How does social constructivism as displayed in contemporary educational settings in England compare to the Grossetestian view of the development of human knowledge?

Kampouri, S
Montgomery, A.
Howell, E.
Gee, N.

There are some obvious differences between education in medieval and present day England, which are set in the wider context of far-reaching cultural changes. The pace and heterogeneity of life in complex, diverse, multi-cultural liberal democracies seems to be a far cry from widely held assumptions about the simplicity and homogeneity of medieval Latin Europe. Maybe we 'no longer' have a single source of Truth, but rather different truths and alternative facts? In this chapter we explore how social constructivism is enacted in modern education and how it differs from approaches that were popular in the medieval world. We compare and contrast Grosseteste's account of acquiring knowledge to the theory of social constructivism, according to which knowledge is developed neither by accident nor by illumination. We consider the role of the teacher, the context, the student, and the educational environment with a view to 're-defining' the source of ultimate knowledge, the role of the teacher, the student and their educational environment.

The Origins of Human Knowledge according to Grosseteste and Social Constructivism

Grosseteste, in his *Commentary on the Posterior Analytics (CPA)*, is trying to identify the origins of human knowledge. In his attempt to explain human cognition he takes the Aristotelian epistemology, according to which knowledge derives from sense perception, and marries it to St. Augustine's theory of divine illumination. For Grosseteste, humans acquire knowledge by employing methods of abstraction from sense perception, while God plays a

significant role in ‘illuminating’ the objects so that they become comprehensible (Van Dyke 2009, 686). Further to this idea, human cognition is less than perfect because it is not divinely illuminated, due to its inherently sinful nature, and is formed in some senses ‘by accident’ as a result of the human’s observation of the world. Scholars including McEvoy (1982) and Van Dyke (2009) argue that Grosseteste describes this as ‘inferior cognition’ and the knowledge that humans acquire as ‘formal causes’. Cognition and knowledge are separate from the ‘first light’ which is the primary cognition, the Divine Truth and the First Light possessed only by God. It is the role of teachers, according to Grosseteste’s illumination theory to ‘internally [illuminate] the mind and reveal the truth’ (Grosseteste CPA, 33-36 cited in Van Dyke 2009, 689). This ideal, exemplary and divine image of the teacher cannot be matched by a human being, but the human teacher, nevertheless, has an important role in the process.

In a ‘social constructivist’ classroom the teacher is not seen as the ‘source of light’, or in other words as the expert who ‘illuminates our intellects ‘from within’ and who is responsible for human learning and knowledge’ (Van Dyke 2009, 689), but as a co-explorer of knowledge and truth. Similarly, the students not only acquire knowledge based on observation, but their preconceived ideas and experiences dynamically interact with new information, experimenting, testing and practising before it becomes acquired knowledge. The main activity in a constructivist classroom is solving problems. Following a more Socratic-based method of inquiry, students ask questions, investigate a topic, and use a variety of resources to find solutions and answers. These answers are then revisited and explored further. In other words, the acquisition of knowledge is viewed more as a collective process (or ‘collaborative learning’ [Brown 1999]) in which the educational environment, the teaching materials, teacher, and students all interact with each other.

Grosseteste and his theory of Illumination

What is Truth? It is a question Pilate asked some 2,000 years ago and it is still a question that beguiles, challenges, and eludes. Does truth change? Can it be manipulated? Is something true just because I say it is? Is truth an absolute or is there more than one truth – are there just different ways of looking, imparting or receiving a Truth? Does Truth bind us, or divide us? More importantly, how do we feel about the Truth?' This is not a new line of thought, and while social constructivism is a recent expression of this position, similar accounts have a longer history. In Giamattista Vico's terms (1668-1744), '... a known truth owes its existence to the mind that knows it...'. Vico's summary seems to contrast with the Grossetestian theory of illumination (for example, as developed in *De Veritate*) which is influenced by both Aristotle's Posterior Analytics and the ideas of St. Augustine (McEvoy 1982, 321). This account places importance on the awakening of the mind by abstracting from the senses, and through which God illuminates the objects to our intellection so that we can understand them.

In a time when truth was believed to be of divine essence, Grosseteste argued that the knowledge, the truths, that human beings are able to conceptualise are not the immutable ideas that St. Augustine described, but they are of different types. The first type of knowledge that Grosseteste distinguishes is a principle that is related to cognising the uncreated ideas (*rationes*) of things that 'exist from eternity in the first cause' (CPA I.7). These truths are contained in the essence of God and are possible only for those intellects who are 'pure and separated from phantasms' (Grosseteste I.7, 108-11, cited in Van Dyke 2009, 688), who receive direct illumination from God. This, though, is not the norm for most human beings. Human intellects are not 'pure' enough to access these principles because they interact primarily with physical objects at the lower level of universals or, in Aristotelian terms, the 'formal causes'.

Grosseteste argues that humans' acquisition of universal knowledge involves a process of 'abstracting from and reasoning about sense data' (CPA I.14 cited in Van Dyke 2009, 690). This is in contradistinction with the knowledge that God and angels possess without possessing sense perception. Human intellects are inferior to other minds and they need sense perception in order to acquire knowledge. The reason for this is because human intellect has been united with the corrupted human body since the 'Fall'. If the highest part of the human soul (*intelligentia*) had not been brought down by loving the earthly corporeal body, then the human could perceive knowledge without sense perception.

Grosseteste, in the CPA, continues explaining that the soul attains its vision (aspectus) only by means of desire and affection (*affectus*). The latter affect our vision, because we only see what our desires tell us to see. The focus of the soul (*affectus*) on the corporeal senses is the reason why the soul turns itself away from the 'light' and towards the 'darkness' and idleness. According to Grosseteste, this is how humans prevent themselves from gaining knowledge in the best possible way. Although this paints a bleak picture of the futility of human attempts to gain knowledge, Grosseteste is still hopeful that a way of acquiring wisdom (*sapientia*) is still possible. As the senses (*affectus*) meet with the sensible things (*intellectus*), reason is awakened (*intelligentia*) and it begins to distinguish between things that had been confused in the senses. Repeated exposure to the information received from the senses and repetition of cognitive practices such as distinctions, abstractions and judgements, awake the reason and it starts gaining knowledge of simple universals.

Influenced by Neoplatonic theories, (i.e. *Virtuous City*; *De anima* and *Commentary on the Theology of Aristotle*, Hendrix 2008, 1) Grosseteste continues in CPA by reporting that through the continuous dialectical process between the things that are perceived by the

human senses and the ones that are inaccessible by the human mind (*nous- νοῦς*), and through the strenuous process of constant observation, abstraction and judgment the human's mental eye (*occulus mentis*) penetrates and sees beyond the surface of things. Hendrix (2015) draws an example to explain this notion: if the eye sees colour, the occulus mentis sees the form of which the colour is an effect. The ability to understand and see the archetypal and intelligible forms is defined by Grosseteste as *solertia*. In other words, *solertia* is the ability of perception, the clarity of vision that the human being has when his *aspectus* illuminates his *intelligentia* and reaches its peak.

Contrasting Social Constructivism with the Theory of Illumination

Constructivist views cover a range of influential theoretical positions in education, including as developed by Piaget (1970), Vygotsky (1978) and Bruner (1996). It is perhaps best described as an epistemology or philosophical explanation about the nature of learning (Hyslop-Margison and Strobel 2008). Social constructivism has been in existence for approximately 40 years in its modern form. It is strongly influenced by Piaget's (1970) cognitive constructivism and Vygotsky's (1978) sociocultural theory. Social constructivism suggests that knowledge is first constructed in a social context and is then internalised and used by individuals (Cole and Wertsch 1996; Eggen & Kauchak 2004). Social constructivism holds that cognitive functions including learning are dependent on interactions with others (for example; teachers, peers, and parents). Therefore, learning is critically dependent on the qualities of a collaborative process within an educational community, which is situation specific and context bound (Eggen and Kauchak 1999; McInerney and McInerney 2002; Schunk 2012). According to social constructivism, learning must not only be seen as the assimilation of new knowledge by the individual, but also as the process by which learners are integrated into a knowledge community.

Social constructivism draws similarities with the Grossetestian theory of illumination In both theories, observation, or awakening of the senses (*affectus*) is important for knowledge to take place. In social constructivism, though, this awakening takes place not only by the process of observing the 'formal causes' which are challenging for humans to understand, but also from interactions and social processes, like discussing with other people, solving problems, finding answers to jigsaws or completing tasks (Lynch 2018).

An additional similarity between the two theories is on the process followed for learning to take place. In social constructivism the process of learning requires that the learner actively participate in creative activities. Moreover, those who practise constructivist theory find that 'imbalance' (or prior misconceptions) facilitates learning, in the sense that contradictions between the learner's current understanding and experiences create an imbalance, which leads the learner to inquire into his or her own beliefs and then try out new ideas. Errors are therefore encouraged, instead of being minimized or avoided. To social constructivists, knowledge is a human product, and is socially and culturally constructed (Ernest 1999; Gredler 1997). Individuals create meaning through their interactions with each other and with the environment they live in. Knowledge is constructed by active collaboration between the individual and everything that surrounds them. The process of knowledge acquisition is never ending and takes place inside and outside the classroom. Individuals can create meaning when they interact with each other and with the environment they live in. Social constructivism celebrates the process of observation, abstraction, distinction and experimentation before arriving to a judgment or a conclusion and views that the more the *aspectus* is aroused (mental vision) by the *affectus* (the senses) the better the *intelligentia* (the soul) is then formed. Similarly, the intelligentia, as it strives to reach the peak moment where

it receives the knowledge about an object (*solertia*),starts posing new questions that need to be answered in a similar way.

Although the process of learning according to social constructivism is similar to the one that Grosseteste introduced, there are interesting differences in the ways in which the processes are assumed to be experienced by individual. In particular, the latter sees the process of perception, abstraction and distinction as lonely, painful and strenuous. Whereas, in social constructivism, the process of learning requires that the learner actively participate in creative activities. Importance is placed on an active process of acquiring knowledge which results from one's interactions with other people in the environment (Gredler 1997; Ernest 1999; Schunk 2012). The human beings have to go through this process due to the Original Sin. Nevertheless, when they acquire the knowledge of the 'highest light' (i.e. God), it is God who illuminates the objects that are closer to him so that they can become visible to the human being as he is engaged with the process of abstraction.

Grosseteste's theory of gaining knowledge is described as a strenuous, painful process of perception, abstraction and judgement (Van Dyke 2008, 695). It is a process that the individual goes through on his own. Human's *affectus* helps the human to form his *aspectus* and retrain his *intelligentia* so that he can understand and learn the forms of knowledge. Perception (or observation or noticing), abstraction and experimentation are processes that humans employ in learning. These processes are also fundamental in social constructivism, but the stimulus or stimuli take on a role of greater importance.

According to social constructivism nothing is learnt from scratch (Cannella & Reiff 1994; Kroll & LaBoskey 1996). Knowledge is seen as highly subjective, influenced by the

individual's own cognition and the environment they inhabit, amongst other factors. Individual knowledge preexists and interacts with new information, and thus successful learning takes place when new ideas are embedded within old, and new experiences contribute to the formation of novel understanding. 'Therefore, a social constructivistic learner's view of the world will always be subjective, as each individual will interpret experience via a different pre-existing framework of understanding and will develop their own unique view of the world' (Draper & Macleod 2013). Social constructivists view learning as a social process. It does not take place only within an individual, nor is it a passive development of behaviours that are shaped by external forces (McMahon 1997). Meaningful learning occurs when individuals are engaged in social activities, shared experience and discussion with others. The process of sharing individual perspectives - called collaborative elaboration (Meter & Stevens 2000) - results in learners constructing understanding together. Such a construction cannot take place within a lone individual (Greeno et al. 1996). New ideas are matched against existing knowledge and the learner adapts rules to make sense of the world. Learning is seen as an active, socially-engaged process, not one of a passive development in response to external forces (McMahon 1997; Derry 1999). To the social constructivist, to learn is to see the meaning or significance in a social experience or concept. Therefore, social constructivism acknowledges the uniqueness and complexity of the individual learner, and values, utilises and rewards it as an integral part of the learning process (Wertsch 1997).

According to the Grossetestian view, the highest form of knowledge that a human can acquire are the 'formal causes' which are truths that are characterised as necessary and believed to be contained in the essence of God. Humans can acquire the 'formal causes' (as these are defined in Aristotle's *Posterior Analytics*) accidentally. These are tangible, visible facts such

as shape and colour (Van Dyke 2009). As reported in Van Dyke, Grosseteste adds that only a few enlightened ones — 'those intellects 'pure and separated from phantasm, [are] able to contemplate the first light [God]'' (Grosseteste CPA 228- 35 cited in Van Dyke 2009). The few and enlightened ones are those whose intelligentia has reached its peak and have acquired the complete understanding of God's sense (solertia). During this process of abstraction, the objects that are closer and make up the understanding of the essence of God are illuminated for them and become visible to the human being. Contrary to the Grossetestian view of human knowledge we now see through the social constructivism lenses. Social constructivists see that the human being may not be able to acquire the 'highest light' (or God) because it is in a constant process of evolving through social negotiation and development and because of social interaction and language use. This is not solely a result of observing the world but the product of many social processes and interactions, where understanding, significance, and meaning are developed in coordination with other human beings and where social worlds develop in response to individuals' interactions with and construction of culture and society. Because of the many interactions that the human being has, a focal element of social constructivism is the existence of multiple realities and not of a single ultimate truth (Draper and Macleod 2013). This notion contradicts the Grossetestian illumination theory, according to which there is a singular reality, or 'the highest light', and it can only be realised by a divine intervention to the chosen illuminated individual. The Grossetestian centrality of truth and its realisation by a 'few illuminated humans, who are free from phantasmata' (CPA 228-35) is replaced by the constructivist truth which argues that reality is constructed by the process of sharing individual perspectives, or collaborative elaboration (Meter & Stevens 2000; Greeno et al. 2006). Social constructivism maintains that while it is possible for people to have shared meanings which are negotiated through discussion, it also acknowledges that no two people will have exactly the same

discussions with exactly the same people. To this extent social constructivism believes that multiple realities exist.

Another key feature of social constructivism is problem solving. For example, if the students find a problem, they can discuss with other friends to get the solution. Learning is thus viewed as an active process where students should work to discover principles, concepts and facts for themselves, and teachers should encourage and promote guesswork and intuitive thinking in learners (Brown 1999). By setting problem solving tasks for the students, the focus is shifted from the teacher to the learner.

An additional feature of social constructivism is that of scaffolding. In its literal sense, scaffolding is a support structure that is erected around a building under construction. When the building is strong enough, the scaffolding can be removed and the building will remain strong and stable. In the metaphorical sense used by Vygotsky (1978), scaffolding refers to the support provided by others — parents, peers, teachers or reference sources such as dictionaries — which enables students to perform increasingly well (Hammond et al. 2001). If the task is not challenging enough (too much support), students will be bored and possibly become unmotivated, however, if there is not enough support, students will be frustrated and may give up. The concept of scaffolding is also linked with what Vygotsky calls the learner's Zone of Proximal Development (ZPD): the range of tasks and activities which the student can achieve with scaffolding, but which may be beyond their current abilities if they are unassisted. Once again this idea is in line with Grosseteste and his illumination theory as he believes that for knowledge to take place, the senses (*affectus*) need to be aroused. Starting from sense perception, the human employs processes such as abstraction and judgment which help them form their vision (*aspectus*) of the object of inquiry. If the human being is not

aroused by the senses then he is in his idle and dark state in which he has put himself since the Original Sin (Van Dyke 2009). Social constructivists put human perception and cognition at the heart of education. In the following section we explore the role of the teacher within a social constructivist context and we compare it to the Grossetestian teacher.

The role of the teacher

According to St Augustine – an influence on Grosseteste's theory of illumination - the role of the teacher is as the central source of knowledge. The teacher is also the one who will help the intellect train their aspectus in order to reform intelligentia, ie to reach his highest part of the soul and acquire the knowledge. The 'highest light' will also illuminate the objects that are closer to God so that the human being can comprehend the true essence of God (Van Dyke 2009, 694). In social constructivism, though, the teacher is not the one who is solely responsible for the students' learning. Learning is reconstructed to include the role of the environment and other curricular and extracurricular factors that are seen to have a pivotal role in the process by which learners are integrated into a knowledge community (von Glasersfeld 1989). According to the theory of illumination, 'the 'true teacher' [is] God, who illuminates our intellects 'from within' and who is directly responsible for human learning and knowledge' (Van Dyke 2009, 689 CPA 33-6). In social constructivism there is a shift from the central role of the teacher to the focus on the learner as part of a social group, and learning as something that emerges from group interaction processes, not as something which takes place within the individual. Constructivism has important implications for teaching (Hoover 1996). First, teaching cannot be viewed as the transmission of knowledge from the enlightened to the unenlightened as this was the 'tendency' in Grosseteste's times. Constructivist teachers do not take the role of the 'chosen illuminated teacher'. Rather, teachers act as 'guides on the side,' facilitators (Bauersfeld 1995) who provide students with

opportunities to test the adequacy of their current understandings. The Grossetestian 'higher light' illuminates the prior objects, facilitating the human being to understand the 'highest truth' in a similar way that a facilitator helps the learner to get to his or her own understanding of the content of the subject- matter. The learner in both the Grossetestian theory and social constructivism plays an active role in cooperation with his teacher, who facilitates the learning process by helping the learner connect his aspectus with his intelligentia as much as possible so that they can reach the highest form of knowledge. Gamoran, Secada, & Marrett (1998) state that in social constructivism the emphasis turns away from the instructor and the content, and towards the learner. This significant change of instructor's role indicates that an instructor as facilitator needs to display a completely different set of skills than that of an instructor as a teacher (Brownstein 2001).

Social constructivist view of learner

In a social constructivist educational settings the responsibility for learning falls on the learner, on their engagement with his peers and the teacher in discussion and active exploration of the topic of interest. While the teacher is a facilitator who guides direction and promotes new patterns of thinking, the learner needs to be exploratory and creative in self-directed research and development of new theories through innovative analysis, conceptualizations, and synthesis of prior experience to create new knowledge. They also need to look for meaning and to try to find regularity and order in the events of the world even in the absence of full or complete information. In addition the responsibility for learning is seen to reside within the learner (von Glasersfeld 1989).

From a Grossetestian perspective, the human being, the learner 'naturally' wants to satisfy their senses and their love of the corporeal things (*the senses*). Once they perceive the senses then they get through the processes of abstraction and distinction to understand them and

explain them. They are alone in this process, but this is how they awaken their aspectus (their mental vision). In this strenuous and painful process, the human being needs to train their intellect so that their aspectus is formed and reformed again and again and this will lead them to intelligentia (which is the highest part of the soul). According to Grosseteste, it is the human's responsibility to awaken their senses, but God also helps them by illuminating the prior objects that will help the human being get closer to the understanding of God's essence.

Social constructivism acknowledges the uniqueness and complexity of the learner (Wertsch 2010), and also encourages, utilises and rewards learners as part of the learning process. Social constructivism encourages the learner's own version of the truth that is influenced by his or her background, culture or knowledge of world and encourages him to make mistakes that will help him add to his knowledge Unlike the Grossetestian perspective, the learner in a social constructivist context is not viewed at the beginning of the learning process as the idle, sinful human being, but the human being who has already gained some knowledge due to their experiences or exposure to the world and is now testing them with a view to either improving them or dismissing them.

Social constructivism also stresses the importance of the learner's social interaction with knowledgeable members of the society just as Grosseteste emphasises the presence of God in illuminating human intellects for the acquisition of knowledge. Wertsch (2010) suggests that acquisition of social meaning of important symbol systems and learning how to utilize them are dependent on social interaction with other more knowledgeable people. Also he adds that young children develop their thinking abilities through interaction with other children, adults and the physical world. From the social constructivist viewpoint, it is thus important to take into account the background and culture of the learner during the learning process. The

learner's background also helps to shape the knowledge and truth that the learner creates, discovers and attains in the learning process. In the process of learning, Grosseteste draws from St. Augustine by agreeing that 'God 'lights up' the true essences of things when [the humans] are engaged in intellective activity' (Van Dyke 2009, 703). In the next section we will present an example of how social constructivism is advocated in English language teaching contexts in the UK.

The Social -Constructivist Theory in Inclusive English Language Teaching

According to the ONS website, in 2018, in the UK, immigrants made up 14% of the UK population(Fig 1). Such diversity has many dimensions including language diversity which has become a standard reality in the school. In light of this, it is important that teachers seriously consider language diversity if they are to meet the needs of all students and help them achieve academic success. These students are often referred to as English Language Learners (ELLs) or learners with English as an Additional / Foreign Language (EAL or EFL learners respectively).

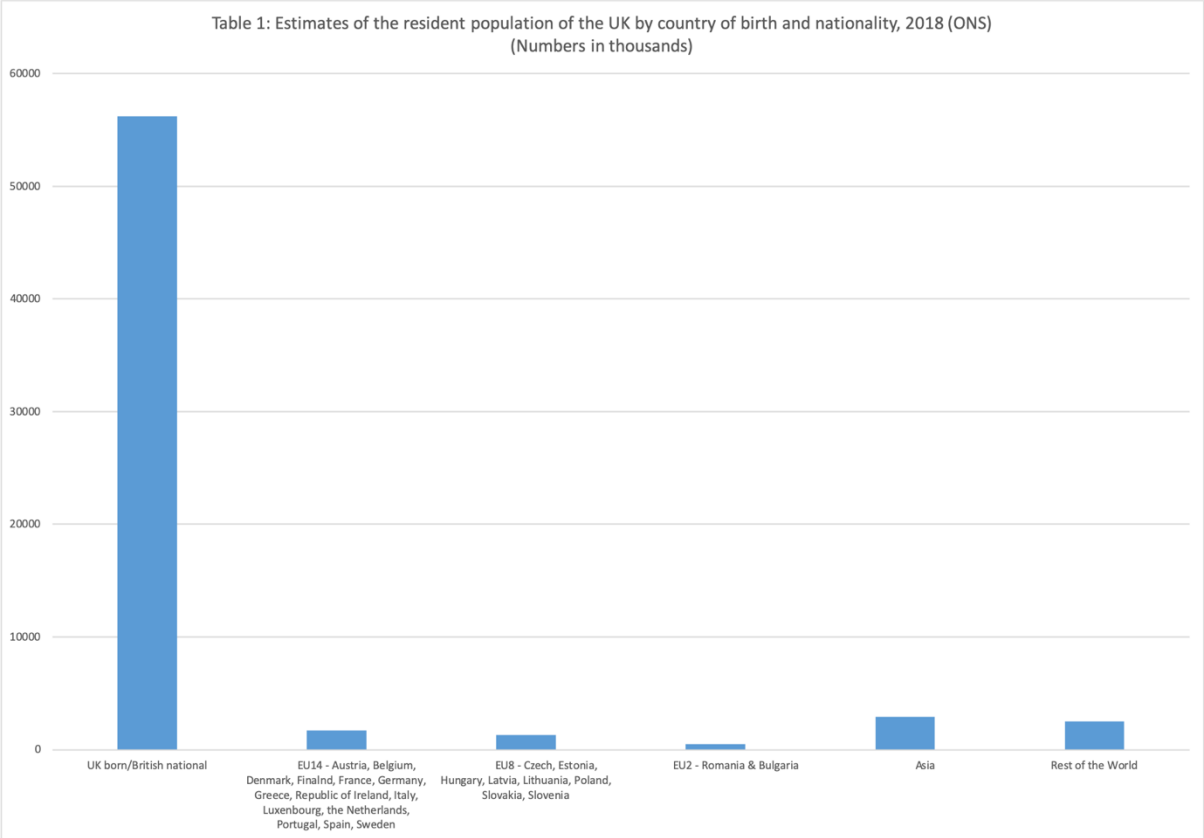

Fig.1 : Estimates of the resident population of the UK by country of birth and nationality, 2018 (Office for National Statistics https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/bulletins/ukpopulationbycountryofbirthandnationality/2018#main-points)

A classroom of diverse learners with diverse language backgrounds in an inclusive teaching setting can be a great challenge for a classroom teacher. English Language Learners pose a particular challenge to teachers as they represent such a wide range of academic abilities, English language abilities, and academic background. Additionally, cultural differences may influence the students' ability to be successful in the classroom. These learners may need to be approached with a variety of constructivist techniques such as negotiation of meaning, problem solving and general collaborative learning processes for optimal learning and a positive learning experience. In Grosseteste's words the interaction between the learners' *affectus* and *aspectus* needs to be challenged and tried with a use of a variety of processes so that the learner's intellect can form the intelligentia. This is supported by the development of

an emergent curriculum which allows for diversity and dialogue in problem solving and which builds on the prior culturally diverse knowledge that the students and the teacher bring to allow a shared understanding.

An inclusive ELL classroom is one in which ELL students and general education students learn in the same classroom with one teacher. This setting has many benefits for ELL students as well as many challenges. ELL students in an inclusive environment will be forced to use their English skills more regularly, especially with their peers. Simich-Dudgeon (1998) found that talk amongst students, especially culturally and linguistically different students, can be a great help in language acquisition, comprehension, and reflection as they all work together in negotiation of meaningful tasks. Further, student collaborative talk can greatly help the teacher understand the comprehension level of students and can help him or her to build on what students already know and make the material more relevant to students. In an inclusive environment, ELL students are provided with the opportunity to collaborate with students of all different English language proficiency levels. This may help ELL students to develop more complex vocabulary and concepts.

In practice, learning activities in an ELL social constructivist educational setting are based around joint activities between teachers and learners which are both exploratory and collaborative. In this context both students and teachers are viewed as active agents in the construction of knowledge. They develop communicative language learning techniques such as role plays, exchange of information activities and jigsaws where the student as well as the teacher can take the role of learner in an attempt to achieve discussion.

The teacher's main function is to begin a discussion by presenting a specific topic, problem or scenario. The students are then asked to discuss with each other, undertake roles, negotiate and discuss with each other in order to solve the problem. The teacher then guides the students towards the solution of the problem by means of effectively directed questions. The learners discover the answers to the problem posed by the teacher by working with their peers in groups, asking further questions to each other and to the teacher and using a variety of resources that can help them answer the question, solve the problem or put the pieces together and complete the puzzle. The social constructivist classroom relies on Vygotsky's principles of instructional scaffolding, reciprocal teaching and peer collaboration.

This approach resembles real life learning which according to Siemens (2005, 2), 'Constructivist principles acknowledge that real-life learning is messy and complex. Classrooms which emulate the 'fuzziness' of this learning will be more effective in preparing learners for life-long learning'.

Common techniques used in an ELL classroom to encourage social constructivist learning include:

- Reciprocal questioning - which encourages working together to ask and answer questions
- Jigsaw classroom activities - where a small groups of students become experts on one part of a bigger problem and each group educates the others on their specialty to attain overall conceptual understanding
- Structured Controversies – where students work together on a common goal.

Nevertheless, inclusive classrooms are not without challenges. For example, many ELL students are less likely to speak up and participate in a classroom of native English speaking students. Further, many ELL students may not be receiving the services, the attention, or the

help they need in an inclusive classroom (Ricken et al, 2006). Simply putting all students of all abilities in the same classroom is not an automatic solution. Rather, an inclusive environment is an opportunity to teach multiculturalism, to have students work collaboratively, and to allow ELL students to work with native English speakers while still receiving services and resources to be successful in the inclusive classroom. Involving students in the process of teaching and learning, utilizing collaboration amongst all students, allowing students to self-direct and work independently can all be successful methods for teaching ELL students in an inclusive classroom.

The above highlight the importance of cultural background in social constructivism. Factors such as family culture, nationality, native language and religion may have an impact on the student's learning. Therefore, culture gives the student much of the content of their thinking and it provides him/her with the cognitive tools needed for development, thus culture can teach children both what to think and how to think. (Draper and Macleod, 2013). Adults in the child's environment are conduits for these tools, which include language, cultural history, social context and more recently electronic sources of information.

Social constructivism encourages the learner to arrive at his or her version of the truth and not the one truth as conceived in the illumination theory. In the medieval times there was the notion that there is 'one truth' regardless of place, time or time in history. This is in stark contrast with social constructivism which emphasises that the individual truth is influenced by the pupil's culture. One's language, logic and other symbol systems are inherited by the learner as a member of a particular culture and these are learned throughout the learner's life. Unlike Grosseteste who in CPA states that the illuminated human needs to repeatedly go through the strenuous and painful process of perception and abstraction to take a grasp of the 'formal causes', in social constructivism, the learner is exposed to as many stimuli as

possible, in this case English language related stimuli, so that his senses are aroused as many times as possible and as he is in the habit of forming his own visions about the objects he is exposed to, he is able to form an apsectus that leads to many solertia moments that form multiple truths about the context he is exposed to (the context of the target language, in this case English) and his own identity.

Social Constructivism and Outdoor Learning

It has been suggested that some of the most powerful learning experiences and opportunities come from outside the school classroom. Many practitioners attempt to draw from this to enrich the learning experiences of their learners and their journey of acquiring knowledge and truth. What follows is an example of outdoor learning that follows the pattern of social constructivism.

Building knowledge and truth outside of the classroom

It was 9pm on Tuesday and Billy was laying flat on his back, gazing at the glistening stars above, amidst a pitch black, cloudless spring sky. Billy was a year 5 pupil from Streetside Junior School, a deprivied inner city London primary school, undertaking a 3 day residential field trip with his class to Woodlands Field Study Centre in rural East Anglia. The evening activity, magic spots, was an opportunity for pupils, after a busy day of den building and team games, to lie outdoors in silence, to gaze into the night sky and become absorbed in their own thoughts – momentarily uninterrupted by the distractions of everyday life.

On one level this particular activity inspired moving perceptions of the place of humans within the universe, aptly exemplified by the comment from a pupil: ‘I always feel so small.’ It also evidenced the co-exploration of truth, with pupils encouraged to seek knowledge and

truth within parameters set by the teacher. Relying upon multi-sensory observation, it offered the potential to challenge preconceived ideas, with a resulting dynamic interaction between new knowledge and experiences. Moreover, it revealed experiential learning as a collective acquisition of knowledge and skills in an informal setting, based around social interaction within a more fluid environment than traditionally encountered within school classrooms. Building upon the above example, this sub-section explores the potential of outdoor learning in constructing knowledge and truth outside of the classroom.

The nature of outdoor learning facilitates an approach involving the co-exploration of truth and knowledge. Aside perhaps from a traditional teacher-led field excursion (Job, 1999), approaches to outdoor learning that include hypothesis testing, enquiry, discovery or sensory approaches, lend themselves (with varying degrees) to co-exploration. These may range from skill acquisition, entailing the collection of quantitative data which subsequently yields patterns or trends, to immersive experiences where pupils embodied emotions and feelings within an environment are captured and presented via creative media such as poetry or art. The latter, in particular, exemplifies the opportunity for multi-sensory observation, which is heightened when pupils are taken to unfamiliar, or awe-inspiring out of classroom settings. Outdoor learning, is the epitome of the use of one's senses (*affectus*) in the venture to acquire knowledge of the world we live in. Unlike what Grosseteste comments on in his CPA, the human being is not using his *affectus* to 'feed the needs of the body' but to explore the world he lives in.

Learners receptiveness to challenge pre-conceived ideas can also be enhanced in an outdoor setting; where school norms, routines and relationships are also challenged. This is aligned with the Grossetestian theory of Illumination which illustrates the formation of our *aspectus*

(visions/ aspects of the things that we are exposed to in our everyday life) as long as our *affectus* is triggered. Established classroom-based hierarchies, based upon perceived power relationships and perceptions of academic performance can be transformed in a setting where building dens, scavenging or lighting fires without a match become the success criteria and the currency of reward. The teacher can also, in such scenarios, empathise with the learners and may even become uncharacteristically disempowered. Whilst this actually aligns with some views of Grosseteste, whereby the teacher is viewed more as a facilitator who trains the learner to align their *aspectus* and *intelligentia* to acquire knowledge, this represented a massive shift.

Such experiential learning, and the collective acquisition of knowledge and skills in a new environment, forms the basis of much outdoor learning. Physical activity, practical dimensions, first-hand participation and embodiment in situ can all be readily embraced by the dynamic interaction of new knowledge and experiences in a learning context where motivation levels are increased (Boyle et al. 2007; Dillon et al. 2005) and cognitive outcomes enhanced (Ballantyne & Packer 2002; Rosenthal & Lee 2009).

Fluid social interaction acts as a catalyst in an outdoor environment where group cohesion and social relationships can flourish (Farnham & Mutrie 1997; Gee 2015; Mygind 2009). This includes teacher-learner relationships, whereby the absence of formal, school-imposed protocols and barriers, proliferates opportunities for co-exploration .

There are inevitable interactions between the above domains, but they are all underpinned by a social constructivist stance. Whilst the awe inspiring enormity of the universe, long-ago questioned by Grosseteste, still engenders curiosity and enlightenment amongst pupils like

Billy today, understandings and meaning in outdoor contexts are founded upon novel settings and the resulting attitudes and relationships they can create.

Discussion

Grosseteste, being a powerfully original thinker of his time, introduced in the CPA the idea that knowledge and its acquisition is based on whether the individual, who is bound to look towards the darkness, employs the methods of sense perception, abstraction and judgment to awake his senses (*affectus)* and by forming new aspects or visions of the objects that surround him (*aspectus*), he can retrain his intelligentia and grasp some aspects (*solertia*) of the one truth, the highest light, the perception of God. The teacher, in Grossetestian time, is the one who pours his knowledge to the individual and he helps him in this painful and strenuous process. Nevertheless, the intellect is not alone in this process. God helps him by illuminating the objects that are close to him and that will help the individual perceive some aspects of God. If the intellect goes through this process repeatedly, then he might be able to perceive God and this is when he is illuminated.

In modern education, and in social constructivism, the learner tries to awaken his senses as much as possible. He is not reliant on the teacher only, but on everything that surrounds him. He tries to figure out why the objects that surround him (the language items, objects that he finds outdoors, that he observes when playing with other students) awaken his senses and trains his aspectus again and again. Even if he makes mistakes and his aspectus is trained based on erroneous ideas, this is not wrong as long as he understands it and starts the process again. In other words, if the objects that surround the learner are not illuminated, this will just be an opportunity for the learner to start the process again.

The emphasis on social and contextual variables affecting the learning and production of the target language is central when exploring the acquisition of knowledge in English language teaching. For English language learners, language provides the power to go beyond the immediate context of learning, the physical learning environment, and to think about and talk about the events and objects that are far removed, both physically and temporally. Inclusive English language teaching that encourages social interaction and utilises and rewards the uniqueness and complexity of their learners provides continued opportunities for learners to bring together both internal and external factors, symbolic and material artefacts, in an attempt to mediate the relationship between learner and the social world, awakening the affectus and preparing the aspectus. This process allows language learners to actively acquire knowledge and develop their own truths collaboratively with everything around them, awakening their intelligentia and reaching levels of moments solertia. Unlike Grosseteste, social constructivism theory encourages learners to arrive at his or her version of the truth and not the one truth, something that inclusive English language classrooms embrace and promote. These learning environments allow for repeated exposure and practice of cognitive practices, where errors are positively received to pose new questions and used to assist English language learners who strive to reach new levels of understanding and achieve solertia. In outdoor contexts, the dynamic and interactive environment results in a heightened deployment of the senses, which affords multiple and ongoing opportunities for learning based upon arousing the *affectus*. The space and freedom of outdoor settings can also yield greater reflective opportunity, to effectively formulate the *aspectus*, retrain the *intelligentia* and achieve moments of *solertia*. This links to the rich social constructivist learning opportunities, built upon emotional and social engagement within a liberating out-of-classroom environment, where deep gains in cognitive, affective and social domains can be achieved. Medieval norms of hegemonic teacher power and knowledge, which are challenged

by aspects of both Grossetestian and social constructivist perspectives, are also tellingly disbanded in outdoor learning, where a facilitating role can yield transformatory learner self-discovery of knowledge and understandings.

Conclusion

In this chapter we have explored differences between the historical Grossetestian and modern social constructivist models of learning. We have shown that, despite their shared aims to illuminate the process of learning, and thus 'acquiring the truth', their perspectives are frequently in stark contrast with each other, and in places offer quite different recommendations for teaching practice. Grosseteste made a considerable contribution and helped to establish the formal study of education when it was still in its infancy.

In the Middle Ages the source of knowledge was coming from the individual, the teacher who had the 'knowledge'. This individual, could transmit the knowledge of the 'factual causes' — the visible and tangible concepts that the human mind can understand. Grosseteste married the Aristotelian concept of inquiry with the aim of acquiring the truth to St. Augustine's theory of learning that favoured God's intervention in the process of learning. Constructivism, on the other hand, removes some of the weight from the teacher's shoulders – they are no longer seen as the source of all knowledge – and places focus on the learner, and his interaction with the teaching context and the general environment. Nevertheless, as the sections on inclusive and outdoor learning showed, the nature of knowledge according to social constructivists exists only in relation to the culture and society where the learning takes place (Resnick 1996). The teacher's role is that of facilitator in the student's learning process, creating a learning environment that will promote collaborative learning techniques, such as

problem solving, negotiation of meaning and experiential learning as shown in the section of outdoor learning.

As was alluded to at the beginning of this piece, to appreciate fully the contribution made by Bishop Grosseteste to learning, the reader needs to remember the cultural and social context within which he lived. There may be social mores accepted then, with which we now profoundly disagree. Moreover, the intellectual landscape has changed significantly in terms of shared understandings about the concepts shaping our understandings about education and knowledge. For the Social Constructivist, learning is a constant process of interaction between an individual, their environment and individuals both within and without the classroom. Social Constructivisits encourage experimentation, getting things wrong to get to the right answer. Grosseteste too experimented, and encouraged others to do likewise. But this process was seen as an interaction with God who illuminates a pathway to a single Truth. For the Social Constructvist and the modern education landscape there is not a single, linear Truth, rather an individual will have their own perception of truth which may be multifaceted. The veracity of the knowledge that the students gain is constantly questioned by interacting with their peers and teachers, and the activities and the challenges they are asked to complete. It is also argued that the path to the acquisition of knowledge is not for one person to walk on their own. Rather the co – exploration and interaction with stimuli, the environment, and everything that surrounds the individual, can play a role in the construction of Truth.

Other implications of the discussion that are important in the acquisition of knowledge and learning, relate to the role of technology and social media. The rapid advances of technology and the inundation of information via social platforms constitute an additional source of learning, awakening the learner's affectus and forming of their intelligentia. The more

accessible the information and the easier the interaction with people from other parts of the world are, the easier it is for individuals to challenge their preconceived ideas, compare their already-acquired knowledge with the new ideas and form new Truths. Apart from the relativity of one's Truth, it is also argued that the nature of the Truth that each one acquires can be everchanging, depending on their exposure to, and interaction with, technology.

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