to 'unpack' these standards into the knowledge, skills, understandings and ultimately transfer which we wish to see our students display. Furthermore, the movement towards authentic performance assessments (Center for Collaborative Education, CCE, 2017) has given us a new way to assess our students through real-word problem-solving tasks. However, what is noticeably lacking is an agreement on the epistemic practices which are required for student success, robust assessment instruments to measure these, and practical pedagogical strategies for educators in the classroom (Greene, Sandoval and Bråten, 2016).

The research contained in this paper has contributed to the movement by both supplying empirical quantitative evidence that students' display of the HoMs correlates positively to

achievement in performance assessments, and by beginning to develop an assessment tool to measure HoM competency. The following recommendations are made[2]:

Recommendations for Educators

- If a school values high student achievement in authentic performance assessments, the HoMs should also be embedded in the curriculum. This recommendation is based upon the high level of correlation between HoM performance and Performance Task achievement indicated at both school levels and subjects. Figure 4.5 Middle School Social Studies Coefficients & Collinearity & Figure 4.12 High School ELA Coefficients & Collinearity
- There should be enough time set aside for learning activities incorporating the HoMs, these should not be treated separately from, and should be linked to unit content. If HoM performance positively affects Performance Task achievement, it stands to reason that time should be spent in the classroom focusing on them. The study revealed that when the HoMs selected were closely aligned with transfer goals, and therefore linked to unit content, the level of correlation between them was higher. Figure 4.4 Middle School Social Studies Model Summary & Figure 4.11 High School ELA Model Summary
- HoM summative assessments should be included in the curriculum in the form of a reflective journal where students are assessed on their ability to identify and display the HoMs, reflect upon their own application of them, self-assess, and set goals for improvement. This was the assessment instrument used in the study, and whilst further work needs to be done in developing and refining this tool, the findings indicated a level of validity for the instrument. This complements existing research on the positive effect

[2] It should be noted that the HoMs may not be the only set of cognitive traits which yield the same positive results on performance assessment achievement, but they were the ones investigated in the study, so therefore are named in the recommendations.

metacognitive strategies have on achievement of learning outcomes. Appendix 6: *Habits of Mind Journal and Rubric*

- Specific HoMs should be selected for each unit of study and there should be a high level of alignment between the HoMs selected and the cognitive skills required for success in the performance assessment. This is based on the discovery during peer-review of the higher level of alignment in middle school social studies, and consequently the higher predictive power of the HoMs than in high school ELA. Appendices 7-13 *p.83*
- Adopters of the UbD framework should include the HoMs in the Stage 1 Desired Results section, and a new section should be included in a later UbD template. The study found no collinearity between performance in HoM assessment, EQ discussion, and Knowledge and Skills attainment, so therefore this indicates that they should be treated separately in terms of ascertaining student readiness for Performance Task achievement. *See pages 40 ; 46*

Recommendations for Further Research

- Quantitative empirical studies for the HoMs' correlation to PT achievement should be carried out in other disciplines, particularly STEM subjects to attempt to ascertain the degree of domain-specificity.
- Quantitative empirical studies for the HoMs' correlation to PT achievement should be carried out at the elementary school level to attempt to ascertain differences between age-groups.
- Quantitative empirical studies for the HoMs' correlation to PT achievement should be carried out across a broad selection of nations, contexts and student demographics.

- Knowledge acquisition and skills display should be treated separately to attempt to ascertain differences in their correlation to performance task achievement, and therefore their predictive power.
- Further research needs to be carried out in developing, refining and testing HoM assessment instruments in order to maximize their validity and reliability.
- Further research needs to be carried out in developing, refining and testing practical pedagogical strategies in order to determine which strategies maximize student attainment, and application of the HoMs.

Glossary of Terms

A = Acquisition of knowledge and discrete skills

AERO = American Education Reaches Out (the academic standards for social studies adopted in the project school)

CCSS = Common Core State Standards (the academic standards for English Language Arts adopted in the project school)

ELA = English Language Arts

EQ = Essential Question (overarching, open-ended questions designed to promote inquiry into big ideas and debate and discussion)

HoMs = Habits of Mind (cognitive dispositions for intelligent behaviour)

K&S = Knowledge and Skills Assessment

LTTG = Long-term Transfer Goal (synonymous with SLO in the study)

M = Meaning making of big conceptual ideas

NGSS = Next Generation Science Standards

PA = Performance assessment

PT = Performance Task

SLO = School-wide Learner Outcome

T = Transfer of knowledge, skills, understandings and HoMs in order to complete an authentic performance task

UbD = The Understanding by Design framework for curriculum planning

WASC = Western Association of Schools and Colleges

References

Accrediting Commission for Schools (2016) ACS WASC Overview | Accrediting Commission for Schools Western Association of Schools and Colleges, [online] Available at: http://www.acswasc.org/wasc/acs-wasc-overview/ (Accessed 10 August 2017).

Accrediting Commission for Schools, Western Association of Schools and Colleges (2014) Focus on Learning International Edition.

Baddeley, A. (1986) *Oxford psychology series, No. 11. Working memory*, New York: Clarendon Press/Oxford University Press.

Beyer, B. (1998) Improving student thinking, *The Clearing House*, 71(5), pp. 262–267.

Bollen, K. A. (2002) Latent Variables in Psychology and the Social Sciences, *Annual Review of Psychology*, 53(1), pp. 605–634.

Bouckenooghe, D., Cools, E., De Clercq, D., Vanderheyden, K. and Fatima, T. (2016) Exploring the impact of cognitive style profiles on different learning approaches: Empirical evidence for adopting a person-centered perspective, *Learning and Individual Differences*, 51, pp. 299–306.

Bransford, J., Brown, A. and Cocking, R. (2000) *How people learn: Brain, mind, experience and school. Washington, DC: Commission on Behavioral and Social Sciences and Education, National Research Council*, National Academy Press.

Campbell, J. (2006) Theorising habits of mind as a framework for learning, *AARE the association for active educational researchers*, [online] Available at: http://aassaquito2012.pbworks.com/w/file/fetch/51873287/Theorising%20Habits%20of%20Mind%20as%20a%20Framework%20for%20Learning.pdf (Accessed 19 December 2016).

Center for Collaborative Education, CCE (2017) Quality Performance Assessment and Task Design, [online] Available at: http://cce.org/work/instruction-assessment/quality-performance-assessment (Accessed 9 September 2017).

Charbonneau, P. C., Jackson, H. A., Kobylski, G. C., Roginski, J. W., Sulewski, C. A. and Wattenberg, F. (2009) Developing students''habits of mind' in a mathematics program, *PRIMUS*, 19(2), pp. 105–126.

Chinn, C. A., Rinehart, R. W. and Buckland, L. A. (2014) Epistemic cognition and evaluating information: Applying the AIR model of epistemic cognition, *Processing inaccurate information: Theoretical and applied perspectives from cognitive science and the educational sciences*, pp. 425–453.

Common Core State Standards Initiative (2018) Preparing America's students for success. [online] Available at: http://www.corestandards.org/ (Accessed 26 May 2018).

Cornoldi, C., Carretti, B., Drusi, S. and Tencati, C. (2015) Improving problem solving in primary school students: The effect of a training programme focusing on metacognition and working memory, *British Journal of Educational Psychology*, 85(3), pp. 424–439.

Costa, A. L. (1991) Developing Minds: A Resource Book for Teaching Thinking. Revised Edition, Volume 1.

Costa, A. L. and Kallick, B. (2000) Describing 16 habits of mind.

Costa, A. L. and Kallick, B. (2008) *Learning and leading with habits of mind: 16 essential characteristics for success*, ASCD.

Dede, C. (2010) Technological supports for acquiring 21st century skills, *International encyclopedia of education*, 3.

Dewey, J. (1933) How We Think. A Restatement of the Relation of Reflective Thinking to the Educative Process, Boston etc. (DC Heath and Company) 1933.

Donovan, L., Green, T. D. and Mason, C. (2014) Examining the 21st Century Classroom: Developing an Innovation Configuration Map, *Journal of Educational Computing Research*, 50(2), pp. 161–178.

Edwards, J. (2014) *Research on Habits of Mind*, The Institute for Habits of Mind.

Ellis, R. and Humphreys, G. W. (1999) *Connectionist psychology: A text with readings*, Psychology Press.

Felder, R. M. and Soloman, B. A. (n.d.) Felder & Soloman: Learning Styles and Strategies, *North Carolina State University*, [online] Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/ILSdir/styles.htm (Accessed 9 March 2018).

Feuerstein, R. (1980) *Instrumental enrichment: An intervention program for cognitive modifiability*, Univ Park Pr.

Field, A. P. (2009) *Discovering statistics using SPSS: (and sex, drugs and rock 'n' roll)*, 3rd ed, Los Angeles, SAGE Publications.

Gardner, H. (2011) *Frames of mind: The theory of multiple intelligences*, Basic books, [online] Available at: https://books.google.com/books?hl=en&lr=&id=2IEfFSYouKUC&oi=fnd&pg=PR7&dq=Howard+Gardner+multiple+intelligence&ots=3-6N9LXRuW&sig=jFD6MCeMi2t74PNmuqNxGxBxMwg (Accessed 17 May 2015).

Gardner, H. (1995) Reflections on multiple intelligences: Myths and messages, *Phi Delta Kappan*, 77, pp. 200–200.

Goleman, D. (1996) Emotional Intelligence. Why It Can Matter More than IQ., *Learning*, 24(6), pp. 49–50.

Greene, J. A., Cartiff, B. M. and Duke, R. F. (2018) A meta-analytic review of the relationship between epistemic cognition and academic achievement, *Journal of Educational Psychology*, [online] Available at: https://search.ebscohost.com/login.aspx?direct=true&db=pdh&AN=2018-09738-001&site=eds-live.

Greene, J. A., Sandoval, W. A. and Bråten, I. (2016) *Handbook of epistemic cognition*, Routledge.

Hardiman, M. (2010) The Brain-Targeted Teaching Model: A Comprehensive Model for Classroom Instruction and School Reform, *New Horizons for Learning*, 8(1), [online] Available at: https://jhepp.library.jhu.edu/ojs/index.php/newhorizons/article/view/58 (Accessed 2 May 2016).

Hattie, J. and Timperley, H. (2007) The power of feedback, *Review of educational research*, 77(1), pp. 81–112.

Hawker Brownlow Education (2013) *What is Understanding by Design? Author Jay McTighe explains. - YouTube*, [online] Available at: https://www.youtube.com/watch?v=d8F1SnWaIfE (Accessed 24 March 2018).

Heale, R. and Twycross, A. (2015) Validity and reliability in quantitative studies, *Evidence Based Nursing*, 18(3), pp. 66–67.

Huang, M.-H. and Rust, R. T. (2018) Artificial Intelligence in Service, *Journal of Service Research*, 21(2), pp. 155–172.

Infowhelm: Global Digital Citizen (2013) *InfoWhelm and Information Fluency*, Vimeo, [online] Available at: https://vimeo.com/55495939 (Accessed 9 September 2017).

Jensen, E. (2005) *Teaching with the brain in mind*, ASCD.

Kelly, G. J. (2016) Methodological considerations for the study of epistemic cognition in practice, *Handbook of epistemic cognition*, pp. 393–408.

Kereluik, K., Mishra, P., Fahnoe, C. and Terry, L. (2013) What Knowledge Is of Most Worth: Teacher Knowledge for 21st Century Learning, *Journal of Digital Learning in Teacher Education (International Society for Technology in Education)*, 29(4), pp. 127–140.

Langer, E. J. (1989) *Mindfulness. Reading, MA, US*, Addison-Wesley/Addison Wesley Longman.

Lave, J. and Wenger, E. (1991) *Situated learning: Legitimate peripheral participation*, Cambridge university press, [online] Available at: http://books.google.com/books?hl=en&lr=&id=CAVIOrW3vYAC&oi=fnd&pg=PA11&dq=Lave+and+Wenger,+1991&ots=OBlDrpZLAm&sig=5grAhcbg7RZrmbapl6E2YRswR3Q (Accessed 5 November 2014).

Lesperance, D. J. (n.d.) Integrating Habits of Mind into the Classroom.

Liftig, I. (2009) Nurturing scientific habits of mind, *Science Scope*, 33(1), pp. 1–1.

Loveland, T. and Dunn, D. (2014) Teaching Engineering Habits of Mind in Technology Education, *Technology and Engineering Teacher*, 73(8), pp. 13–19.

Mayer, J. D., Caruso, D. R. and Salovey, P. (1999) Emotional intelligence meets traditional standards for an intelligence, *Intelligence*, 27(4), pp. 267–298.

McClelland, J. L., Rumelhart, D. E. and Hinton, G. E. (1986) The appeal of parallel distributed processing, *MIT Press, Cambridge MA*, pp. 3–44.

McTighe, J. (2014) Long Term Transfer Goals.

Mongan-Rallis, D. H. (2005) Six facets of understanding: Grant Wiggins, [online] Available at: https://www.d.umn.edu/~hrallis/courses/3204sp05/planning/wiggins_6facets.htm (Accessed 25 March 2018).

Nelson, T. O. and Narens, L. (1994) Why investigate metacognition, *Metacognition: Knowing about knowing*, pp. 1–25.

NGSS Lead States (2013) Next Generation Science Standards: For States, By States, *Washington, DC: The National Academies Press.*

O'Hare, L. and McGuinness, C. (2015) The validity of critical thinking tests for predicting degree performance: A longitudinal study, *International Journal of Educational Research*, 72, pp. 162–172.

Onu, V. C., Eskay, M., Igbo, J. N., Obiyo, N. and Agbo, O. (2012) Effect of Training in Math Metacognitive Strategy on Fractional Achievement of Nigerian Schoolchildren, *US-China Education Review*, pp. 316–325.

Onwuegbuzie, A. J. (2000) Expanding the Framework of Internal and External Validity in Quantitative Research.

Ortlipp, M. (2008) Keeping and using reflective journals in the qualitative research process, *The qualitative report*, 13(4), pp. 695–705.

Osman, A. A. (2016) Effect of Habits of Mind Program on the Development of Positive Thinking and the Level of Learning Basic Soccer Skills Among Students of the Faculty of Physical Education, *Ovidius University Annals, Series Physical Education & Sport/Science, Movement & Health*, 16(2), pp. 228–235.

Partnership for 21st Century Learning (2007) Framework for 21st Century Learning.

Partnership for 21st Century Skills, A. (2008) 21st Century Skills, Education & Competitiveness.

Pashler, H., McDaniel, M., Rohrer, D. and Bjork, R. (2008) Learning Styles: Concepts and Evidence, *Psychological Science in the Public Interest*, 9(3), pp. 105–119.

Pennequin, V., Sorel, O., Nanty, I. and Fontaine, R. (2010) Metacognition and low achievement in mathematics: The effect of training in the use of metacognitive skills to solve mathematical word problems, *Thinking & Reasoning*, 16(3), pp. 198–220.

Perkins, D. (1995) *Outsmarting IQ: The emerging science of learnable intelligence*, Simon and Schuster.

Pintrich, P. R. (2000) An achievement goal theory perspective on issues in motivation terminology, theory, and research, *Contemporary educational psychology*, 25(1), pp. 92–104.

Pintrich, P. R. and De Groot, E. V. (1990) Motivational and self-regulated learning components of classroom academic performance., *Journal of educational psychology*, 82(1), p. 33.

Pritchard, A. (2009) *Ways of learning: learning theories and learning styles in the classroom*, Abingdon, Oxon; New York, NY, Routledge.

Punch, K. F. and Oancea, A. (2014) *Introduction to research methods in education*, Sage.

Schneider, W. and Bjorklund, D. F. (1998) *MEMORY. D. KUHN & RS SIEGLER (Eds.), Handbook of child psychology: Cognition, perception and language (pp. 467-521)*, New York: Wiley & Sons.

Schneider, W., Bjorklund, D. F., Valsiner, J. and Connolly, K. (2003) Memory and knowledge development, *Handbook of developmental psychology*, pp. 370–403.

Schraw, G. and Dennison, R. S. (1994) Assessing metacognitive awareness, *Contemporary educational psychology*, 19(4), pp. 460–475.

Sinatra, G. M. (2016) Thoughts on knowledge about thinking about knowledge, *Handbook of epistemic cognition*, pp. 479–491.

Singh, V. (2017) Exploring the Relationship between cognitive Style and learning Style with Academic Achievement of Elementary School learners, *Educational Quest*, 8, p. 413.

Sternberg, R. J. (1985) *Beyond IQ: A triarchic theory of human intelligence*, CUP Archive.

Sternberg, R. J. (2001) Epilogue: Another mysterious affair at styles, *Perspectives on thinking, learning and cognitive styles*, pp. 249–252.

Sullivan, P. (2012) Essential habits of mind for college readiness, *College English*, 74(6), pp. 547–553.

The Washington State Council for the Social Studies (n.d.) C3 Framework, *Washington State Council for the Social Studies*, [online] Available at: http://www.wscss.org/c3framework/ (Accessed 26 May 2018).

Tulving, E. (1985) How many memory systems are there?, *American psychologist*, 40(4), p. 385.

Turner, V. W. and Schechner, R. (1988) The anthropology of performance.

University of Roehampton, London (2014) Ethics Guidelines.

University of Surrey (n.d.) Unit 3 Primary and Secondary Sources, [online] Available at: http://libweb.surrey.ac.uk/library/skills/Introduction%20to%20Research%20and%20Managing%20Information%20Leicester/page_21.htm (Accessed 9 September 2017).

Vollrath, D. (2016) Developing Costa and Kallick's Habits of Mind Thinking for Students with a Learning Disability and Special Education Teachers, [online] Available at: http://scholarworks.arcadia.edu/grad_etd/5/.

Voogt, J. and Roblin, N. P. (2012) A comparative analysis of international frameworks for 21 century competences: Implications for national curriculum policies, *Journal of Curriculum Studies*, 44(3), pp. 299–321.

Whimbey, A. (1975) Intelligence Can Be Taught (New York: EP Dutton).

Whiting, J. W. M. (1980) *The making of psychological anthropology*, Univ of California Press.

Wiggins, G. P. and McTighe, J. (2012) *The Understanding by design guide to advanced concepts in creating and reviewing units*, ASCD.

Wiggins, G. P. and McTighe, J. (2005) *Understanding by design*, ASCD.

Zakaria, E., Yazid, Z. and Ahmad, S. (2009) Exploring Matriculation Students' Metacognitive Awareness and Achievement in a Mathematics Course, *International Journal of Learning*, 16(2), pp. 333–347.

Zull, J. E. (2004) The art of changing the brain, *Educational Leadership*, 62(1), pp. 68–72.

Appendices

Appendix 1: *School-wide Learner Outcomes*

Students will be able to independently use their learning to (SWBATIUTLT).....	**Student Friendly version** **When I leave school, on my own I will...**
Be *Global Citizens* who:	**Be a *Global Citizen* who:**
1. Communicate effectively for a wide variety of purposes and audiences within and across cultures.	Speaks and writes clearly in all situations.
2. Use and understand existing technology and adapt to new technology in order to enhance productivity, creativity and communication.	Uses technology to improve and share my work.
3. Collaborate with others successfully, including those who differ from themselves.	Works well with people from around the world.
4. Mitigate conflict and misunderstandings by empathising with others of differing world views.	Understands what other people think and why they act the way they do.
Be *Empowered Thinkers* who:	**Be an *Empowered Thinker* who:**
5. Comprehend, synthesize and analyse complex information to further understanding and apply and share it in an ethical manner.	Reads, understands and uses information without copying from others.
6. Critically appraise information for validity and reliability.	Works out if something is useful and true.
7. Make informed decisions after analyzing situations from multiple perspectives.	Makes my mind up after considering all the options.
8. Evaluate social systems in terms of their effectiveness and ability to serve the needs of all people.	Decides what rules are best and the best way to organize people.
9. Explain phenomena, formulate and test hypotheses based on empirical evidence and axioms, and critique findings to further understanding, solve problems and make recommendations for further inquiry.	Asks questions and find out how things work.
10. Identify complex problems and formulate, justify and apply solutions.	Finds and solves difficult problems.
Be *Well-rounded Individuals* who:	**Be a *Well-Rounded Individual* who:**
11. Convey appreciation of the arts, sciences and the beauty of the natural world.	Enjoys reading, music, art, science and the world around me.
12. Reflect on their attitudes and learning, recognize and develop effective strategies, and set achievable personal and academic goals.	Thinks about how I learn and sets myself goals.

Appendix 2: *Approved Ethics Response Form*

ETHICS RESPONSE FORM

Researcher name (student): **Philip Muscott**	Faculty reviewer: **Dr. Peter Johnston-Wilder**	Date of Review: 29 October 2017
Working Title of Proposal or summary of study scope: **A study of the relationship between 'Habits of Mind' and performance task achievement in an international school in South-east Asia.**		
Proposal attached? _X_ Yes ___No	Academic Honesty Declaration signed? __X_Yes ___ No	

Each of the ethical standards below must be adequately addressed by the researcher in order to obtain ethics approval.

In the first column, the RESEARCHER (student) should perform a self-check using these 35 questions before submitting the ethics form to the faculty member supervising the study. In each row of the first column, the RESEARCHER should enter YES, NO, or NA as well as a very brief explanation. The Academic Honesty Declaration must be attached and should be signed and dated.

In the second column the ETHICS REVIEWER (supervising faculty member) will enter YES, NO, or NA to confirm or challenge the RESEARCHER'S self-check on each standard. With each NO, the ETHICS REVIEWER will indicate what revisions are required for ethics approval. The faculty reviewer will also render a decision at the end of this form and return the form to the RESEARCHER.

If the ETHICS REVIEWER (supervising faculty member) is able to approve "as is" then the third column is left blank.

In the third column, the RESEARCHER (student) will respond to each of the ETHICS REVIEWER'S concerns to explain where/how each of the reviewer's concerns was met in the resubmitted materials.

	Researcher's ethics self-check In each row, the researcher should confirm compliance with the ethical standard by entering "Yes," "No," or "N/A," along with a brief defense of the response (i.e., stating keywords that point to how the ethical standard has been met).	**Ethics Reviewer's assessment:** After the researcher has presented the evidence for compliance with each ethical standard, the Ethics Reviewer should either confirm by entering "Yes" or challenge with "No." With each "No," the reviewer must specify what revisions are needed to obtain ethics approval.	**Researcher's response to Ethics Reviewer** Researcher must use this column to explain how and where each of the Ethics Reviewer's concerns (in the second column) has been addressed.
Example: Will data be stored securely?	***Yes. Data files will be kept on a password protected computer.***	***No. Please also address how the paper surveys will be secured prior to being entered as electronic files.***	***Paper surveys will be in a locked file cabinet. Proposal has been updated.***
The first 11 questions apply to all studies (even when the researcher is not interacting with participants to collect new data). **Hover the mouse over the footnoted words to view extra tips and definitions.**			
1. Are participant recruitment and data collection steps[a] adequately described, such that the study's risks and burdens can be discerned?	Yes. As secondary data is being used, no participants are necessary. The data required will be extracted via a .csv file from the school's Student Information System.	**Yes**	
2. Will the research procedures ensure privacy[b] during data collection?	Yes. All of the data will be anonymised as student information is not required for the study.	**Yes**	
3. Will data be stored securely[c] with adequate provisions to maintain the confidentiality of the data?	Yes. The data will be stored digitally on a password-protected computer, only accessible by the researcher.	**Yes**	
4. Will the data be stored for at least 5 years?	No. Data will be stored for the duration of the research project	**Yes**	

	and will be securely disposed of when the final grades are released		
5. If participants' names or contact info will be recorded in the research records, are they absolutely necessary[d]?	N/A. No participants are required.	**NA**	
6. Do the research procedures and analysis/write-up plans include all possible measures to ensure that participant identities are not directly or indirectly[e] disclosed? For secondary data analyses, the proposal must clearly state when/how de-identification will occur.	Yes. The de-identification will occur as soon as the achievement data is extracted from the SIS to a .csv file. The name of the school will not be disclosed in the research.	**Yes**	
7. Have all potential psychological[f], relationship[g], legal[h], economic/professional[i], physical[j], and other risks been fully acknowledged[k] and described?	N/A I do not believe that there are any psychological, relationship, economic/professional, or physical risks involved.	**NA**	
8. Have the above risks been minimized [l]as much as possible?	N/A	**NA**	
9. Has the researcher proactively managed any potential conflicts of interest[m]? Note that student researchers may not utilise research assistants to recruit participants or collect research data on behalf of the researcher.	Yes. The researcher has a vested interest in discovering a positive correlation between HoM and Performance Task achievement. This will be mitigated by a reflective journal being kept throughout the study and the enlisting of 'critical friends' to assist in analyzing and interpreting the data.	**Yes.**	
10. Are the research risks and burdens[n] reasonable, in consideration of the new knowledge[o] that this research design can offer?	Yes. The risks and burdens are minimal and the research will further knowledge in the field in an as yet under-explored domain.	**Yes**	
11. Is the research site willing to	Yes. The Board of Directors of	**Yes**	

provide an Authorisation Letter (or email) granting permission[p] for all relevant data[q] access, access to participants, facility use, and/or use of personnel time for research purposes?	the school have already been contacted and have given permission.		
The remaining questions only apply to studies that involve recruiting participants to collect new data (such as surveys, interviews, observations). **__X___Please place an X on this line if NONE of the questions in the next section are applicable to the proposed study.**			
12. Applicable for student researchers: Will this researcher be appropriately qualified[r] and supervised[s] in all data collection procedures?			
13. Is participant recruitment coordinated in a manner that is non-coercive[t]? Coercive elements include: leveraging an existing relationship to "encourage" participation, recruiting in a group[u] setting, extravagant compensation, recruiting individuals in a context of their treatment or evaluation[v], etc. A researcher must disclose here whether/how the researcher may already be known to the participants and explain how perceptions of coerced research participation will be minimized[w].			
14. If anyone would be excluded from participating, is their exclusion justified? Is their exclusion handled respectfully and without stigma[x]?			
15. Where the researcher proposes to use an interpreter, has adequate consideration been given to the			

interpreter's training regarding confidentiality and principles of informed consent, etc.?			
16. Do the informed consent[y] procedures provide adequate time to review the study information and ask questions before giving consent?			
17. Will informed consent be appropriately[z] documented?			
18. Is the participant information sheet (PIS) written using language that will be understandable[aa] to the potential participants?			
19. Does the PIS include an understandable[bb] explanation of the research purpose?			
20. Does the PIS explain the sample's inclusion criteria in such a way[cc] that the participants can understand how/why THEY are being asked to participate?			
21. Does the PIS clearly state that participation is voluntary?			
22. Does the PIS convey that the participant has the right[dd] to decline or discontinue participation at any time?			
23. Does the PIS include an understandable description of the data collection procedures?			
24. Does the PIS include an estimate of the time commitment[ee] for participation?			
25. Does the PIS describe any thank you gifts, compensation, or reimbursement to participants (for travel costs, etc.) or lack thereof?			
26. Does the PIS include a			

description of reasonably foreseeable risks[ff] or discomforts?			
27. Does the PIS include a description of anticipated benefits to participants[gg] and/or others?			
28. Does the PIS explain how the participant can contact the researcher and the university's Research Participant Advocate? (USA number 001-612-312-1210 or email address Ethics@roehampton-online.com)			
29. Does the PIS describe how privacy will be maintained[hh]?			
30. Does the PIS disclose all potential conflicts of interest (specifying that this study is separate from the researcher's other professional role)?			
31. Do the consent documents preserve the participant's legal[ii] rights?			
The remaining questions regarding sensitive content and vulnerable populations should be reviewed and addressed by the researcher (student) and faculty reviewer, but must also be confirmed by the International Online Research Ethics Committee before the study may go ahead. **__X__ Please place an X on this line if NONE of the questions in the next section are applicable to the proposed study.**			
32. If vulnerable[jj] individuals will be specifically sought out as participants, is such targeted recruitment justified[kk] by a research design that will specifically benefit that vulnerable group at large?			
33. If the researcher happens to also serve in a trusted or authoritative[ll] role to the participant (e.g., health care provider, teacher etc.), do the			

recruitment procedures ensure voluntary participation?			
34. If the research procedures might reveal or create an acute psychological state that necessitates referral, are there suitable procedures in place to manage this?			
35. If the research procedures might reveal criminal activity, child/elder abuse, or employer policy non-compliance that necessitates[mm] reporting, are there suitable procedures in place for managing this? Are limits to confidentiality (i.e., duty to report) appropriately mentioned in the Participant Information Sheet?			

ETHICS APPROVAL DECISION		
THIS DOCUMENT MUST BE POSTED IN THE GRADEBOOK AFTER THE SUPERVISING FACULTY MEMBER HAS RENDERED A DECISION. **The supervising Faculty Member will mark an X next to box A, B, or C. If box A or B is marked, then the supervising faculty member will also mark an X next to the applicable subcategory (1, 2, 3, etc.):**		
X	**A. APPROVED VIA EXPEDITED (LIGHT TOUCH) ETHICS REVIEW:** • **As the supervising faculty member, I confirm that all applicable criteria 1-35 above are met with either a "Yes" or "N/A."** • **I understand my responsibilities as supervisor, and will ensure to the best of my abilities that the student investigator abides by the University's policy on Research Ethics at all times.** • **I affirm that the research activities fall entirely within the parameters of the design indicated with an X below (1, 2 or 3) that the International Online Research Ethics Committee has authorized faculty members to approve via the expedited (light touch) review:**	
		1. analysis of public documents, artifacts, behaviour or data;
	X	2. secondary analysis of existing data that is privately held but released for research purposes (with all identifiers removed);
		3. surveys or interviews of non-vulnerable adults on non-sensitive topics (i.e., no potential to participants of coercion, distress, loss of work/school time, damage to professional reputation). Vulnerable populations include children, clinic patients, prisoners, military personnel, facility residents, anyone over whom the researcher holds authority (e.g., students, subordinates), anyone who might feel undue pressure to participate in the study, and any individuals with severe enough mental disabilities to interfere with capacity to consent to the study.

	B. REFERRED TO ETHICS COMMITTEE: • **As the supervising faculty member, I am referring this study to the full ethics committee (IOREC) because** [mark 1, 2, 3, 4 or Other below]. • **I will email the student's ethics application and all attachments as a single zip file to the ethics committee via** Ethics@roehampton-online.com**, copying the Programme Director.** The ethics committee accepts applications until 5 pm GMT on the 3rd Thursday of every month. Decisions and feedback will be emailed to the student and DA within 5 business days after the 4th Thursday of the month.	
		1. the researcher proposes to collect data from vulnerable individuals such as children, clinic patients, prisoners, military personnel, facility residents, anyone over whom the researcher holds authority (e.g., students, subordinates), anyone who might feel undue pressure to participate in the study, and any individuals with severe enough mental disabilities to interfere with capacity to consent to the study.
		2. some (potential) participants may find the research topic or premise sensitive
		3. participants' jobs or livelihoods may be placed at any risk by the study activities
		4. the participants' culture and/or international location suggest that extra participant protections may be necessary
		Other: _____
	C. REVISIONS REQUIRED: **The student needs to revise the proposal and ethics materials to address the concerns in the second column and resubmit to me before I can select A or B above.**	

Footnotes

[a] In order to weigh potential risks against benefits, the researcher first needs to plan and clearly articulate all of the following that apply:
how existing data or contact information of potential participants will be obtained,
format and context of the initial contact with potential participants,
informed consent procedures,
assignment to groups (if applicable),
description of any pilot activities,
data collection steps,
transcript review and/or membercheck (if applicable), and
how results will be shared with stakeholders.

[b] Privacy risks might include unintended breach of confidential information (such as educational or medical records); being observed/overheard by others while meeting researcher or providing data; or intrusion on the privacy of others who are not involved in the study (e.g. participant's family).

[c] Secure data storage requires password protection on electronic files and locks for physical data.

[d] Note that consent forms do not require signatures if the participant can indicate consent by some action such as clicking on a link, returning a completed survey, etc.

[e] Participant identities might be "indirectly" and unintentionally disclosed if a researcher's final research report fails to withold demographic details or site descriptions that might permit a reader to deduce the identity of a participant. So the researcher needs to think about which demographic descriptors are most important to collect and report, while ensuring that the identity of individual participants is protected. Also, the name of the site/organization is typically masked in scholarly research though in some cases, the organization can elect to publicize their name along with the research results.

[f] Psychological risks include stress greater than what one would experience in daily life (e.g., materials or topics that could be considered sensitive, offensive, threatening, degrading).

[g] Relationship risks are present if the recruitment or data collection process are likely to alter the existing dynamics between the researcher and participant (who may be coworkers or have some professional relationship), among participants (if they know one another), or between the participant and the participant's friends, coworkers, or family members.

[h] Legal risks are present if data collection might result in a participant's disclosure of violation of laws.

[i] Economic/professional risks are present if data collection could result in the participant disclosing violation of workplace policies, disagreement with leadership decisions, poor work performance, or anything else that could be damaging to the participant's position, professional reputation, promotability, or employability. Risks are acceptable but participants need to be made aware of professional risks during the consent process so they can make an informed decision.

[j] Physical risks are not common in social science research but would involve risk of serious physical injury to the participant or the researcher.

[k] Minimal risks are acceptable but must be identified upfront. Minimal risk is defined as when: "the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life."

[l] The researcher is responsible for planning measures that will provide participants with reasonable protection from privacy loss, distress, psychological harm, economic loss, damage to professional reputation, and other possible harms.

[m] A conflict of interest is caused when the researcher has some sort of dual role in the research context, such as being a teacher, therapist, investor, business-owner, manager, etc. Conflict of interest must be managed to ensure that the research reveals "truth," not just the outcome that the researcher might desire to see due to their other role.

[n] All research activities place some degree of burden on the participants by asking the participants to share personal information, volunteer time, and assume risks.

[o] Examples of "new knowledge" include: effectively addressing a gap in the literature, generating new theory, enhancing understanding of a phenomenon, assessing effectiveness of a particular professional practice, addressing a local practical problem via data analysis.

[p] No documentation of permission is required (a) if the researcher will simply be asking organizations to distribute research invitations on the researcher's behalf, or (b) if the researcher is using only public means to identify/contact participants.

[q] Note that when medical, educational, or business records would be analyzed or used to identify potential research participants, the site needs to explicitly approve access to data for research purposes (even if the researcher normally has access to that data to perform his or her job).

[r] Researchers must be able to document their training in the data collection techniques and the ethics committee might require the researcher to obtain additional training prior to ethics approval. For most student researchers, the research course sequence is sufficient but some research procedures (such as interviewing people with mental disabilities) may require additional training. For psychological assessments, the manual indicates specific qualifications required. Data collection from children requires a background check/clearance through a local agency.

[s] Remote supervision is suitable for most studies but onsite supervision may be required for certain types of sensitive data collection (e.g., interviews or assessment regarding emotional topics).

[t] For example, anonymous surveys and/or low-pressure communications such as email invitations permit potential participants to opt out with minimal fear of retaliation or other negative consequences.

[u] It is not ethically acceptable to invite a "captive audience" to participate in research on the spot (i.e., to ask an entire class or a group of meeting attendees to complete a survey during their session). Such a dynamic would not provide sufficient privacy or respect for their right to decline research participation. However, a researcher may use the last few minutes of a meeting to introduce a study and distribute materials, such that the potential participants can then take their time to decide later about participation.

[v] Generally, data collection cannot be approved during work hours or school hours unless a "free period" has been identified (e.g., lunch) so the research activities can be separated from the participants' regular activities. It is important to maintain an "opt in" dynamic rather than implying that employees/students/group members are expected to participate.

[w] Completion of the study directly benefits the student (allowing him or her to obtain a degree), and so the researcher should minimize the potential for either (a) conflict of interest or (b) perceived coercion to participate. Researchers who are in positions of authority or familiarity must take extra precautions to ensure that potential participants are not pressured to take part in their study. Examples: an instructor researcher may recruit her students AFTER grades have been assigned; a psychologist researcher may recruit clients from ANOTHER psychologist's practice; a manager researcher may conduct ANONYMOUS data collection so that subordinates do not perceive their responses or [non]participation as being associated with their job standing.

[x] When applicable, the exclusion criteria should be listed on the recruitment material (flyer, invitation email,etc.) or participant information sheet (PIS) to prevent situations in which the researcher rejects volunteers in a stigmatizing manner.

[y] Informed consent is not just a form; it is a process of explaining the study to the participant and encouraging questions before the participant makes a decision about participation.

[z] While documenting consent via signature is common, note that anonymous surveys can obtain "implied consent" by informing the participant, "To protect your privacy, no consent signature is requested. Instead, you may indicate your consent by clicking here/returning this survey in the enclosed envelope.") It is also acceptable to audiorecord verbal consent for interviews, in order to not have any record of the interviewee's name.
[aa] The ethics committee encourages tailoring the language to the readers as long as a professional tone is maintained.
[bb] Minimal jargon should be used during the informed consent process. Everyday layperson language is most appropriate to help a participant make an informed decision about participation.
[cc] People receiving the PIS should not be left wondering, "How did the researcher get my name?" or "Why am I being invited and not others?" or "Does the researcher already know private information about me?" The means by which the researcher has identified and contacted the potential participant needs to be made clear, if it is not already clear from the context. Sample explanations of inclusion criteria in PIS: (a) The human resources department has forwarded this invitation to all employees who meet the researcher's study criteria (i.e., have been with the organization at least 2 years and have transitioned into a managerial role within the past year); or (b) The researcher is inviting all attendees of the past year's XYZ professional conference to be in the study; or (c) The researcher will be randomly selecting possible participants by approaching the residents of every 5th home in this neighborhood until 100 responses are obtained.
[dd] When the researcher is already known to the participant, the PIS must include written assurance that declining or discontinuing will not negatively impact the participant's relationship with the researcher or (if applicable) the invitee's access to services.
[ee] Provide an estimate (in minutes or hours) of each component of data collection (e.g., survey, interview, memberchecking. etc.)
[ff] Describe only the possible harms that go beyond the risks of daily life.
[gg] For most social science studies, it is appropriate to state that there are no particular direct benefits to the individual. In this case, just present the benefits to society.
[hh] The PIS should explain that the research report will not include names and that the data will not be used for any purposes other than research. It is not always clear to participants how a research interview is different from a journalistic interview, in which informants might be named. So the PIS should also describe any coding system that will permit the researcher to not use names. For sensitive interviews, the researcher might also want to assure participants that recordings will be destroyed immediately after transcription.
[ii] The consent forms/process should not ask a participant to waive any legal rights.
[jj] Vulnerable participants include children, clinic patients, prisoners, military personnel, facility residents, anyone over whom the researcher holds authority (e.g., students, subordinates), anyone who might feel undue pressure to participate in the study, and any individuals with severe enough mental disabilities to interfere with capacity to consent to the study. Pregnant women (and their unborn children) are only considered a vulnerable population when a study involves physically risky data collection.
[kk] Targeted recruitment of vulnerable participants can only be approved when the ethics committee determines that the study's benefits justify its risks/costs.
[ll] A researcher with a dual role must use anonymous surveys or some other method that permits potential participants to opt out without fear of negative consequences. Patients, students, and subordinates of the researcher need explicit assurance that their decision about participation will in no way impact their ongoing relationship with the researcher.
[mm] Any limits to confidentiality (i.e., duty to report) must be mentioned in the participant information sheet (PIS).

Appendix 3: *Authorisation Letter from the Board of Directors*

To: Whom it may concern
Re: A study of the relationship between 'Habits of Mind' and 'Performance Task' achievement in an International School in South-east Asia

We, the CIA FIRST Board of Directors, as the owners of CIA FIRST International School, do hereby give authorisation for Philip Gregory Muscott, the Curriculum and Professional Learning Coordinator to collect, analyse and evaluate student achievement data for the research project *A study of the relationship between 'Habits of Mind' and 'Performance Task' achievement in an International School in South-east Asia.*

We understand that the data is classified as secondary, in that it would have been collected and stored in SchoolBase, the school's Student Information System for reporting purposes irrespective of the research. In addition, all data will be suitably anonymised in the research paper, and the findings will be utilised to further knowledge in the field of education.

Yours Sincerely,

Mr. Samath Him Sprung
Vice-Chairman of the BoD
Date: 24/05/16

Oknha Dr. Trang Ly
Chairman of the BoD
Date: 24/5/16

Appendix 4: *Essential Questions Summary Sheet*

Course:	
Unit:	
Essential Question:	
Number of 'Big Ideas' Assessed:	

Based on your Essential Question discussion over the course of this unit, now summarise your answer to the EQ using as many of the '6 facets of understanding' as possible:

Facet 1 - Explanation
Topical EQs:

Facet 2 - Interpretation
Topical EQs:

Facet 3 - Perspective
Topical EQs:

Facet 4 - Empathy
Topical EQs:

Facet 5 - Application
Topical EQs:

Facet 6 - Self Knowledge
Topical EQs:

Appendix 5: *Essential Questions Discussion Rubric*

Assessment Rubric: Essential Questions Discussion (6 Facets)

Criteria	0 (No Attempt)	1 (Attempts)	2 (Approaches)	3 (Meets)	4 (Exceeds)
Frequency and Quality of Contributions	The student has made no posts.	The student rarely makes contributions OR all contributions are of poor quality.	The student makes infrequent contributions which are of high quality OR the quality of some contributions are of poor quality	The student makes frequent contributions to the discussion which are mostly of high quality.	The student makes frequent contributions to the discussions which are always of high quality.
Enduring Understanding 1	The student has made no posts.	The student has answered the question but the answers do not display understanding through any of the 6 facets of understanding.	The student's answers display an in-depth understanding of the big idea through at least 1 of the 6 facets of understanding.	The student's answers display an in-depth understanding of the big idea through at least 2 of the 6 facets of understanding.	The students answer's display an in-depth understanding of the big idea through 3 or more of the 6 facets of understanding.
Enduring Understanding 2	The student has made no posts.	The student has answered the question but the answers do not display understanding through any of the 6 facets of understanding.	The students answers display an in-depth understanding of the big idea through at least 1 of the 6 facets of understanding.	The students answers display an in-depth understanding of the big idea through at least 2 of the 6 facets of understanding.	The students answers display an in-depth understanding of the big idea through 3 or more of the 6 facets of understanding
Collaboration	The student has made no posts.	The student's posts on Google Classroom do not show sensitivity to other's viewpoints.	The student's posts on Google Classroom demonstrate sensitivity to other's viewpoints but	The student's posts on Google Classroom demonstrate a strong ability to exercise initiative by extending the	The student's posts on Google Classroom demonstrate a high-level of ability to exercise leadership,

EQ ASSESSMENT RUBRIC PHILIP G. MUSCOTT

			do not extend the dialogue.	dialogue and show sensitivity to other's viewpoints.	initiative and sensitivity in including the ability to see issues from multiple perspectives.
Critical Thinking	The student has made no posts.	The student's arguments and claims on Google Classroom are not supported.	The student's arguments and claims on Google Classroom are supported but do not offer critical views on alternate viewpoints.	The student's posts on Google Classroom show a strong ability to offer critical perspectives and well-supported viewpoints.	The student's posts on Google Classroom show a high level of ability to offer critical perspectives on issues, well-supported viewpoints, and probing questions.

EQ ASSESSMENT RUBRIC PHILIP G. MUSCOTT

Appendix 6: *Habits of Mind Journal and Rubric*[3]

Habits of Mind Journal <Grade> <Class> **<Unit code> <Unit name>** **<Your Name>**

Write your report in the yellow box. It will expand as you write. Highlight a number 1, 2, 3, or 4.

I will mark your work and return it to you. Your mark box/boxes will be highlighted in green. Save it for the next unit.

1. Persisting (PE)  *Stick to it!*		I demonstrate **persistence**. I **persevere** in tasks through to completion. I remain **focused** on tasks and look for ways to **reach a goal** even when I am stuck.	**Evidence and Goal-setting** **I have demonstrated these habits of mind in the following situations or I have reflected on missed opportunities in the following situations:** **These are my goals for improvement, how I intend to reach these goals, and how I will measure successful attainment of them:**		**I believe my understanding of this Habit of Mind is ...** **1 = emerging, like a novice.** **2 = developing, like an apprentice.** **3 = proficient, like a practitioner.** **4 = exemplary, like an expert.**
Criteria	**Exceeds the Standard (4)**	**Meets the Standard (3)**	**Approaches the Standard (2)**	**Attempts the Standard (1)**	**Didn't Attempt the Standard (0)**
Observable Classroom Behaviour	During classes, the student sticks to the task **consistently** and is **consistently** persistent in reaching goals.	During classes, the student sticks to the task and is **quite often** persistent. The student focuses and looks for ways to reach goals **quite often**.	During classes, the student sticks to the task **sometimes** and **sometime**s has to be reminded to keep on task. The student could improve their focus.	During classes, the student **rarely** sticks to the task and has to be reminded to keep on the task. The student could improve their focus.	During classes, the student **never** completes any work and shows no persistence.
Evidence Provided	The journal contains a minimum of **two** relevant unit specific examples of	The journal contains a minimum of **two** relevant unit specific examples of exhibiting persistence that	The journal contains **one** relevant unit specific example of exhibiting persistence that is supported by evidence or	The journal contains **one** relevant unit specific example of exhibiting persistence that is supported by evidence or	The student has provided no evidence.

1

[3] Note that an example has only been supplied for the HoM *Persisting.* The *Observable Classroom Behaviour* criteria performance descriptors vary, whereas the performance descriptors for the other criteria are identical.

Habits of Mind Journal <Grade> <Class> **<Unit code> <Unit name>** **<Your Name>**

	exhibiting persistence that are supported by evidence or the journal contains **two** relevant unit specific examples of *missed opportunities or goals for improvement* of persistence that are supported by evidence. The examples explain how applying the Habit helped the student or how not applying the Habit hindered the student.	are supported by evidence or the journal contains a minimum of **two** relevant unit specific examples of *missed opportunities or goals for improvement* of persistence that are supported by evidence.	the journal contains **one** relevant unit specific example of *missed opportunities or goals for improvement* of persistence that is supported by evidence.	the journal contains **one** relevant unit specific example of *missed opportunities or goals for improvement* of persistence that is supported by evidence. However, it is not entirely clear how the example given is linked to unit learning outcome	
Self-reflection and goal-setting	The student has honestly and accurately self-assessed, and set clear goals for improvement including methods to reach the goals and ways to measure success.	The student has honestly and accurately self-assessed, and set clear goals for improvement including methods to reach the goals.	The student has self-assessed and set goals for improvement.	The student has self-assessed.	The student has not self-assessed.

Appendix 7: *EHS1S2U1 PT – Perceptions of Social Media +Rubric*

EHS1S2U1 Performance Task

Perceptions of Social Media

Goal

To argue effectively about the relationship between social media, social values, and self-worth.

Role

You are a writer for a popular magazine called JustTeen Magazine which targets the Southeast Asian teenage population.

Audience

Teenage readers in Southeast Asia

Situation

Your editor-in-chief recently approved a proposed feature article about the role of technology in the lives of teenagers, a topic that you have been interested in pursuing. You want to make a strong statement about the relationship between social media, social values, and perceptions of self-worth, so your article will revolve around a clear, well-supported argument.

This article will not only be published in Southeast Asia, but all around the world in sister publications of JustTeen Magazine. To avoid being sued for plagiarism, outside sources need to be cited.

Product/Performance & Purpose

You will write a feature article that will argue for or against the following statement:

The way beauty is portrayed in social media is not only a reflection of the shallow nature of society, but it is also a contributing factor.

Your article will include:

- A ~1 paragraph introduction with
  - an interesting hook that will engage your teenage audience
  - a strong thesis statement that reveals your argument
- ~3 body paragraphs with
  - convincing claims that support/connect back to your thesis statement
  - supporting evidence that is cited in MLA referencing style
  - a counterargument and refutation
- A ~1 paragraph conclusion that
  - summarizes your main points
- A Works Cited page (MLA format)

Page 1 of 3

EHS1S2U1 Performance Task

Perceptions of Social Media

Standards for Criteria and Success

Your products will be evaluated using the following criteria:
Rubric:

Criteria Groups	4	3	2	1	0
Perceptions & self-worth **HoM**: Questioning and problem posing **Standards**: CCSS.ELA-LITERACY.W.9-10.1	The argument effectively addresses the question of self-worth in the context of social media and makes a clear link to society's perceptions of beauty.	The argument clearly addresses the question of self-worth in the context of social media and includes society's perceptions of beauty.	The argument addresses the question of self-worth in the context of social media and society's perceptions of beauty, but lacks clarity or development in one.	The argument addresses the question of self-worth in the context of social media and society's perceptions of beauty, but lacks clarity or development in both.	The argument does not address the question of self-worth in the context of social media or society's perceptions of beauty.
Hedonism and the addictive nature of social media **HoM**: Questioning and problem posing	The report includes an insightful discussion about the addictive nature of social media and the relationship to the pursuit of pleasure.	The report includes a discussion about the addictive nature of social media and touches on the relationship to the pursuit of pleasure.	The report discusses the addictive nature of social media and touches on the relationship to the pursuit of pleasure, but ineffectively at times.	The report discusses the addictive nature of social media, though ineffectively at times, but does not address the relationship to the pursuit of pleasure.	Did not attempt.
Organization and cohesion **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **Standards**: CCSS.ELA-LITERACY.W.9-10.4	The article includes an effective introduction, a strong conclusion, and an effective organizational structure that creates a sense of unity and completeness.	The article includes a clear introduction, a conclusion, and has an evident organizational structure that creates a sense of completeness, though some ideas may be loosely connected.	The article includes a clear introduction and conclusion, BUT the structure lacks some organization and cohesion. Most ideas are loosely connected.	The article lacks a clear introduction and conclusion, AND the structure lacks some organization and cohesion. Most ideas are loosely connected.	Did not attempt.
Thesis statement and topic sentences **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures.	The thesis statement is effectively stated in the introduction, and is followed by clear topic sentences in	The thesis statement is clearly stated in the introduction and is followed by relevant topic sentences in each body paragraph	The thesis statement is stated in the introduction lacks clarity OR the topic sentences lack clarity or do not connect back	The thesis statement is stated in the introduction lacks clarity AND the topic sentences lack clarity or do not connect back	Did not attempt.

Page 2 of 3

EHS1S2U1 Performance Task

Perceptions of Social Media

Standards: CCSS.ELA-LITERACY.W.9-10.1 CCSS.ELA-LITERACY.W.9-10.4	each body paragraph that support and connect back to the thesis statement.	that connect back to the thesis statement.	to the thesis statement	to the thesis statement	
Counter argument **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **Standards:** CCSS.ELA-LITERACY.W.9-10.4	Effectively acknowledges a strong alternate or opposing claim and effectively refutes it.	Acknowledges an alternate or opposing claim and refutes it.	An opposing claim is addressed but may be unclear, OR the refutation is ineffective.	An opposing claim is inadequately and unclearly addressed AND the refutation is ineffective or missing.	An opposing claim and refutation are not addressed.
Evidence and referencing **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **Standards:** CCSS.ELA-LITERACY.RI.9-10.1 CCSS.ELA-LITERACY.W.9-10.8	Includes adequate evidence to support claims. All quotes and paraphrasing include appropriate citations. In-text citations have an entry in the works cited list.	Includes adequate evidence to support claims. Most quotes and paraphrasing include appropriate citations. In-text citations have an entry in the works cited list.	2 out of 3 of the following are true: -Adequate evidence to support claims -Most quotes and paraphrasing include appropriate citations -In-text citations are listed in the works cited list.	1 out of 3 of the following is true: -Adequate evidence to support claims -Most quotes and paraphrasing include appropriate citations -In-text citations are listed in the works cited list.	Did not include evidence.
Mechanics and conventions **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **Standards:** CCSS.ELA-LITERACY.L.9-10.1 CCSS.ELA-LITERACY.L.9-10.2	Very few errors spelling, grammar, word order, word usage, and punctuation.	Some errors in spelling, grammar, word usage, and punctuation, but these do not detract from meaning.	Some errors in spelling, grammar, word order, word usage, and punctuation which detract from meaning.	Many errors in spelling, grammar, word order, word usage, and punctuation which detract from meaning.	Did not attempt.

Total: 28 points

Appendix 8: *SS6S2U1 PT – Population Demographics + Rubric*

Grade 6 Unit 3
Population Demographics
Performance Task

Goal

Your goal is solve problems in your assigned country due to population demographics.

Role

Your role is the Minister of Economic Planning for the government of your assigned country.

Audience

Anyone interested in the future of your assigned country and helping to solve its problems.

Situation

The population of the world is quickly growing, and many country leaders are concerned about the problems this may cause. The prime minister of your assigned country has approached you to analyze the country's population, anticipate possible problems, and suggest potential solutions.

Your task is to first analyze the country's demographic data and determine what population problem this country faces, such as an aging population or a very dense population. Next, decide what problems this may cause, such as pollution, a shrinking workforce, or food shortage. Finally, think of solutions to these problems, using the examples studied in class and your own ideas to explain why you think these solutions will be effective.

Product/Performance & Purpose

You will create a report on your assigned country's population demographics
Your report will include the following sections:

- The population problem the country is facing (e.g. aging population, population density, growing population), and graphs supporting this analysis (e.g. population pyramid, graph of population growth rate and predictions on how it might change, comparisons with other countries)
- The problems that may stem from that population issue (e.g. not enough workers, pollution) and why
- Possible solutions for these problems, and why you think they'll be effective solutions

Standards for Criteria and Success

Your products will be evaluated using the following criteria:

- Identifying the population issue and resulting problems
- Proposing and explaining possible solutions
- Use correctly formatted graphs to support your ideas
- Writing an organized report with correct spelling and grammar

Written by: Katie Marquardt

Page 1 of 3

Grade 6 Unit 3
Population Demographics
Performance Task

Rubric:

	4	3	2	1	0
Defining the problem **SLO:** Identify complex problems and formulate, justify and apply solutions. **HoM**: Questioning and problem posing **Standards**: AERO.SOCSCI.3.8.f Analyze the structure and characteristics of different populations and population patterns.	Population issue is carefully identified, with thorough support from graphs and data; 2-3 resulting problems are identified and thoughtfully explained	Population issue is identified, with some support from graphs and data; 2-3 resulting problems are identified and have some explanation	Population is identified, but little support provided; 1-2 resulting problems are identified and briefly explained	Population issue and resulting problems are confusing, illogical, and/or very briefly described; support is not provided	No population issue or resulting problems are identified
Proposing and evaluating solutions **SLO:** Identify complex problems and formulate, justify and apply solutions. **HoM**: Thinking Flexibly **Standards**: AASL-21-2 Draw conclusions, make informed decisions, apply knowledge to new situations, and create new knowledge.	Thoughtful solutions are thoroughly explained; report supports the solutions using case studies from the lessons and other information	Solutions are mostly explained, though there are a few small gaps in reasoning; report refers to case studies from the lessons to support ideas	Solutions have some explanation, but are vague or contain large gaps in the reasoning; report refers to the case studies from the lessons, but they are not used to support the ideas	Solutions are confusing, illogical, or very briefly described; report does not refer to case studies from the lessons	No solutions are provided
Using technology **SLO:** Use and understand existing technology and adapt to new	Report contains 3-4 graphs; graphs are correctly labelled and formatted, and have clear	Report contains 2-3 graphs; graphs have a few minor errors in labelling and formatting, and are relevant	Report contains 1-2 graphs; graphs contain large errors in labelling and formatting, and/or relevancy	Report contains only one graph; graph contains large errors in labelling and formatting and/or	Report contains no graphs, and/or student did not make their own graphs

Written by: Katie Marquardt

Page 2 of 3

Grade 6 Unit 3
Population Demographics
Performance Task

technology in order to enhance productivity, creativity and communication. **HoM:**Striving for accuracy **Standards**: CCSS.ELA-LITERACY .RH.6-8.7Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.	connections to the content of the report	to the content of the report	to the content of the report is not always clear	is confusing or irrelevant to the report	
Organization and mechanics **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM**: Striving for accuracy **Standards**: CCSS.ELA-LITERACY .W.6.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Report has clear organization with appropriate headings; tone is consistently appropriate for the task and audience; contains almost no grammar or spelling mistakes	Report is somewhat organized, though the structure and headings could be improved; tone is mostly appropriate for the task and audience; some grammar or spelling mistakes, but they do not detract from meaning	An attempt is made to organize the report, but it is not effective; headings are confusing; tone is inappropriate for the task and audience; grammar and spelling mistakes detract from the meaning	No attempt made to organize the report; headings are missing; tone is inappropriate for the task and audience; grammar and spelling mistakes greatly detract from the meaning	Report cannot be read due to confusing organization and use of mechanics

Appendix 9: *SS7S2U1 PT – Land Use Conflict in the Amazon + Rubric*

SS7S2U1 Land Use Conflict in the Amazon

Goal

Your goal is to report on the interest groups in the Amazon region, and to find a fair solution for the conflict around land use in the area.

Role

You are a reporter and journalist for a major news network in Brazil – Brazil News Channel. You are the economic correspondent who specializes in the many different interest groups relating to the economy of the Amazon Rainforest.

Audience

Your audience is fellow economists, the national and local population and the many different interest groups in the Amazon region.

Situation

You have been asked to investigate and create a television news report on one of the groups who have an interest in using the land in the rainforest.

You will then write a magazine report on the different groups, and suggest a solution to the conflict over land use.

Product/Performance & Purpose

Part 1

In a group of four, you will create an Amazonian Rainforest News Report (presentation).

You will be assigned a group that has an interest in preserving or using the resources of the Amazonian rainforest. The groups are native Amazonians, rubber tappers, loggers, settlers, cattle ranchers and environmental groups.

You will create a news report to teach the rest of the class about your group's interests. There will need to be a News Anchor-man, Reporter, Interviewee 1, and Interviewee 2.

After the presentation, the class will ask you questions about anything they are still confused about or what to know more about. Be prepared to answer these questions.

Written by Daryl Thompson; modified by Katie Marquardt

Page 1 of 4

SS7S2U1 Land Use Conflict in the Amazon

Part 2
Individually, you will write a magazine report on the six interest groups, and propose a solution to the conflict.

It is important to analyze the perspectives of all groups, rather than defend the perspective of the group from your news report.

You will discuss the pros and cons for each group's claims, and explain why your solution will work. Consider how your solution is helpful for the community, Brazil and the world.

There will be articles available for research purposes but you may conduct your own research in addition to the resources provided. Include pictures with captions and headings in your report.

Standards for Criteria and Success

Your products will be evaluated using the following criteria:

- Presentation
  - Your public speaking skills and your use of your role in the news report
  - The content and explanation in your presentation
- Written report
  - Your explanation of the problem and the perspectives of the different groups
  - Your solution, reasons for your solution, and discuss of its impacts
  - Your writing skills, including organization, use of pictures and captions, and spelling and grammar

Rubric:

	4	3	2	1	0
News Report (group presentation)					
Public speaking skills (individual) **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM**: Thinking and communicating with clarity and precision **Standards**: CCSS.ELA-LITERACY.SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent	Student is well prepared for the presentation, and speaks confidently with appropriate speed, volume and eye contact; they accurately present their role in the news report	Student is prepared for the presentation, and speaks with a mostly appropriate speed and volume, and some eye contact; some attempt is made to follow their role in the news report, but it could be more effective	Student is somewhat prepared for the presentation, but makes little eye contact and is occasionally difficult to hear and understand; student does not have a clear role in the news report	Student is completely unprepared for the presentation, reads off the page, and/or is difficult to hear; their role in the presentation is confusing; student behaves in a distracting manner when other group mates are speaking	Student did not speak

Written by Daryl Thompson; modified by Katie Marquardt

Page 2 of 4

SS7S2U1 Land Use Conflict in the Amazon

manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.					
Content of presentation (group) **SLO**: Comprehend, synthesize and analyse complex information to further understanding and apply and share it in an ethical manner. **HoM**: Listening with understanding and empathy **Standards**: AERO.SOCSCI.4.8.a Examine the interaction between people and the environment and understand how people both shape and are shaped by the environment that they live in.	The report clearly explains the issue faced and accurately presents the perspective of the interest group; group provided clear answers to all questions in the post-presentation Q and A	The report provides some explanation of the issue, but more detail or clarity is needed; there is an attempt to consider the perspective of the group, but it could be improved; group answered most questions in the post-presentation Q and A, though answers could be explained more	The report lacks explanation, and little consideration is given for the perspective of the interest group; information has minor inaccuracies; group answered some questions in the post-presentation Q and A, but answers were low in quality	The report is confusing, misrepresents the interest group, and/or has major inaccuracies in its information; group could not answer questions in the post-presentation Q and A	Student was absent during the preparation lessons
Written Report (individual)					
Analyzing information **SLO**: Comprehend, synthesize and analyse complex information to further understanding and apply and share it in an ethical manner. **HoM**: Listening with understanding and empathy **Standards:** AERO.SOCSCI.1.8.g Analyze multiple interpretations of an historical or current event.	Problem is clearly defined, including thoughtful and accurate consideration of the perspectives of a wide range of interest groups and the pros and cons of their claim; student has done research beyond the sources provided by the teacher	Problem is defined, and the perspectives of a range of interest groups are explained, including consideration of the pros and cons of their claims, but could use more detail or has minor inaccuracies	An attempt is made to define the problem, with some consideration of the perspectives of some interest groups, but needs explanation and/or has some inaccuracies; an attempt is made to consider the pros and cons, but is brief and/or superficial	Problem definition is brief, confusing and/or has major inaccuracies, with little or no consideration of the perspectives of different interest groups; no attempt is made to consider the pros and cons for each group	Student did not define the problem

SS7S2U1 Land Use Conflict in the Amazon

Problem solving **SLO**: Identify complex problems and formulate, justify and apply solutions. **HoM**: Creating, imagining, and innovating **Standards**: AERO.SOCSCI.3.8.h Identify and explain how changes people make in the physical environment in one place can cause changes in other places AERO.SOCSCI.3.8.d Evaluate conventional and alternative uses of land and water resources in the community, region and beyond.	Solution shows a deep understanding of the different parts of the problem, including different perspectives and underlying factors; the student clearly justifies the solution and explains its impact	Solution shows some understanding of the different parts of the problem though could more carefully consider different perspectives and underlying factors; the student provides some justification for the solution; its impact could be explained more	Solution requires more explanation; and does not consider different perspectives or underlying factors; student provides little justification for the solution and/or does not discuss its impact	Solution is confusing and/or only briefly explained; no justification is provided	Student did not suggest a solution
Written Communication **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Thinking and communicating with clarity and precision **Standards**: CCSS.ELA-LITERACY.WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Report has clear organization with appropriate headings and thoughtful use of pictures with captions; tone is consistently appropriate for the task and audience; contains almost no grammar or spelling mistakes	Report is somewhat organized, though the structure and headings could be improved; pictures and captions included, but relevancy is not always clear; tone is mostly appropriate for the task and audience; some grammar or spelling mistakes, but they do not detract from meaning	An attempt is made to organize the report, but it is not effective; headings are confusing; pictures are irrelevant and/or missing captions; tone is inappropriate for the task and audience; grammar and spelling mistakes detract from the meaning	No attempt made to organize the report; headings and pictures are missing; tone is inappropriate for the task and audience; grammar and spelling mistakes greatly detract from the meaning	Report cannot be read due to confusing organization and use of mechanics

Appendix 10: *SS8S2U1 PT – Human Rights Debate + Rubric*

SS8S2U1
Human Rights Debate

Goal

You will be debating the topic of Human Rights and Censorship. Your task is to provide the best reasons with relevant evidence for your role of either supporting censorship or opposing it.

Role

You will be a speaker either in favour of or against censorship.

Audience

The debate judge and your fellow students.

Situation

You will be working with a team to prepare for and then debate the resolution.

Product/Performance & Purpose

You will work in a team of six students to either support or oppose the motion:

- Resolved: That censorship is necessary to maintain order in society.

The rules of the debate will be provided to you at a practice debate.

You will need to research and plan your strategy with your teammates. You will be assessed on your prepared speech but the real skill is in thinking on the spot and actively striving to rebut the opposition arguments.

Your team will need to backup your claims with evidence. This must contain at least one reference to the UN Declaration of Human Rights. Using statistics is also an effective debating strategy.

After the debate you will decide which side of the argument you agree with and provide a well-organized written explanation on why you support it. This summary must not simply be a copy of your debate speech. It needs to be your own personal opinion and contain evidence from the debate itself and consideration of counter-arguments.

Written by Daryl Thompson; modified by Katie Marquardt

Page 1 of 4

SS8S2U1
Human Rights Debate

Standards for Criteria and Success

Your products will be evaluated using the following criteria:

- Your collaboration and teamwork skills during the preparation periods (peer graded)
- Your public speaking skills during the debate
- Your written submission will be graded on
  - Your argument, ideas, and explanation
  - Your use of evidence
  - Your written communication skills, including organization and grammar/spelling

Rubric:

	4	3	2	1	0
Debate					
Public Speaking Skills **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HOM**: Communicating with clarity and precision **Standards**: CCSS.ELA-LITERACY.SL.8.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	Student is prepared for the debate, and speaks confidently with appropriate speed, volume and eye contact; speech has clear organization, including introduction and conclusion	Student is somewhat prepared for the debate, and speaks with a mostly appropriate speed and volume, and some eye contact; some attempt made to organize the speech, though it could be more effective	Student is somewhat prepared for the debate, but makes little eye contact and is occasionally difficult to hear and understand; speech is disorganized and/or repetitive	Student is completely unprepared for the debate, reads off the page, and is difficult to hear; speech is confusing to follow and/or much too short; student behaves in a distracting manner during other speeches	Student did not speak
Teamwork and Collaboration **SLO**: Collaborate with others successfully, including those who differ from themselves. **HOM**: Thinking interdependently	Student completes a fair share of the work, and takes a leadership role in delegating work, guiding discussion, and keeping the group on task	Student completes a fair share of the work, contributes productively to the discussion, and stays on task during the activity	Student completes either more or less work than his/her fair share, makes few and/or irrelevant contributions to the discussion, and is occasionally off-task	Student does not contribute to the group's work, makes none or inappropriate suggestions during the discussion, and is a distraction to other group mates	Student is absent during the debate preparation lessons

Written by Daryl Thompson; modified by Katie Marquardt

SS8S2U1
Human Rights Debate

Written Submission					
Argument and Explanation **SLO** : Make informed decisions after analyzing situations from multiple perspectives. **HOM**: Thinking Flexibly **Standards:** AERO.SOCSCI.2.8.e Identify issues and standards related to human rights. AERO.SOCSCI.6.8.c Describe major issues involving rights, responsibilities, roles, and status of the individual in relation to the general welfare.	Interesting and original supporting arguments are used, with clear and thoughtful explanation; several counter-arguments are considered and effectively rebutted	Supporting arguments are used, with some explanation, though there are gaps in the reasoning; there is an attempt to rebut counter-arguments, but it could be more effective	Supporting arguments are used, but require more explanation and/or connection to the debate resolution is unclear; no attempt made to rebut a counter-argument	Supporting arguments are irrelevant to the debate resolution, very briefly explained, and/or confusing; no attempt made to rebut a counter-argument	Did not provide supporting arguments
Use of Evidence **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HOM**: Communicating with clarity and precision **Standards:** AERO.SOCSCI.6.8.g Describe important documentary sources of human rights, including the English Bill of Rights, the Declaration of Independence, the Declaration of Rights of man and Citizen, and the Universal Declaration of Human Rights. CCSS.ELA-LITERACY.W.8.1 Write arguments to support claims with clear reasons and relevant evidence.	A range of specific evidence is used to support the position; the evidence is relevant and clearly connected to the argument; student has gone beyond case studies and examples discussed in class	Some specific evidence is used to support the position, though some evidence lacks detail or has minor inaccuracies; the evidence is relevant to the argument	Evidence is used, but requires more detail and explanation and/or connection to the supporting arguments is unclear and/or evidence contains some inaccuracies	Evidence is very brief, irrelevant to the argument or contains major inaccuracies	Did not use evidence

Written by Daryl Thompson; modified by Katie Marquardt

SS8S2U1
Human Rights Debate

Written Communication **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HOM:** Communicating with clarity and precision **Standards**: CCSS.ELA-LITERACY.W.7.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	The written submission is well organised, coherent and has flow between the different parts; contains almost no grammar or spelling mistakes.	The written submission is well organized and somewhat coherent; some grammar or spelling mistakes, but they do not detract from meaning	An attempt is made to organize the written submission, but it is not effective; grammar and spelling mistakes detract from the meaning	No attempt made to organize the written submission; grammar and spelling mistakes greatly detract from the meaning	Report cannot be read due to confusing organization and use of mechanics

Appendix 11: *EHSFS2I1 PT – In Memory (Eulogy) + Rubric*

EHSFS2U1 Performance Task - *In Memory (Eulogy)*

Goal

Your goal is to raise awareness about the consequences of genocide as a means for prevention, while expressing condolences and remembering innocent lives lost.

Role

You are someone who is connected to a non-survivor of the Holocaust in some way, whether from the concentration camps or at an earlier time.

Audience

The general newspaper-reading audience and other people who knew the deceased.

Situation

Elie meets and sees many people who died tragically during The Holocaust. You have been asked to write and share a eulogy for one of the non-survivors from Elie's account of the concentration camps. Specific attention should be paid to providing an emotional recollection of their life in order to properly honor their memory.

Product/Performance & Purpose

Part 1: A heartfelt written eulogy for a character that was introduced in the novel *Night,* but that did not survive The Holocaust. This eulogy will be published in the local newspaper.
Include:

- An introduction (1-2 paragraphs)
  - of yourself and how you knew the deceased.
  - of the deceased. Who were they? What were important elements of their identity?
- Personal reminiscence (2-3 paragraphs)
  - How were you touched by this person? How have they touched others?
  - What happened to this person? Provide a response to the horrific events they and many others faced.
- A discussion about the consequences of genocide and how it can be prevented from happening again (2-3 paragraphs)

Part 2: An oral presentation/performance of the eulogy.

Page 1 of 4

EHSFS2U1 Performance Task - *In Memory (Eulogy)*

Standards for Criteria and Success

Your products will be evaluated using the following criteria:
Rubric:

	4	3	2	1	0
Human Suffering and Prejudice **SLO:** Mitigate conflict and misunderstandings by empathising with others of differing world views **HoM:** Listening with understanding and empathy CCSS.ELA-LITERACY.W.9-10.3 U#1 SLO#4	The eulogy creatively and combines a discussion about human suffering and the consequences of prejudice.	The eulogy addresses human suffering and the consequences of prejudice.	The eulogy makes some reference to human suffering, AND the consequences of prejudice	The eulogy makes some reference human suffering, OR the consequences of prejudice.	Does not address human suffering, or the consequences of prejudice.
Identity and Remembrance **SLO**: Explain phenomena, formulate and test hypothesis based on empirical evidence and axioms, and critique findings to further understanding, solve problems and make recommendations for further inquiry. **HoM**: Questioning and problem posing	The eulogy creatively and seamlessly considers the factors that influence identity and the purpose of remembrance.	The eulogy considers the factors that influence identity and the purpose of remembrance.	The eulogy attempts to consider the factors that influence identity and the purpose of remembrance.	The eulogy ineffectively or insufficiently considers the factors that influence identity and the purpose of remembrance.	Does not consider identity and the purpose of remembrance.
Character Development **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Thinking and Communicating	The eulogy effectively brings life to the character and develops the experience through vivid and detailed descriptions that appeal to the reader's emotions.	The eulogy develops the character and the experience through detailed descriptions that appeal to the reader's emotions.	The eulogy attempts to develop the character and the experience through some descriptions, but ineffectively at times.	The eulogy presents a character and an experience that are not detailed or well-developed.	Did not attempt to develop a character or present an experience.

EHSFS2U1 Performance Task - *In Memory (Eulogy)*

with Clarity and Precision CCSS.ELA-LITERACY.RL.9-10.3					
Tone and Language Usage **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Thinking and Communicating with Clarity and Precision CCSS.ELA-LITERACY.RL.9-10.4	The writer expertly makes use of language to enhance the meaning of the eulogy and create a vivid tone.	The writer makes use of language to enhance the meaning of the eulogy and create a tone.	The writer attempts to make use of language to enhance the meaning of the eulogy and/or create a tone.	The writer ineffectively uses the language, only retells the events, does not create a tone within the eulogy.	The writer did not attempt to make use of the language or did not create a tone.
Organization and Focus **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Thinking and Communicating with Clarity and precision CCSS.ELA-LITERACY.W.9-10.4	The eulogy is expertly presented in a logical order and a clear focus is maintained for the purpose, audience, and task.	The eulogy is presented in a logical order and the focus is maintained for the purpose, audience, and task.	There is no clear, discernible structure OR the focus is not maintained for the purpose, audience, and task.	There is no clear, discernible structure AND the focus is not maintained for the purpose, audience, and task.	The eulogy is not written logically and has no focus.
Conventions and Mechanics **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures.	Very few errors in spelling, grammar, word order, word usage, and punctuation.	Some errors in spelling, grammar, word order, word usage, and punctuation, but these do not detract from meaning.	Some errors in spelling, grammar, word order, word usage, and punctuation which detract from meaning.	Many errors in spelling, grammar, word order, word usage, and punctuation which greatly detract from meaning.	The writing is indiscernible.

EHSFS2U1 Performance Task - *In Memory (Eulogy)*

HoM: Thinking and Communicating with Clarity and precision CCSS.ELA-LITERACY.L.9-10.1					
Delivery (oral) **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Thinking and Communicating with Clarity and precision	Speaker uses a clear, audible voice. Delivery is poised, and controlled, and the speaker makes an emotional connection with the audience	Speaker uses a clear, audible voice. Delivery is controlled and the speaker connects with the audience.	Speaker's voice is unclear or inaudible OR delivery lacks some control and connection with the audience	Speaker's voice is unclear or inaudible AND delivery lacks some control and connection with the audience.	Did not attempt.

Total: 28 points

Appendix 12: *EHS2S2U1 PT – Psychological Diagnosis + Rubric*

EHS2S2U1 Performance Task

Diagnosis of Holden Caulfield (Argumentative Essay)

Goal

Use Holden Caulfield's narrative as evidence to determine the most likely cause for his mental breakdown.

Role

You are a member of a psychiatric team charged with diagnosing and treating Holden Caulfield based on his personal narrative.

Audience

Your psychiatric team.

Situation

After suffering a mental breakdown, Holden Caulfield has been put under the care of a psychiatric facility. You are a member of the psychiatric team charged with treating Holden, and he has shared his story with you. You have been charged with analyzing his narrative in order to diagnose his condition and suggest treatment.

Product/Performance & Purpose

An argumentative essay presenting and supporting a diagnosis with evidence from Holden's narrative.

Your final product should include:

1. An introduction that includes a clear diagnosis of Holden's mental health in the form of a thesis statement
2. At least two supporting arguments with evidence from the text that relate back to your thesis
3. At least one counter argument with a refutation
4. A concluding paragraph that summarizes your diagnosis and the reasons for your diagnosis and suggested treatment

Written by: site 1 of 4

EHS2S2U1 Performance Task

Standards and Criteria and Success

Criteria	4	3	2	1
Introduction and thesis **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM**: Thinking and communicating with clarity and precision **Standards**: CCSS.ELA-LITERACY.W.9-10.4	Background is provided to prepare the reader. The claim (diagnosis) is clearly and effectively communicated in the form of a thesis statement at the beginning of the essay.	Appropriate background is provided. The claim (diagnosis) is clearly communicated in the form of a thesis statement at the beginning of the essay.	Irrelevant or ineffective background is provided.The claim (diagnosis) is introduced in the form of a thesis statement at the beginning of the essay, but may be somewhat unclear.	The claim (diagnosis) may be confusing, ambiguous, or nonexistent.
Supporting arguments and evidence **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM**: Thinking and communicating with clarity and precision. **Standards**: CCSS.ELA-LITERACY.W.9-10.1 CCSS.ELA-LITERACY.RL.9-10.1 CCSS.ELA-LITERACY.W.9-10.9	Supports thesis with logical reasoning and includes consistently strong textual support directly from the narrative for all claims. Includes appropriate citation of material without errors.	Supports thesis with logical reasoning and includes textual support for all or most claims, the majority of which include appropriate citation of material.	Claims are ineffectively supported by reasoning or textual evidence. May be some errors in citations.	Claims are not supported by logical reasoning and textual evidence.
Counter argument **SLO**: Make informed decisions after analyzing situations from multiple perspectives. **HoM**: Thinking Flexibly **Standards**: CCSS.ELA-LITERACY.W.9-10.1	Effectively acknowledges a strong alternate or opposing claim and effectively refutes it.	Acknowledges an alternate or opposing claim and refutes it.	An opposing claim is acknowledged but is unclear, or the refutation is ineffective.	An opposing claim is not addressed.

Written by:

site 2 of 4

EHS2S2U1 Performance Task

Content- Psychological disorders **SLO**: Comprehend, synthesize and analyse complex information to further understanding and apply and share it in an ethical manner. **HoM**: Questioning and Problem Posing. **Standards**:	Demonstrates deep understanding of the symptoms of the diagnosed condition(s) by effectively making connections between diagnostic criteria of psychological disorders and insightful examples from the text.	Demonstrates some understanding of the symptoms of the diagnosed condition(s) by making connections between diagnostic criteria of psychological disorders and examples from the text.	Demonstrates limited understanding of the symptoms of the diagnosed condition(s) by making loose or unclear connections between diagnostic criteria of psychological disorders and examples from the text.	Demonstrates minimal understanding of the symptoms of the diagnosed condition(s). No connections are made between diagnostic criteria of psychological disorders and examples from the text.
Content- Conformity versus nonconformity **SLO**: Comprehend, synthesize and analyse complex information to further understanding and apply and share it in an ethical manner. **HoM**: Questioning and Problem Posing. **Standards**: AERO CC Plus 953822	The student cites various specific examples of Holden's nonconformity to society, how these actions were caused by his mental state and what the consequences of his nonconformity were, including what the "conformist"behavior would have entailed.	The student cites an examples of Holden's nonconformity to society, how these actions were caused by his mental state and what the consequences of his nonconformity were, including what the "conformist"behavior would have entailed.	The student ineffectively cites an example/examples of Holden's nonconformity to society. The student includes how these actions were caused by his mental state, but details regarding what the consequences of his nonconformity were and what the "conformist" behavior would have entailed may be missing.	The student includes minimal or no citations or connections pertaining to Holden's nonconformity and its consequences.
Organization **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM**: Thinking and communicating with clarity and precision **Standards**: CCSS.ELA-LITERACY.W.9-10.4	The response has a clear and effective organizational structure, creating a sense of unity and completeness.	The response has an evident organizational structure and a sense of completeness, though some ideas may be loosely connected.	The response has an inconsistent organizational structure and lacks cohesion between ideas.	The response has little or no discernible organizational structure.
Focus **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM**: Thinking and communicating with clarity and precision. **Standards**: CCSS.ELA-LITERACY.W.9-	The focus is effectively maintained for the purpose, audience, and task.	The focus is mostly maintained for the purpose, audience, and task.	The focus may be insufficiently or ineffectively sustained for the purpose, audience, and task.	There is a fundamental lack in focus for the purpose, audience, and task.

Written by:

site 3 of 4

EHS2S2U1 Performance Task

10.4				
Conventions **SLO**: Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM**: Thinking and communicating with clarity and precision. **Standards**: CCSS.ELA-LITERACY.L.9-10.1 CCSS.ELA-LITERACY.L.9-10.2	Very few errors spelling, grammar, word order, word usage, and punctuation.	Some errors in spelling, grammar, word usage, and punctuation, but these do not detract from meaning.	Some errors in spelling, grammar, word order, word usage, and punctuation which detract from meaning.	Many errors in spelling, grammar, word order, word usage, and punctuation which detract from meaning.

Written by:

site 4 of 4

Appendix 13: *EHS3S2U1 PT - Allegorical Narrative + Rubric*

EHS3S2U1 Performance Task

Allegorical Narrative

Goal

Create an allegorical narrative revealing your subjective interpretation of how the modern day society works and functions.

Role

Writer Representative for CIA FIRST International School

Audience

The Phnom Penh Post and newspaper readers

Situation

With The Phnom Penh Post's launching of their new literary section as part of their newspaper and webpage, the publication is now looking for a thought-provoking and artistically-constructed social and/or political allegorical narrative as their first article. As one of the selected representatives in CIA FIRST International School, your goal is to **write an allegorical short story revealing your interpretation of how this modern day society deals with justice/injustice and its nuances, issues, and challenges**. Use a variety of metaphors and symbolisms to portray stereotypes, character references, and/or events. You need to submit your proofread composition to the editorial board of the publication.

Product/Performance & Purpose

Write an allegorical short story depicting your interpretation of the modern day society (Part 1) and a rationale that details and explains the allegory used in the narrative (Part 2).

Part 1: The narrative will include:
-Allegorical elements illustrating your interpretation of the modern day society
-Vivid descriptions and figurative language
-Effective sensory images that define tone
-interpretation of justice and punishment
-How interpretation of the beliefs and morals the modern day society holdseliefs and morality influence moral behavior

Part 2: The rationale will include:
-A 1-2 paragraph explanation of the allegory used in the narrative

-

EHS3S2U1 Performance Task

Allegorical Narrative

Standards for Criteria and Success

Your products will be evaluated using the following criteria:
Rubric:

	4	3	2	1	0
Justice and punishment **SLO:** Make informed decisions after analysing situations from multiple perspectives **HoM:** Thinking flexibly **Standards:**	The narrative creatively and seamlessly presents appropriate punishments for crimes committed.	The narrative effectively presents appropriate punishments for crimes committed.	The narrative presents appropriate punishments for crimes committed, through ineffective or unoriginal at times.	The narrative attempts to present punishments for crimes committed, but ineffectively and insufficiently.	Does not attempt to present any appropriate punishments for crimes committed.
Beliefs and Morality **SLO:** Make informed decisions after analysing situations from multiple perspectives **HoM:** Thinking flexibly **Standards:** Understanding #2	Insightful interpretations of morality effectively included through multiple perspectives.	Interpretations of morality included through multiple perspectives.	Interpretations of morality included, but ineffectively OR without the consideration of multiple perspectives.	Interpretations of morality included, but ineffectively AND without the consideration of multiple perspectives.	No attempt made or incomplete.
Narrative techniques **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Creating, imagining, and innovating. **Standards:** CCSS.ELA-LITERACY.W.11-12.3	Demonstrates sophisticated narrative techniques such as engaging dialogue, artistic pacing, vivid description, and complex reflection to develop experiences, events, and/or characters.	Demonstrates deliberate use of narrative techniques such as dialogue, pacing, description, and reflection to develop experiences, events, and/or characters.	Uses narrative techniques such as dialogue, description, and reflection that illustrate events and/or characters, but ineffectively at times.	The text uses some narrative techniques ineffectively and in a way that merely retells events and/or experiences.	No attempt made or incomplete.

Page 2 of 4

EHS3S2U1 Performance Task

Allegorical Narrative

Figurative Language **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures **HoM:** Creating, imagining, and innovating. **Standards:** CCSS.ELA-LITERACY.L.11-12.5 Understanding #3	Makes creative and effective use of multiple examples of figurative language (metaphor, simile, personification, allusions, hyperbole, etc.) to convey feelings and ideas to the reader.	Makes good use of figurative language (metaphor/simile, personification, allusions, hyperbole, etc.) to convey feelings and ideas to the reader.	Makes some use of figurative language (metaphor/simile, personification, allusions, hyperbole, etc.), but use may not always be effective in conveying feelings and ideas to the reader.	There is insufficient evidence of use of figurative language OR their use is ineffective or unoriginal.	No attempt made or incomplete.
Organization and cohesion. **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Gather data through all senses **Standards:** CCSS.ELA-LITERACY.W.11-12.4	The narrative is expertly organized and creates a seamless progression of experiences.	The narrative is well organized and creates a smooth progression of experiences.	The narrative may lack some organization OR may lack a smooth progression of experiences.	The narrative lacks some organization AND a smooth progression of experiences.	No attempt made or incomplete.
Conventions and Mechanics **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures. **HoM:** Gather data through all senses **Standards:** CCSS.ELA-LITERACY.L.11-12.1	Very few errors in spelling, grammar, word order, word usage, and punctuation.	Some errors in spelling, grammar, word usage, and punctuation, but these do not detract from meaning.	Some errors in spelling, grammar, word order, word usage, and punctuation which detract from meaning.	Many errors in spelling, grammar, word order, word usage, and punctuation which detract from meaning.	Did not attempt.
Allegory	The allegory	The allegory is	The allegory may	The allegory is	No attempt made

EHS3S2U1 Performance Task

Allegorical Narrative

(+rationale) **SLO:** Communicate effectively for a wide variety of purposes and audiences within and across cultures.s **HoM:** Creating, imagining, and innovating **Standards:** CCSS.ELA-LITERACY.L.11-12.5 Understanding #3	presented in the story is original, sophisticated, and multifaceted. The allegory **used to illustrate the society and its government, people, ideals, environment, and/or problems** is well-presented and justified in a rationale.	clear, original and well-developed. The allegory **used to illustrate the society and its government, people, ideals, environment, and/or problems** is presented and justified in a rationale.	be unclear or underdeveloped in the narrative OR the allegory is not justified in a rationale.	unclear and not developed successfully in the narrative AND the allegory is not justified in a rationale.	or incomplete.

Total: 28 points