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Faculty for Humanities, Social Sciences and Education

## **Facilitating For a Conscious Awareness of Oneself Through Literature**

Using *2001: A Space Odyssey* as a facilitator in the classroom for enhancing student's perspective taking and capacity to mentally time travel

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## **Abstract**

This thesis aims to show how literature can be used to facilitate a deeper understanding of ourselves and our imaginative mind, inside and outside the classroom. The novel that will be used as an example is Arthur C. Clarke's renowned *2001: A Space Odyssey* (1968). The novel revolves around Clarke's worldview and speculations about the future, musing on the existential questions which have puzzled our species since the time of the first abstract thought.

The novel's challenging qualities make it usable for what the new Norwegian curriculum (2017) wants to promote in the modern classroom. Through discussions and creative writing one can create an arena which promotes metacognition, openness, curiosity, and self-awareness. By promoting these abilities one can enhance the student's ability to use imagination generatively and help create an understanding of oneself and others.

A national curriculum is a sensible benchmark to evaluate where we are as a society and what values and attitudes we cherish as a culture. This thesis therefore represents an interval-timed checkup to see where we are and where we are heading as a species in relation to Clarke's view on the world. While the thesis offers analytic observations about our society, it also aims to suggest how we should progress in the classroom to help the next generation become more aware and more responsible than what we currently are.

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# 1 Introduction

Every day we as humans travel to a lived, imaginative, or historic past through our minds – our imagination. We have this ability because our mind is a wondrous place, a place full of knowledge, opinions, memories, prospectations, and values. Everything we know about ourselves, the world, and the infiniteness of the cosmos we know through our mind. It is the constant working centre of our consciousness and is tirelessly providing us with abstract visualizations of our every-day-journey. On the other hand, it is difficult to *know* the mind itself. An awareness of ourselves is not something we are born with, but rather something we learn through experiences and impressions throughout our life. By exposing ourselves to new perspectives, ways of thinking, new information, and different values we can metacognitively become aware of our own personality and our own way of viewing the world. This process is not sudden but is rather a continuous development which evolves throughout our lives, helping us transcend what we once were and altering us toward the person we are in the present; it is a formative progression of the *self*.

Through our everyday lives we encounter vaguely familiar situations, but through literature we have the possibility of confronting completely different scenarios which we have never considered before. We can step into the world of the past, an alteration of the present, or into a distant future which has never been thought of before. Fictional literature provides its readers with a door into an imaginative world of occurrences, unmatched by any experience from our own life. It invites the reader to use the immense imaginative power of the mind to make sense of what we are reading, and often challenges our perceptions about humanity, the world, and ourselves. What we can experience is not real in a physical sense but is rather a rendering of a possibility which gives a sensation of experience. Fictional literature can work as an excellent facilitator for gaining these new perspectives and experiences that literature can present. I will argue that this can be done particularly well through science fiction, and especially through Arthur C. Clarke's *2001: A Space Odyssey* (2001).

Through science fiction's imaginative property of exploring the *what if* scenarios, it holds tremendous value for teaching hypothetical and speculative thinking. In this paper I will expand upon this point, showing that science fiction has a vast potential for teaching values and critical reflection in the classroom. More specifically I will examine how one can use Arthur C. Clarke's renowned 1968 novel *2001: A Space Odyssey*, in the classroom to facilitate the student's ability of perspective taking while making them aware of and enhancing their capacity

to mentally time travel. I will combine recent research on the imagination with didactics and the Norwegian core curriculum to show how Clarke's novel is particularly well suited for this purpose. *2001* puzzles on the existential questions of life, consciousness, and where we are heading as a species. It was written during a time which was coloured by the threat of nuclear annihilation and pessimism but has an outward positivism towards space and societal progression. It instils its readers with well-founded perspectives on our evolutionary past, technological dependence, artificial intelligence, and extra-terrestrial life. It challenges morals and religious beliefs, promoting self-awareness and metacognition.

This thesis aims to highlight how we as a society have progressed since the time Clarke wrote the novel, and how our consciousness and imagination has evolved from the time of the first abstract thought. I aim to address the importance of our imaginations, and the rewards which can be achieved by becoming aware of our own thinking and reflection. Science fiction, and Clarke's novel particularly, has a special appeal to – and a unique potential to shape – children and young adults. For students, it is useful to think abstractly and ponder our existence, even though it can arouse some discomfort and existential despair. The harsh reality of existence might seem unpleasant for some, but the important thing is how one discusses these things and in turn how one can turn existential despair into experience and wisdom; it is an important part of maturing. There are great benefits to having understood the reality of existence – or obtaining the realization that there is no logical reasoning behind it. No matter which conclusion a reader reaches, the reflection which is required for reading and understanding Clarke's novel is remarkable and will enhance students' perspectives of the world and life, heightening their reflection about themselves, laying the foundation for an awareness of awareness.

Science fiction is a genre that has long been somewhat marginalized by the “literary cultural elite” in discussions of canonical literature. One of the leading advocates for the modern western perception of canonical literature, Harold Bloom, even avoids promoting science fiction, as seen in his work *The Western canon: The Books and Schools of the Ages* (1994). Despite this, contemporary critics have started to value science fiction, it even being claimed as an immersive part of modern society, and that society has grown into science-fiction on account of its post-industrialism (Csicsery-Ronay, 2012, p. 1). Through this it has flourished during the last decades, proving to be a valuable arena for discussing climate change, political situations, and the higher meanings of existence. Csicsery-Ronay has even claimed that through its critical self-awareness as a literary genre, it obtains richness in its ability to reimagine the world with a passion recognisable with the commitment of political movements (p. 1).

In the classroom the potential of science fiction is even more prominent. Science fiction is a tremendous arena for inspiring and stirring curiosity of the young. Science fiction stories can operate as building blocks in the shaping of an individual and can provide essential positive attitudes towards the future and towards science and technology through utopias, while simultaneously warning about their dangers in dystopias. Among younger readers, fiction is the most enticing and appealing genre as it can be seen as a more motivational genre, with easily recognisable characters and new and exciting scenarios (Carlsen, 2018, p. 124). The younger generation today absorbs much of its cultural perspectives from social media, which gives schools an even greater responsibility today in exposing and teaching pupils about how we as a society want to be seen, and how we wish to see others, a theme often portrayed through science fiction.

## **1.1 Structure of the Thesis**

Through this thesis I will try to suggest ways of using Clarke's novel to educate and prepare students for their further progression in life. To be able to present my suggestions I will first introduce my theoretical framework. I will discuss how science fiction has emerged as a prominent genre during the last century, and what role Clarke has had in making it reach its current popularity. I will then introduce the term mental time travel, as it is used in modern neuropsychological science: a term crucial for understanding our brain and our imagination. Lastly, I will introduce the didactical terms relevant to the novel's use in a modern classroom: metacognition, perspective-taking, and intercultural competence. I will use the new Norwegian curriculum as support for which type of information we want to promote among students today.

During my analysis of the book, I have divided the novel into three distinct sections: the first part portraying our man-ape ancestors three million years ago, the second part portraying a journey to the moon in 1999, and the third part portraying an expedition to Saturn in 2001. Firstly, we have the section about the man-apes and their education from the monolith which was put on earth by extra-terrestrial forces. I will analyse what Clarke suggests through his portrayal of the man-apes and their mental evolution, then I will discuss how this part can be used in the classroom. As part two, I will discuss human's mental and technological progression which has led us to the moon and to the discovery of another monolith. I will, together with a discussion about Clarke's vision of the future and about aliens, look at how one can use the elements from this part as a facilitator for decentring perspectives and gaining metacognition in the classroom. Lastly, I will show how Clarke portrays the technological progression that

has led humans to the invention of artificial intelligence, and the perils which constant technological advancements can lead to. The perpetual availability and dependence on technology in the modern society will be stressed with a discussion about how to educate students about technology's impact on ourselves and our society.

In my final section of this paper, I will have a general discussion of the novel and compare it to the current situation which we find ourselves in. There were many pitfalls which lay between Clarke's time and our own, and there will not be any fewer difficulties as we progress forward. We are a society in constant progression, and sometimes it is good to stop and reflect on where we are and where we are heading, and that is what this paper is trying to highlight. Clarke confronts us with existential questions which we may never find the answer to, but meditation upon these questions may become rewarding if discussed in the right forums.

The ability of altering and decentring our perspectives is important throughout our lives when we are in communication with others and is an act which shows humility which we want to instil in students. Mental time travel allows us to use our imagination generatively, to become aware of our memories and projections into the future, and to see their influence on us as individuals. The elements have strong connections to what defines us as persons and becoming aware of these could potentially become essential in the "citizenship education" from young adult into grownup. Reading literature in a classroom, with subsequent relevant discussions can help foster an interest in literature, and an awareness for the perspective of others. The vast diversity that a classroom represents will help show how differently people reflect on similar subjects and how exceedingly differently their imagination works. We are all individuals and accordingly we all interpret things in a subjective manner. As a teacher one is not there to push a point-of-view on the students, but rather to introduce a way of thinking to the students which will enhance their capacity to think abstractly and evaluate differing scenarios they may encounter, preparing them for the world that lies beyond the school-bench. It is a big task, but with help from literature, science, and the new Norwegian curriculum (Kunnskapsdepartementet, 2017), teachers can help lay the foundation for independent, thinking individuals.



## 2 Theoretical Framework

Throughout my paper I will be discussing several large and complex topics, therefore, before getting to a discussion about the topics a foundation of the theory which will be discussed needs to be in order. In the following section there will be a discussion about the genre which will inhabit the entirety of this paper, namely science fiction, and also mental time travel and didactical perspectives. Science fiction is a genre which has been subject for much discussion. For effective measures, much of the theory discussed here revolving science fiction is based on relevant chapters from the 2003 edition of *Cambridge Companion to Science Fiction*, adding more recent and up-to-date sources to reflect subsequent developments. Through the imaginative nature of the genre, science fiction allows for creative freedom. Another term which is not necessarily inspired by science, but which is a science fiction element, and is highly prominent in the novel *2001: A Space Odyssey*, is 'mental time travel'. The term has experienced marginalization in science for several decades but has through Corballis (2019) and Suddendorf & Corballis (2007) been reintroduced into neuropsychological science. The main components accounted for in the term is the important concepts of *memory* and *imagination*. These human abilities are vastly important when working with literature with students in helping them become aware of their own prospection and perspective of themselves and others. How these terms can help enhance a student's perspectives will be looked at together with relevant teaching materials and compared in relation to the new national curriculum presented in Norway (2017).

### 2.1 Introducing Science Fiction and its Sub-Genres

Science fiction has changed dramatically from its first emergence in, some would argue, Mary Shelley's *Frankenstein* from 1818. Through the genres metamorphosis it has evolved into a liberal genre which builds on innovation from science and holds a valorization of scientific truth. It is a genre which is known for challenging the acknowledged truths in society and our presumptions of our existence. Through its vast scope and potential to address several issues which reflect the zeitgeist of society, science fiction holds a special role for being used together with a younger audience. It has an immense possibility in providing its readers with new perspectives, from people never encountered, and scenarios never thought of before. From its popularization in modern media, science fiction now holds a great position for shaping both society and scientific funding, making the thought experiment which is science fiction equally important in literature as any other genre.

*2001* challenges many of our fundamental values and takes us on a journey beyond the known life on Earth. The novel belongs, quite clearly, in the genre of science fiction as it emerges vast topics as space and technological progression. Because technology is the core element of science fiction, science, and the potential of modern science, will always be what encapsulates its stories. Science fiction usually has its roots in the modern world, and the potentials which are present at the time. Some stories go on to become timeless because they assess an issue which will never be solved, or they project a future which is improbable. How an author chose to do this is either by making a story which involves realistic science, often referred to as *hard* science fiction, or through more fantasy-inspired storytelling, referred to as *soft* science fiction. Even though a story is soft, it does not entail that it is not rooted in science at all, it merely takes more artistic freedom from the constraints of science. Hard science fiction tends to present something potential, as Aristotle claimed, something that might happen (Aristotle, 1451a-1451b, trans. 1926. Gathered from Menadue et al., 2020, p. 3). Literary critic Andrew Butler claimed that even though the science portrayed in science fiction may vary, the genre still hold responsibility to a valorization of the scientific way and to scientific truth (2003, p. 139). Science is what unifies the genre, despite the language its written in and despite cultural understanding; science is the Lingua Franca.

Science unites the genre, and a common denominator is often that it explores the possibilities of a *what if* scenario. Farah Mendlesohn explains that this is where science fiction often differentiates itself from other contemporary literature, because in science fiction it is often *the idea*, the potential of science, which is the hero of the story (2003, p. 4). The stories do not need to have an explicit hero, but often have a person acting in the name of science, exploring the possibilities of what is possible if one is to follow a branch far enough. Arthur Clarke once claimed that “[t]he only way of discovering the limits of the possible is to venture a little way past them into the impossible” (Clarke, 1973, p. 189) This quote encapsulates science fiction and its vast possibilities. By starting with a vague potential, one can follow it until it becomes a possibility and eventually a dream, a future to envision, and a palpable tomorrow. Science fiction allows the author to take a given scenario and render it as far as he pleases, making it into a vision for all. The possibilities of the genre are immense and has a vast potential for showing its readers new perspectives through new encounters, never thought of before.

In its peak during the 20<sup>th</sup> century, science fiction authors received immense popularity among its audience. Even though contemporary authors do not receive the same recognition today, more science fiction is being written than ever before. Science fiction emerged in popular

fiction with the magazine era during the late 1920s. Many will argue that the first science fictional text had been published long before this, with works such as *The Coming Race* (1871) by Edward Bulwer-Lytton, *The Time Machine* (1895) by H.G. Wells and *Frankenstein* (1818) by Mary Shelley (by many seen as the first science fictional novel). However, the genre exploded on a new scale during the 1920s. Author Brian Attebery has written about *The Magazine Era* of the 1920s up to the 1960s, claiming that the stories presented at this time were often focused on lost worlds, mysteries and were scarcely disguised western fiction (p. 34). Complementing to what we can recognise as soft science fiction; although the stories often addressed a scientific potential, it was rarely rooted in science itself. Science fiction changed a lot in the decades after its first emergence, with the magazine era being the inspiration for the generations to come. The genre took a leap into becoming more centred on the prospect of scientific truth and became a mode of predicting the future, as David Seed also acknowledges in an example in his 2013 book: if a nuclear war never can be experienced beforehand and therefore only imagined, then science fiction reserves a space for predicting the future equal to sociological and strategic speculation (p. 4). Science fiction became a genre for social, political, and scientific speculation, opening up the realms for hypothetical and exciting futures.

Science fiction as a genre emerged at the same time as modernism in literature reached its peak (Butler, 2003, p. 144). During the 1960s – a time of impending danger of nuclear annihilation – a growing set of authors decided on writing about the perils they saw as realistic (Broderick, 2003, p. 48), taking a step away from the popular style which involved monsters and alien invasions. The people who grew up after the second world war saw the world with potential to outgrow the *childish* and power-seeking endeavours of human behaviour. Society was in a phase of constant technological growth and feverish abundance. The world became more polarized at the same time as it became more closely connected and broadly broadcasted. Science fiction gathered inspiration from this societal growth, and the works became increasingly technological and political. Damien Broderick, in his contribution to the *Cambridge Companion to Science Fiction*, also writes that the 1960s and onwards differentiated itself from earlier science fiction in that the fiction now was open for interpretation and based itself on epistemology (2003, p. 62). The writing was no longer for readers to merely accept as acknowledged truths but rather invited the readers to make sense of the texts in their own way; in this regard science fiction grew immensely during this period, both in *intellect* and in audience.

A sub-genre of science fiction, which suits nicely into the novel which will be discussed in this paper, and which was a prominent genre during the space age, is what has been coined as *astrofuturism*. The term was introduced during the 1950s build up to the space race between the Soviet Union and the United States and refers to the writing which encapsulates the space explorations and the hard elements of science fiction, having been claimed to concern education as much as entertainment (Kilgore, 2003, p. 2). Our author, Arthur Clarke, is seen as one of the leading, and most influencing figures for both the emergence and popularity of the sub-genre, as he extended the “scientific and ideological basis for the space future illustrated in his stories and novels” (Kilgore, 2003, p. 111). With a basis in science and the possibilities of what is manageable to achieve in the future, astrofuturism is a narrow genre, but is proven as a prominent genre for serious fictional works. Its importance may lay in its portrayal of the future and how the future will differ from the reality we are living now. It therefore opens vast possibilities to envision the future, just as Arthur Clarke did in *2001: A Space Odyssey*.

The *Companion* includes several chapters from recognised authors who help to define and place science fiction in its subsequent place in time. The genre has experienced extensive changes from its first emergence, and even though the fundamental idea about the genre is the same, the composition and centre of attraction is almost unrecognisable from its first appearance. Science fiction has the scope that it can revolve around mysteries, fantasy, science, and space-travel. While it has this extended range, it becomes easier when dividing it into the two sub-genres *soft* and *hard* science fiction. Soft science fiction is often associated with fantasy and plots and ideas that exceed the foreseen possibilities of science (Westfahl, 1993), whereas hard science fiction often revolves more around the scientific aspect of the story, trying to remain rooted in reality. Kathryn Cramer claims in the *Companion* that a story is hard if its central elements are knowledge of science and technology (2003, p. 187). Hence, as this is what Arthur Clarke so prominently does, hard science fiction is what will be discussed most throughout this paper.

### **2.1.1 Arthur Clarke and Science Fictions Potential to Shape**

One of the leading protagonists for the emergence of scientific science fiction was, as mentioned, Arthur Clarke. Whereas many hard science fictional writers focused their thematic on the mathematical equations that could be solved or applied in science in new and exciting ways, Arthur Clarke always had an ability to incorporate the science subtly in his novels; the science behind space travel or artificial intelligence is rarely discussed in his stories but still work as an integral part of the stories. Clarke had a characteristic of implementing his stories

with an encounter – though rarely a physical confrontation – with extra-terrestrial life. Several of his more known stories are famous for containing the element of a discovery of long abandoned life, while simultaneously implementing realistic prospections and implications of science, society, and politics. Even though confrontation with aliens is usually not associated with the sub-genre of *hard* science fiction, Clarke's writing manages to encapsulate the raw human reaction to such a discovery, rather than emphasising the ramifications of a physical confrontation with an extra-terrestrial being. In his stories we rarely *meet* the 'aliens' themselves, but rather meet a relic – a monolith or an artifact – of some kind, which serves as a memento of times that have passed and humanity's role in time. Clarke is also one of the advocates for the transformation within hard science fiction from the rocket merely being a mode of transportation to addressing its destructive powers as an instrument of mass destruction. The polarized world in which he lived was easily applicable to his novel *2001* where humans still were in disputes over warheads.

For some time, there has been a discussion about the content of science fiction; What it is that constitutes science fiction, and if it is a genre in itself. Christopher Menadue, Kristi Giselsson and David Guez did an empirical survey about what the audience – the readers – of science fiction saw as the core elements the genre. One must acknowledge that critics, writers, and readers might have different conceptions of what science fiction is, but through a quantitative perception of literature the public has the biggest impact. The findings from their studies show that technology – and all its corresponding synonyms – is the core element of science fiction (2020, p. 14). Science fiction, and especially hard science fiction, differentiates itself from other genres in that it bases itself on science and technology with an emphasis on the possibilities of future happenings. Aristotle defined *poiesis*, his perspective of 'creative production', in his work *Poetics*. His definition of *poiesis* merges subtly with the modern perspective of science fiction:

A poet's object is not to tell what actually happened but what could happen either probably or inevitably. [...]. The real difference [*between a historian and a poet*] is this, that one tells what happened and the other what might happen. [...] poetry is something more scientific and serious than history (Aristotle, 1451a-1451b, trans. 1926. Gathered from Menadue et al., 2020, p. 3).

The modern role of science fiction is often referred to as exactly this; telling the tales of what could happen and what might be inevitable if we follow our current trajectory of technological

evolution. In this regard, science fiction can provide remarkable insight to societal and cultural perspectives, projections, and speculations.

As science fiction opens for the countless possibilities through science it also inherits a potential for political awareness. Through this, science fiction writer Ken Macleod has claimed that as the genre follows scientific notions, its philosophy is essentially liberal (2003, p. 231). New ideas and new concepts are being tested and brought to life through novels, and since the writers of science fiction are often highly educated, they have also previously been contacted in relations to government-related issues (Cramer, 2003, pp. 192-3). Even though some science fictional works clearly are politicised and inherit a specific political view, it is not to be confused with politics itself. Hard science fiction tends to concern larger issues relating to the human mind—issues that transcend local political concerns. It has a potential to be eclectic in what it chooses to focus on, but the genre usually addresses the void in our understanding of the universe and our existence (Butler, 2003, p. 140). The genre is unparalleled in its vast potentiality of confronting the unknown and providing its readers with a perspective seldom imagined in solitude. Science fiction channels the unspoiled imagination we once obtained as children. We have all pondered about the meaning of life, the vastness of space, and been entranced by the illusion that the world egocentrically revolves on ourselves. Science fiction contains a naivety that can potentially appeal to us all in a deep, but real, sense.

Because it concerns such fundamental questions about the self and the world, science fiction appeals especially, and has a particular potential to shape, children and young adults. Science fiction is the mainstream mode of projecting the future, as it is more widespread than scientific projections (Menadue et al., 2020, p. 2). The images, and stories we are being told of the future come to us most often through literature and in cinematic forms (Clardy, 2011, p. 37). Even though one may wish for more popularization of scientific forecasts, science fiction is more popular and hence holds an important and inspirational role. Because of cinematic and literate popularity, it also plays a vital role in scientific funding; the popular themes from science fiction often receive more scientific funding, as shown in a paper by Olivia Bina et al., in an attempt to influence the European Union (2017). Overall, popularity in science fiction can help shape the future, both in scientific funding and in inspiring the young. Linda Orthia (2019) showed this in an empirical study where she discovered that career- and education-choices of viewers of *Doctor Who* were noticeable impacted by the series, and she also emphasises that it impacted their “views on science’s place in society, and the ways they think about solving problems and the future” (p. 14). Science fiction’s role in society and in shaping the young is unique and

immensely important. It can inspire and provide the young with positive attitudes towards science and technology, while simultaneously warning about the dangers of science and technology. The perspectives one can obtain from reading science fiction are invaluable and can be an essential part in shaping a person's identity and individuality.

Science fiction is a thought experiment. When used in a classroom together with students it can help them challenge traditionally accepted truths and see the world with a more sceptical perspective. Since the genre inherits the speculative *what if* characteristic, it can take the students on a journey of what could have been if "this or that". Sociologist Cheryl Laz (2020) termed this ability that science fiction possesses an ability of being *true*, but not necessarily *real* (pp. 54-5). Science fiction is not actual, it is not what has happened, but it is still truthful because it is agreeing with reality, it conforms to what is real and actual. For students, when encountered with a possible scenario, it will help them evaluate their own perspectives and principles, which is also a fundamental element of why we want young adults to read, as is emphasised by Christian Carlsen (2018, p. 121). Carlsen also adds that when we read, we make constant assumptions about what will happen next, challenging our own values and our ability to prospect upcoming events. When trying to make sense of what will happen next in a story, we transfer our own values to the person in question. If the scenario does not go as the reader foresees, the reader can take lessons from that and hence gain a new perspective. Since science fiction is not limited to what presently exists, it can provide its readers with a perspective not encountered anywhere else – if only through one's imagination.

## **2.2 Mental Time Travel**

Even though time travelling may never be physically achievable, we will always have the possibility of doing the task mentally. The art of mentally time travelling consists of several attributes. It is a term that seems suited to belong on the movie screen or in a science fiction book, but in reality, it is a trait we all possess and something we do every day. We recognise time travelling today under the more mundane concepts of "remembering" and fantasizing about the future, or "prospecting". Every day we revisit our past through our memory and every day we foresee a possible future via our imagination. Through these abilities we have the possibility of traveling through time and space, to a cherished time in our lives or to an event we barely can envision. Science fiction provides us with the perfect arena to excursion out on a mental time travel-journey. It gives the possibility to imagine never encounter places and can

enhance our perspectives through providing us with the viewpoint of others, in turn making us more aware of our own view and standpoint.

For the purposes of this paper, mental time travel will be considered a unique ability which is, as far as we know, a specifically human trait, dependent on our episodic sense of memory and prospection. It is a complex ability that evolved over several thousands of years and is in a paleoanthropological perspective a crucial step for humans' current success. Mental time travel gave humans the ability to step away from the ever-present *present* we always find ourselves in and made it possible to learn from the past and ponder the future. Later, the stories and imaginations that existed only in the minds of the imaginator could be shared through language. Stories of old could be told around the campfire and hence lessons could be learned to those who had not heard them before. Every story that was told gave listeners a new priceless perspective which they in turn could use to make plans. When encountering a new scenario, an instinctive action was easier to perform as the memory also enhanced them with better decision-making abilities. Today, these paradigm-shifting progressions in the prehistoric man are being recognized as important for understanding the human consciousness and brain. Mental time travel has gained recognition in science and has become a large research-field. There will always be objections to mental time travel as a concept, but when taken as a metaphor it keeps its credibility. Mental time travel is merely the term that is being used. We now acknowledge that we use mental time travel in every part of our lives, and even though we sometimes can think without using our language, language has become a constituent of remembering, imagining, and prospecting. Paleoanthropologically, we owe a lot to our sudden ability to consciously grasp time, and it will play an equally big part as the human odyssey progresses forward.

Suddendorf & Corballis, two pioneers for the re-emergence of mental time travel in modern science, published an extensive article in 2009 where they evaluated the concept and reviewed comparative studies. They claimed that the evidence was present for humans being the only animal with the ability to be consciously aware while mentally projecting oneself towards something non-present and imaginary, in order to re-live or pre-live (2009, p. 299). This is a possessed quality that has been used – though not only benevolently – by humans for millennia. In paleoanthropological context it is one of the more important evolutionary steps for humans when we managed to grasp time, and hence take a step away from the everlasting *present*. To be able to consciously transcend time is an unparalleled gift, and gaining awareness of the phenomenon has several benefits to it as well. We understood that time moves constantly in



one direction, towards the future, and that revisiting the past physically was not possible. This gave the early humans the first possibility of interpreting the future, to plan and to execute thought up ideas. Through our growing perception of time, we became gradually more able to learn and evaluate happenings in the past, and to better plan for the future. As life no longer consisted of only the present, the first rudiment for abstract thought became apparent, and we were suddenly able to use our memory generative to situate them in the present.

We as humans possess two different types of memory: semantic memory and episodic memory. The semantic memory is what can often be seen in other animals and involves the ability of being able to remember facts: Where we were born, where Paris is on a map or who the president of the United States is. What often is considered to “separate” us from other animals is our ability to grasp episodic memory; the conscious recollection of past episodes in our own lives (Suddendorf, 2009, p. 1317). Episodic memory helps us contextualize where we were in the memory, or where we were and what we felt when we read about something. Episodic memory also helps to provide information about the past to aid us in forming a picture of the future. These two versions of memory are often dependant on each other. For an episodic memory to “play”, a general knowledge from our semantic memory needs to be collected. Suddendorf & Corballis also suggest that our ability to consciously reconstruct past events and construct future episodes may have been fundamental for the concept of time itself (2007, p. 301). This ability gave us the opportunity to comprehend that the future eventually becomes the past, instead of life being a constant continuation of the present. By grasping the infiniteness of time, we managed to gain an advantage over time.

Our personal memory of the past – our episodic memory – may be distorted. Every time we think back to a given scenario, our recollection of that memory alters. The human mind, and hence mental time travelling, is generative. Recollections about the past and anticipations for the future are formed in our mind based on how we remember or envision things, but this is an act of construction rather than an accurate rendition of specific scenarios (Corballis, 2019, p. 1). When recollecting the past, we are telling a story, but through our mind it will never be like playing back a tape. The brain, and our memories, are equal to a web of trails in a forest: If one does not walk those trails often enough the trails will diminish and eventually disappear. What would happen if one never thought back to a specific memory is that the memory would fade, and one can end up misremembering details about the incident. Our brain uses our imagination to fill in the missing gaps from our memory, and hence the memory can end up distorted (Corballis, 2019, p. 4). Also, when one is imagining how society was before one was born, one

puts together stories from several different sources and eventually ends up with a subjective perspective of how the world was. In that way, the past can be just as ambiguous as the future might seem.

Which purpose memory has for humans has been pondered for decades. One can assume that its initial function was not keeping an accurate record of the past. For instance, Corballis has always claimed that mental time travel, humans' recollection of the past, is an essential part of us and that its initial goal is to optimize decision-making (2019, p. 4). We always base our decisions on our past experiences. The ability to assess past experiences may have been crucial to humans in our prehistoric days when communication, planning and cooperation was less developed than today. One can assume that greater knowledge in the present would naturally enhance a person's decision-making in the future. A greater range of knowledge can provide a greater range of perspectives and hence aid us in making decisions which will benefit ourselves or others. On the other hand, having an extremely detailed description of a past event would not necessarily be beneficial.

Outdated memories are closely connected to transience memories, as proposed by Richards & Frankland (2017). Their paper suggests that if a memory remains unvisited for too long, decision making may become impaired, as the information on which you would base your decision would be outdated. And in contrast, if our minds would be like a recorder and we could remember everything precisely in detail and in a timeline, as some humans can, our ability to generalize would be impaired (Richards & Frankland, 2017, p. 1071). If one had obtained this ability, one would not be able to see how a past experience could be generalized to new experiences. Hence, the goal of our memory is not to keep a precise rendition of the past, but rather to help us in our day-to-day decision making, and to do this we need a portion of imagination and prospection. It is therefore important for us to forget sometimes and make room for using our memories generative towards future happenings.

### **2.2.1 Remembering Imagination**

We inherently use our imagination to fill in the gaps in our memories, and hence remembering and imagining need to work symbiotically. What imagination is, how we came to inherit it, and what this possession provides us are still topics for discussion. Imagination became a marginalized topic in psychology for a few decades and was seen as part of daydreaming and a distraction from everyday thinking (Taylor, 2013, p. 792). It has now re-emerged as a central point in our understanding of the human mind, seen as integral to everyday thinking.

Developmental psychologist Marjorie Taylor has produced a broad, but useful, definition of imagination:

Imagination refers to the capacity to mentally transcend time, place, and/ or circumstance to think about what might have been, plan and anticipate the future, create fictional worlds, and consider remote and close alternatives to actual experiences (p. 791)

As we understand, imagination is a vast term and consists of several mental abilities. We do not use our imagination to merely fill in the forgotten gaps in our memory, but also to mentally transcend time, to position ourselves in another place at an imaginary time at our will. A high level of imagination is often linked with creativity and has hence been an important part of the evolution of modern humans. As literary scholar Emelie Jonsson also claimed on the topic: “We would be a very different species if we were not capable of imaginative thinking” (2021, p. 20). This is an important perspective to have in mind when evaluating the importance of imagination. While we are kids, we use our imagination to produce fantasies and invent worlds that we can live in, while we as adults contextualize our imagination and make it purposeful through making projections of the future.

When putting these abilities together, we can see the human mind as a wondrous place, unchained and unspoiled. We as humans have an exceptional possibility to put ourselves in places of our own choosing at any given time, mentally. Criticism of the mental time travel concept usually comes from a philosophical view. And understandably, if one is to imagine yesterday, one would experience it through the eyes of today. One can never be at another place in time physically and consequently one is always influenced by the proceedings around one. Philosopher Dorothea Debus wrote an article about the implications of mental time travel in 2014 where she emphasises this point, claiming that a memory of a past event will always be a constituent of a person’s present memory (p. 343). Similarly, a future event has not happened yet and is hence a projection of an experience of a general type of activity in the future (p. 338). Another example is through movies that presents themselves as a simulation of the past: When travelling to the past one is experiencing the past in the present as one can never go back in time and be something that was before; that thing has already passed. One’s state of mind is always in the present and cannot project itself to another place in time through our minds, thus one can never experience the past as it was or the future as it will be. There is a consensus that

mental time travel is not physically possible but viewed as a *metaphor* the concept gains credibility.

Our ability to read books and novels is undoubtedly an amazing asset. Writing evolved from our ability to produce speech and form a language, which in turn, many researchers suggest, evolved from our ability to imagine and mentally time travel. Corballis claims in his 2019 paper that language evolved from humans' ability to mentally time travel and that it may have evolved purposely for humans needing to share our mental travels (p. 4). Humans' need to express *displacement*, the nonpresent, is what is gaining recognition in modern research societies as the reason for the emergence of language (Corballis, 2017). The ability to think about speculative realms took humans beyond the factual and as speech became preserved across generations through writing, humans could now tell the stories of past generations and plan towards a brighter future. There are certainly cultures even today that exist and function without writing, but in our society it would be hard to imagine a life without it, especially considering claims are being made that language has co-evolved with our imagination; language and imagination are constituents of each other. Language gave us the ability to think more abstractly and to concretize the thoughts about the nonpresent that was in our minds; language has itself helped in influencing the structures of imagination (Dor, 2015). Our imagination being coated by the limit we have through our understanding of language and our vocabulary.

For better or worse, our perception of the world we live in today will always be a constituent of how our languages has influenced our mental structures, and *vica verca*, the world constitutes the language as well. It has come to the point where we often are dependent on language to be able to understand our imagination. Some conscious perceptions, like hallucination, can be viewed as happening without the influence of language, but most of our everyday thoughts rely on our understanding of language. However, some people possess the ability to think without using language. Einstein, for example, is said to have formulated his theory of relativity non-verbally in his mind, and then translated it into symbolic terms (Rovelli, 2014). Einstein saw that the languages we use were too limiting for him, and indeed, some concepts and some theories are too ambiguous and opaque to be first understood through language and hence need to be evolved through a higher imaginative understanding. Regardless, language and imagination are seemingly intertwined in our minds. One rarely works without the other, as they are mutually dependent and indispensable for our ability to mentally time travel. All these mental abilities are always present in our mind, even if they happen consciously or not, making students aware of this capacity is one of the roles of the teacher.

## 2.3 Perspective

There are plenty of ways to facilitate teaching in the classroom. As a teacher there are several elements which need to be included in the session and the new Norwegian curriculum (2017) states which values that needs to be promoted at school to achieve a desired culture. Through active communication between teacher and students, one can help enhancing the students outlook on society, and by turning their focus outwards by for example reading literature about other places or culture, one can make the students subconsciously evaluate themselves and their views and values. A teacher's role is to facilitate learning in the classroom, and the most important formational learning process happens when one is able to make the students aware of themselves in relation to their environment, helping them attain a sense of metacognition.

An important element for students to acquire, which is one of the core elements of communication with others is *intercultural competence*. Associate professor in English, and author of several teaching materials, Magne Dypedahl, emphasises the importance of having this skill, and for reference has defined the term as: "The ability to think and communicate appropriately with people who have different mindsets and/ or communication patterns" (Dypedahl, 2018, p. 50). Intercultural competence is something we act with every day and is an important aspect in both communicating and understanding others, and in turn ourselves, which subsequently makes it include several other abilities that we wish to incorporate in student such as metacognition and perspective taking.

Intercultural competence is highly regarded in Norway and is hence seen as a core element of the new curriculum. The curriculum states that by working with and reflecting on different types of text in the English subject the students will "develop intercultural competence enabling them to deal with different ways of living, ways of thinking and communication patterns" (UDIR, 2020, p. 3). It is hard to determine when or whether these aims are achieved in school, and it is the role of the teacher to make the students metacognitively aware of their perspectives and values. Inheriting intercultural competence will lay a foundation for understanding, empathy, and compassion which students will bring with them their entire life. The concept does not revolve solely around communicating effectively, but also revolves around understanding and decentring. Once one gains a deeper understanding of others, it will lead to a better understanding of oneself and one's values.

One of the more important aspects of understanding intercultural competence, which will receive extra focus here, involves our attitude. One's attitude towards others with different

cultures, beliefs, and values is central in how we approach a conversation or confrontation. Humans tend to inherit some prejudices towards other groups that might seem *different* to us, often being negative prejudices (Byram, 2020, p. 57). Negative, and even positive, prejudices can hinder successful communications and a mutual understanding with others. Inheriting the ability to be able to *decentre* one's perspective, what Byram claims to be a *willingness* to suspend one's own beliefs, meanings, and values and to see one's own views from the perspective of others (p. 57) is an immensely important element in being a world-citizen. As emphasised, there needs to be a willingness from the communicator to adapt in communication with the interlocutor; one must be able to acknowledge others, and also one's own, perspectives, values, and beliefs, and be able to see where these stem from (Byram, 2020, p. 58); having a metacognitive cultural awareness. It is not given that more knowledge automatically leads to positive attitudes, the communicator needs to be able contrast the opposing values and proceed with openness and curiosity. Obtaining these abilities does not happen automatically and needs to be openly taught to young students by showing them the diversity of cultures and values that exist and showing them that being open to different cultures can be immensely rewarding in insight and perspectives.

The art of decentring is a skill that is not necessarily easily developed in us, though its obtainment can be achieved through several different modes. We primarily inherit our values through education, family, and, maybe more unconsciously, through socialization with friends (Byram, 2020, p. 59). Through school we are often being taught what promotes national values. The new Norwegian curriculum expressly requires that: "The objectives clause expresses values that unite the Norwegian society. These values, the foundation of our democracy, shall help us to live, learn and work together in a complex world and with an uncertain future", and it is also explicitly claimed that the "core values are based on Christian and humanist heritage and traditions" (UDIR, 2017, p. 4). One must then acknowledge that the values that are being taught in school stem from a long cultural heritage in the country. It might be problematic that schools are to educate students in a specific way and teach them specific values. One might end up with a homogenous society, but the act of several people sharing the same thinking, communication and behavioural patterns is what Dypedahl and Bøhn calls, in its broadest sense, *culture* (Dypedahl and Bøhn, 2018, p. 164). Culture is also one thing that unites us as a country, hence teaching kids commonly acknowledged values is important for national unity. On the other hand, being aware of, and acknowledging, that several of our values have been explicitly taught to us with an incentive to promote certain morals is important when in communication

with people of differing values. It is also equally important when reading or learning about other cultures and perspectives.

The competence aims in the curriculum for English in upper secondary also wants to promote diversity and teach its students about other cultures. It states that a student shall learn to “explore and reflect on diversity and social conditions in the English-speaking world based on historical contexts” (UDIR, 2020, p. 12). Hence, we want to incorporate two different views in our students: Rooting their understanding of the world with a consensus in national values while giving them a diverse perspective of values and beliefs to add to their own understanding.

Gaining this insight will in turn broaden the students’ perspectives and give them a bigger foundation when encountering different cultures. Even though the students will be taught a homogenous culture-understanding, it is important to emphasise (for them) that they are all individuals, and hence will all respond to teaching in different ways; when in communication it is not the culture that communicates, but rather the individuals (Dypedahl and Bøhn, 2018, p. 165). Therefore, when learning about other cultures it is important to highlight the diversities that can exist in one culture to avoid stereotyping. As mentioned, stereotyping can lead to prejudices and in turn to ineffective communication and eliminating these will lead to greater understanding of others (Byram, 2020, pp. 57-8). Heretofore, culture has been seen as a national culture, but culture exists in every small little bubble: family, friends, regional, classroom, work, hobbies, etc. All the groups one is a part of will influence the person to be slightly different than the next. Equipping students with this perspective is an important part in their maturation process. We are all a result of our surroundings, and hence not all Americans nor all Canadians are the same, and diversity needs to be taught with care and diligence.

As we have understood, intercultural competence draws together a larger set of skills and unifies them in a pragmatic example of where they are relevant together. According to an informative paper about intercultural competence published in 2013 by Martyn Barrett et al, there are several components that are relevant when learning to inhabit intercultural competence. They have narrowed it down to four components, all with designated sub-groups, which are: attitude; knowledge and understanding; skills; and actions (pp. 9-10). These four categories are all relevant abilities that one should obtain if one is to exhibit intercultural competence, and in turn be a functioning global citizen. As my paper will emphasise throughout, literature is a great way of developing students’ mental abilities, and Barrett et al. would agree, claiming that:

Teachers in the humanities may also contribute substantially; for example in the teaching of literature, [...] there is much potential for developing the fundamental attitudes of intercultural competence and the abilities to compare, reflect on and question what is taken for granted (2013, p. 18).

Literature has the ability to put the reader in a situation that can be entirely different from the one that surrounds the reader. While reading literature with other perspectives than one's own, the reader will automatically *compare* the surroundings and perspectives projected in the literature to one's immediate environment. Seeing other perspectives which can seem bizarre to the reader can help in incorporating an understanding for reverse comparison. While thinking about other views as bizarre, one can gain the insight of one's own perspective and environment as bizarre through the perspective of what one is reading. Hence, the reader can gain what Barrett et al. calls *comparison for understanding* (2013, p. 15). The goal here is that the reader does not view the differences in a judgemental manner, but rather through curiosity and to see ourselves from how others see us.

Reading literature is an active task, and – though it sometimes is done with passive interest – as a reader one has the responsibility to critically reflect and deconstruct the text (Barrett et al., 2013, p. 26). The insight one can obtain from reading literature is boundless and varies in how active one is while reading. Barrett reflects on the importance of learning intercultural competence through literature and state that through reading texts one can explore places that never will be physically accessible to the reader, as they may be set in the past, and hence it invites a greater degree of self-reflection and an openness to explore places related to diversity (2013, p. 25). Through comparison of other cultures and values the readers will gain deeper insight, and a sense of multiperspectivity: “The ability to decentre from one's own perspective and to take other people's perspectives into consideration in addition to one's own” (Barrett, et al. 2013, p. 9). Through actively participating in the literature, both in reading and reflecting, one can take important steps towards decentring one's perspective by acknowledging other perspectives, and hence can intercultural competence, and all its relating sub-terms, be actively applied to our everyday life. Bøhn and Dypedahl also emphasise this ability of decentring as important while claiming that when decentring our perspectives, we are able to actively analyse and even regulate our own communication in conversation with others (2018, p. 167). This shows humility, insight, and an ability to be able to conform yourself according to other people.



The novel *2001* is a time machine in itself; written in the distant past and set in the then-future. It invites its readers to imaginatively enter the world of the 1960s through mental projections. In the novel we get to know how Arthur Clarke foresaw that the future would evolve both culturally and technologically. It is easy to sit in the 2020s and devaluate his prospectations of the future, but for a person living in the 1960s the depicted plot, with all its technology, seemed unthinkable. One cannot understand and enjoy the novel while being grounded in the limited perspectives from one's contemporary society. Reading novels like this is an exercise in decentring one's perspective and put oneself in the mind of the people living before. The reader does not need to have extensive information about the past to be able to understand the plot and the thinking behind the American society and exceptionalism portrayed in the novel. However, one must read it with curiosity and with a desire to understand the perspectives of others and acknowledge the differences to our society. Through the novel's easy-to-understand nature, but deep elements of existential puzzling and reflection, it invites its readers to take part in an adventure beyond the known limits of our mind and imagination and help us to decentre and become metacognitively aware of our own perspectives through mental time travel.



### 3 Analysis

The topics which have been discussed heretofore are all relevant to understand when seen in relation to answering the thesis statement of this paper: *How can one use 2001: A Space Odyssey as a facilitator in the classroom for enhancing the student's perspective taking and capacity to mentally time travel.* Several elements are included in this thesis and having a foundation of relevant information is therefore important before carving into the novel itself.

Throughout the novel *2001: A Space Odyssey* Arthur Clarke explores several different themes. All the themes from the book, like human progression, man's place in the universe, encounters with aliens, human hubris, technological progression, human imagination, and political polarization are relevant, in their own regard, for teaching students about mental time travel. These themes can be connected to perspective taking and in turn to our perception of the world. The novel is rooted in the worldview of the two distinguished gentlemen, Arthur Clarke and Stanley Kubrick, and how they saw society progressing during the remainder of the 20th century. The novel uses an omniscient narrator which places us in a third-person perspective, watching human progression from the side-line. Through its portrayal of human and technological evolution, the novel invites us to a reflection and discussion about the future, and how we, in many ways, have failed to reach the goals set by Clarke. On the other hand, the timeline that Clarke envisioned through his novel has already passed, and it is up to us now to use our imagination to envision how we want the future to become. The novel both portrays mental time travel and facilitates discussions of it.

Clarke uses the first part of the novel to instill the readers with the perspective of our man-ape ancestors: an ever-present continuation of the present. Then, he portrays an extra-terrestrial monolith helping our ancestors to become tool-users and abstract thinkers. The leap out of the ever-present existence which Clarke presents is the first stepping-stone for our species and the first gear that set our mental evolution in motion. Hence, it is a perspective which Clarke wants to the reader to remember throughout the novel. Clarke tries to give a science fictional answer to how our ability to think abstractly about time and relations occurred. There is most likely a logical answer to why humans suddenly were able to grasp time—one that does not involve alien monoliths—but the question is still pondered today. Through a three million years long enhancement of the human consciousness, and in a vastly industrialized society, the next evolutionary step in thinking seems to be to artificial intelligence. Arthur Clarke portrayed this continuation of abstract and efficient thinking through his invention of the artificial intelligent

computer Hal-9000, a computer who was not bound by time in the same way as humans. Through Hal we get to see the dangers of rapid technological progression, a potential danger which needs to be controlled in order for continued human progression to advance. Reading *2001* provides us with the possibility to step into another world and to see our own world from a different angle, decentering our perspectives.

The themes that have been discussed above are all relevant themes in accordance with the thesis statement and purpose of this paper. Throughout my analysis I will provide historical context from the novel to supplement for the analysis and how this can be used to complement the topics discussed in my theoretical framework. After an overall look of the novel and its properties, I will analyse the three parts of the novel I have chosen: the first part about our forgotten past seen from the perspective of the man apes and their mental awakening, the second part when our evolutionary trail has led us to the year 1999 and our venture to the moon where we encounter proof of alien life through the moon-monolith, and the third part when our technological progression has led us to invent the artificial computer Hal-9000 and everything he symbolises through technological growth. I will look at all these parts in relation to mental time travel and perspective taking. The three parts all have their independent link to the thesis and have integral elements when seen in relation to shaping the younger generation. I will therefore discuss how each of the parts can be used in a classroom to facilitate for perspective taking, metacognitive awareness, decentering, and mental time travel. Arthur Clarke takes us on a formational journey throughout his novel, and the perspectives one can obtain from reading his novel are values that should be cherished for everyone, no matter the age.

### **3.1 The Novel in Context**

*2001: A Space Odyssey* may have received more attention from movie viewers than from literary scholars, as the movie, published the same year as the novel, received much praise and was nominated for four Oscars, one of which it won. The movie was directed by Stanley Kubrick who in 1964 wrote to Arthur Clarke wondering about ideas for making a “proverbial good science fiction movie” (Clarke, 2018, p. ix). The quote has become famous as it clearly illustrates the intention and objective for this movie; they wanted to make the best science fiction movie ever made. Their motivation for this project was to write about man’s place in the universe; a theme not investigated thoroughly in contemporary movies. With an optimistic twinkle in their eyes, Clarke and Kubrick elegantly narrates us through the limitations of

humans, while simultaneously retaining an optimistic perspective about our future. It is the positive elements which provide the readers, and hence our species, with a glimmer of hope.

Of course, the script and novel were written in a time of impending danger of nuclear annihilation, which also gave the novel – in spite of its lack of characters – a polarizing sensation. Notably, the ideas were drawn up some time before humans had set our first steps on the Mare Tranquillitatis. Because of this, making both the novel and the movie imaginatively real to its audience was an immense task. Clarke contemplates this task in his 1972 book *The Lost Worlds of 2001*, which was an accompaniment to the novel itself, where he reflects that landing on the moon seemed inevitable, and that since the movie likely would be rolling in the cinemas while the Apollo mission made its touchdown their problem “was creating a story which would not be made obsolete – or even worse, ridiculous – by the events of the next few years. We had to outguess the future [...] if we got too far ahead, there was grave risk of losing contact with our audience” (1973, p. 18). Both the movie and the novel managed to stay relevant long after the lunar landing and have made their way into the hall-of-fame of science fiction. The story has served as a motivation and inspiration for scientists, astronauts, and writers for decades, and will continue to do so for the foreseeable future.

*2001* provides its readers with a third person perspective of humanity and our history. The beginning of the novel tries to give a science-fictional answer to the paleoanthropological question of how we gained our consciousness, and the immense importance of this psychological evolution. Clarke suggests that alien tinkering is partly why we received this ability to think abstractly. He suggests that this tinkering is the reason that humans dominate Earth today, and that it will also be the reason for our final evolution beyond physical bodies into an existence as creatures of energy. While containing this element of soft science fiction, the novel roots itself in the immediate possibilities that humans can achieve – like travelling to the moon, commercialising space travel, creating artificial intelligence smarter than humans, and venturing towards the stars – if we were to put our collective efforts towards it.

The novel culminates in the idea that we are more prepared for nuclear war than we are for first contact. The optimism in the novel is thus that salvation for humanity is through contact with extra-terrestrial intelligence. As Robert Poole puts it, “[t]he outward optimism of the first Space Age was intimately bound up with the darkest fears of the twentieth century” (Poole, 2018, p. 111). The Space Age provided optimism to the public, giving hope for the future. Clarke has commented on this earlier, claiming that “interplanetary travel is now the only form of

‘conquest and empire’ compatible with civilization” (Clarke quoted in Poole, 2012, p. 258). Clarke had, as many others living in the mid-twentieth century, a sincere belief that the future of mankind lay in space travel. What seemed to be marking the time, and what led the science fiction at the time, was to be coined as *astrofuturism* (Kilgore, 2003, p. 2). *2001* is still seen as a cultural heritage of astrofuturism. It is through our exploration in space that we receive salvation from our own destruction and evade our own demise. It is a thought-provoking, and yet terrifying, prospect to one day encounter alien life. What we could have learned from these mightier beings is beyond our understanding, but just as Zarathustra asked: What is the ape to man? (Poole, 2018, p. 121). How do we know we could be granted mercy, either from ourselves or from the alien life?

Clarke’s novel concerns several important topics. He addresses human progression, paleoanthropological suggestions, technological advancements, political polarization, human imagination, and the future of our species, all envisioned from the perspective of the 1960s. For a student reading this novel, new or broadened perspective can be obtained on all these themes. Barrett et al. concluded that reading literature can give students the crucial ability to question what we take for granted (2013, p. 18). *2001* focuses heavily on several factors that we, living in the 2020s at least, take for granted, like our consciousness and reliance on technology. Our paleoanthropological journey has been astounding to say the least, and we have on several occasions been on the verge of extinction. Our ability to adapt and come up with ingenious solutions has made us the world dominant species that we are today.

### **3.1.1 2001: A Folktale Odyssey**

Through several different themes Clarke manages to captivate his audience. The reader absorbs the novel because it puzzles on the fundamental values of what it means to be a human and questions our existing morals about existence. The novel is though not an enumeration of difficult questions, quizzing us on how we view the previous and contemporary world. Clarke captivates us through an intriguing journey that revolves around mankind, it questions where we started, where we can go, and eventually return to Earth with a proposition for a continuation of humanity. It is, as claimed through the title, an *odyssey*. Clarke turns the existential issues into an adventure we can live, and he does this by using the structures of the classical folktale (Savage, 2010).

The novel consists of several different stories but keeps its chronology by starting at the emergence of consciousness in man and ending in our progression from the limitations set by

our organic body. The first part of the novel, the history of the man-apes and their search for mental awareness, has been defined as a short story. Misia Landau has argued that the first part follows the classical morphology of the *Folktale*:

The central episodes in the drama of hominization – terrestriality, bipedalism, encephalization and civilization – are accordingly embedded in a story that charts the progress of "a humble hero who departs on a journey, receives essential equipment from a helper or donor figure, goes through tests and transformations, and finally arrives at a higher state" (Savage, 2010, p. 101).

Landau's proposal follows the structure proposed by Vladimir Propp and situates them in the first part of the novel. We have the initial situation where the man-apes are living at the edge of extinction; we meet our 'hero' Moon-Watcher; the daily routine changes by the death of Moon-Watcher's father; the hero departs on a foraging expedition; the hero is tested in a confrontation with the other tribe; the donor appears in the form of a monolith; the hero becomes transformed by the donor; the hero is tested again by the leopard and the other tribe; and the hero eventually triumphs (Savage, 2010, p. 102). These stages of transformation are what characterizes the traditional folktale. The outcome is an improved and enhanced version of the same character who has overcome difficulties to receive some greater meaning for himself and/or for others. Moon-Watcher's first great reward is an undisturbed night sleep, for the first time in his life (Clarke, 1968, p. 25).

Another interpretation can be seen if we look at the rest of the novel as a folktale as well. In this reading of the novel there is no definite hero, but we rather follow humanity as a unified character. If we continue to follow Propp's proposition of the folktale we meet humans who have their initial situation – living in a polarized world, disrupted by the immense technological growth in society and fear of nuclear annihilation; the 'heroes', the researchers and astronauts, are introduced to the story; the situation changes by a monolith being found on the surface of our moon; the hero must depart on a longer mission towards Saturn because of the monolith's radioing; on the journey our hero is being tested by our own technology and must overcome this challenge; the donor appears on one of Saturn's moons and our hero enters; our hero is being transformed; the hero tests his powers by destroying the nuclear arsenal on Earth; and eventually our hero triumphs, brooding over what to do next. The traditional style of the folktale provides the readers with an experience and ends with closure, leaving a satisfactory sensation in the reader. In both of these readings the aliens are working as a *deus ex machina*, helping the

story progressing, resolving the issues which our hero encounters. Both readings of the folktale in *2001* ends with an evolutionary progression for our protagonists. One can read the drama of hominization as humans having reached the final stage of civilization when the novel skips forward to the year 1999, but another reading can be done by adding *spiritualization*, unifying life and spirit, matter and intelligence. There are several who consider there being another, unexplored, step for human evolution, and by going through the Star Gate in the end of the novel humans reach this end-destination in our paleoanthropological journey.

### **3.2 Encounter in the Dawn**

Clarke has devoted an entire section of his book to addressing this fragility that our species experienced. Reading the first part of the book will possibly introduce a new stream of thought into the minds of the readers. What Clarke is suggesting through the alien interaction might not be based on factuality, and the students will most likely understand that, but the perspective of understanding how close we were to extinction, living in a thoughtless existence, is important to impress upon them. We live in a society where most of us have everything we need and we feel comfortable with our surroundings, but all of this, all we have in our lives today, is a result of thousands upon thousands of generations of genetic alterations and innovative inventions. Every action that has happened before has led to the moment we are in now, and Clarke draws up the starting line for his readers as a point where everything changed; the moment we stepped away from the animals and started the progression towards *homo sapiens* and eventually became the modern humans we are today.

Being able to imagine, to mentally transcend one's place in time and project oneself into another point is a unique human trait. As previously discussed, this ability took an immense amount of time to evolve and even longer to become the conscious act that it is today. We use this ability every day, reminiscing about the past or prospecting about the future, travelling to a non-existing place through our minds. Our (sudden) ability to transcend time has provided humans with arguably the most significant advantage in the animal kingdom. In the first part of Clarke's novel we meet the man-apes, who are about to embark on this road towards consciousness.

Clarke portrays life before abstract thinking as a secluded and callow reality, though ignorance can be a blissful existence, as one does not know of any other mode of existence. In the first part of *2001*, we meet Moon-Watcher, the leader of a tribe of man-apes. Moon-Watcher is, as it seems, the biggest and most *thinking* being among the tribe, which is emphasised through his name. He is the only one to look at the moon, to think about it, and to try to capture it.



The man-apes were living in the present, having no mental construction of past or future; they had recollections in their minds of other species, and they did know where to find food and water – but no ability to reflect or mediate about concepts. In the first chapter Clarke evokes their mental capacities:

When the first faint glow of dawn crept into the cave Moon-Watcher saw that his father had died in the night. He did not know that the Old One was his father, for such a relationship was utterly beyond his understanding, but as he looked at the emaciated body he felt a dim disquiet that was the ancestor of sadness (Clarke, 1968, pp. 3-4)

After disposing of the body, Moon-Watcher “never thought of his father again” (p. 5). The man-apes were trapped in the everlasting *present* and did not have the capacity to think abstractly about concepts or relationships; they were just there in time, present always. Clarke sells us this idea that before consciousness there was only the present and only primal instincts that drove us: hunger, thirst, sexual desire, and fear. The man-apes were capable of thinking about disposing of a body or where to find water and food, but not capable of abstract concepts like relationships and tools. This was about to suddenly change, largely due to some tinkering from external sources.

The leader of the tribe, Moon-Watcher, was the first character to transcend the boundaries of abstract thinking and hence mentally time travelling. He was the glimmer of hope, the one who was dreaming about something bigger; quite poetically, just like Clarke he was dreaming about the Moon. Clarke portrays him as having something special in his gaze: “In those dark, deep-set eyes was a dawning awareness – the first intimations of an intelligence that could not possibly fulfil itself for ages yet” (p. 4). The race held a potential, unlike the other animals in the savannah; the man-apes could walk upright, and alterations in the skull towards the shape of humans had already started. Moon-Watcher, as the biggest specimen in the pack, was therefore the obvious leader for his tribe, having an awareness unlike the others. Alas, he was not any smarter than the others, only more observant. The dawning awareness in his eyes was a faint glow of imagination, with a potential for altering his perspective of life. In the end, his curiosity was what led him and the others out of the shadow of *the present*.

Neither Moon-Watcher nor the others could think about time yet, emphasised through the reflection that the day the Old One died was a good day: “though as Moon-Watcher had no real remembrance of the past, he could not compare one time with another” (p. 5). Their existence

was all about survival, and they survived by keeping to themselves and not transgressing the boundaries set by the immediate surroundings and more ferocious animals. Even though there were bigger and more dangerous animals in this haven, there were plenty of animals easily within the reach of the man-apes. They merely lacked the imagination and creativity to comprehend the vast potential of food that surrounded them, and hence they chose to stick to an herbivorous diet, even though it almost led them to an extinction from starvation. The man-apes had set a mental limit for what was possible for them to achieve. No other concept than what was their limit had ever been thought of before, but they would soon be.

How humans evolved from the man-apes to Clarke's later vision of us lays the foundation for to the rest of the novel. In the novel, change comes when a monolith appears, likely put there by an alien civilization visiting from the stars. There was potential in the man-apes, the first intimations of intelligence, and the monolith lured some from the tribe into a hypnotic trance. As they hallucinated and saw geometrical patterns, they felt the sudden urge to move and behave in certain ways, like they were being remotely controlled. After two sessions with the slab, Moon-Watcher became the first Earthbound being to contemplate his own life and existence (p. 17). A sudden spark ignited inside of him, and he suddenly saw himself from another perspective, away from his own eyes and the present. This spark of enlightenment grew into a sensation of awareness, as seeing the surrounding and its potential for the first time.

Through small and careful steps, the "teacher", the Monolith, had taught its pupils many important lessons and another breakthrough came after a couple of more sessions. Moon-Watcher made the tribe's first kill: an oblivious warthog. A small alteration in Moon-Watcher's perception of his surroundings had changed his perspective drastically. He had now realised that with a stone in his hands, a punch or blow would have manyfold the force of just using his hand. Their teacher had changed the entire paradigm for survival and existence during these days; a new, thinking being had been birthed on the savannah. It is difficult to emphasise how important this change was for the future of the species. They could now gorge on meat, taking an important nutritious step from herbivores to omnivores. The tribe, which had been living at the edge of malnourishment and been close to extinction, could now eat voraciously from the plate of oblivious and unknowing animals living in their perimeter.

In Clarke's vision, defeating hunger made way for the first rudiments of thought. The first killing had lit the spark inside the minds of man-apes, and the fire would grow substantially over time. They had eventually acquired the ability to think forward, to plan, and to anticipate.

Their existence changed fundamentally; what started with learning to tie a knot led to killing a pig, then to killing an antelope, then to killing a leopard, and eventually to killing the leader of their rival tribe. The victory over the opposing tribe symbolised that the tribe now were ready to unleash their potential, ready to progress into the unknown, like nothing could stop them. This moment is also marked in the novel:

Now he was master of the world, and he was not quite sure what to do next.  
But he would think of something. (p. 28).

The species' progression had just started, but the journey towards Man had begun. Where they previously had been living their life based on fear of others around them, they had now moved up the animal-hierarchy and since they were now able to make tools, they were masters of the world. In the course of a single year the man-apes had changed beyond recognition, not just in physical appearance, but also in their way of thinking. As the man-apes had achieved the desired intent of their teacher, the future was now in the man-apes' hands, and hence the slab disappeared. The man-apes had graduated and were ready to take on the rest of what life had to offer unsupervised, and hence the slab was never thought of again. It had instilled its experimental subjects with a vague consciousness and a self-awareness, and their path lay open ahead of them. Clarke assuredly emphasises the importance that the monolith has had in the progression for humans, asserting that this was the moment which set the wheels in motion for thought and a metacognition of our consciousness. Moon-Watcher marks the dawn which humans would enter and flourish in. The evolution of Moon-Watcher lays the foundation for humanity who one day also would come to the point where we, through our protagonist Bowman, would have to *think of something*.

### **3.3 Man-Apes in the Classroom**

The sudden occurrence of consciousness in the man-apes is an interesting point to address as it introduces a big topic for discussion, one that could suit well for use in the classroom together with students. Where did *our* self-awareness and consciousness emerge from, and what effect has this had on our species? The foundation for understanding the concepts that the man-apes learned was already present in the brain of the species. The abstract thoughts that the monolith taught them had merely never been thought of before. Through habit and habitual perception, the man-apes had set mental limits to their thinking. Robert Ornstein discusses self-imposed mental limits in his 1972 work *The Psychology of Consciousness*. He argues that there will always be a continuation of comprehension which will progress as we understand new concepts,

and that we always will gradually alter our perspectives as we learn new things. Ornstein's concepts fit nicely into how we want to teach students about perspective taking and mental time travel.

As humans, we can seem quite content with how we view the world, and accordingly how we go about our lives. Nevertheless, there are conceptions about the world that we have yet to understand, but that will seem logical in the future. Just as we have discovered iron, devices to harness electricity, and mathematics, we can discover even newer concepts, and thus push our limits for understanding; there is still much left to be discovered, we have simply not thought about it yet. Ornstein explains this as our brains setting limitations for our understanding (1972, p. 1). We have a perception of things, but our view can be limiting, and hence it can act as a barrier to action. Ornstein uses as an example that there was a time when humans thought there was no number larger than one hundred (1972, p. 1). Now, of course, we have the understanding that there are numbers higher than this. Our ability to think abstractly and understand new concepts is what is important to convey to students reading this book; providing the students with a metacognitive awareness that our perceptions change together with our understanding of the world; that the boundaries for our thinking today are a human construct. What we know up until now is just a foundation; we are standing on the shoulders of our forefathers. This is an important perspective to acknowledge and attain; knowing that what we are now is a result of thousands of generations of experience and knowledge, accumulated together with our contemporary understanding.

Recognizing that our current worldview is time-dependant is an important part of perspective taking, and that knowledge is important to make our students incorporate. No matter how our consciousness appeared, we have evolved from humble beginnings. There has been a time when our understanding of the world was completely different from what it is today. Once we thought about the universe as geocentric, but when we saw the universe from a heliocentric perspective this was the only thing that made sense. Before the man-apes discovered consciousness and self-awareness there was only the present, while we now have a completely different, and broadened perspective on existence and thinking. An interesting task one can provide students with is to make them write a story, a continuation, about the man apes. How did they progress after gaining a vague consciousness, and how did this evolve during the next couple of generations? How long did it take before they started to communicate linguistically with given speech patterns? Did their language evolve from their way of thinking, and did their imagination and abstract thinking evolve any further after they had invented a way of communicating? Have

the students themselves ever experienced a realization comparable to what the man-apes learned? Does newly attained information and perspectives arise gradually or suddenly? How did all the man-apes learn lead to humans becoming organised hunters, farmers, members of civilisations, and eventually what we are today? How important was this first step towards the modern human, and is everything that happened in between the alien tinkering and today an obvious natural progression? Was the first spark the thing that set the wheels in motion, and do they think this was inevitable, and hence will it happen to other animals eventually?

Through making the students write stories about the essential human trait of consciousness one would help them in gaining a metacognitive awareness of themselves and their abilities. A writing task as the one described in the last paragraph has been termed *hypothetical writing* and has been discussed by Lund & Villanueva to promote motivation among students while they get a creative outburst of their imagination (2018, p. 87). Hypothetical writing involves giving the students a scenario, for example from a given novel, and make them write continuations of this story. Writing about the continuations of the man-apes would give the students an arena to make calculated guesses about how a species would evolve both on a short-term and long-term timescale. They could write individually first, using deduction to envision how and why they would learn new things, before comparing or discussing with a classmate what they imagined. This task would promote the students to be aware of their own abilities and make assumptions about why they have the abilities that they themselves have, in turn fostering metacognition and gaining a broadened perspective by trying to place themselves in a situation that is not their own. As this writing task requires a lot of self-awareness and imagination, scaffolding would need to be in place, and could be done both by having a general discussion before starting the task or discussing with students while they are writing; making them articulate their ideas orally, or formulating their ideas imaginatively in their minds like Einstein, before writing it down on paper.

The human consciousness is a trait that is often being taken for granted today, or merely something we do not think too much about. While Suddendorf & Corballis claimed that we are the only animal with the capacity of being consciously aware while projecting ourselves towards something non-present and imaginative (2009, p. 299), it is most often a process that happens continuously and subconsciously. As a teacher one has the responsibility of making the students aware of their ability to think about time and our surroundings in a conscious manner. Even though we rarely give our consciousness too much thought, it is the control-centre which notices and monitor everything that happens around us through our everyday life.

Being mentally aware is a trait that one would wish everyone to experience, but at the same time there is a limit for how much of our surrounding that we can, and should, absorb. Ornstein also emphasises this by highlighting that there are always sounds and distractions around us: The air can vibrate mechanically, cars pass by you, people are speaking, the movement of your feet and arms while you are walking, birds chirping, etc. (1972, p. 9). These are things that happen in the background, but our consciousness always detects it, even though we rarely are consciously aware of it. In this regard, many of our other senses can be taken for granted, just as we often take our consciousness for granted. Corballis & Suddendorf have shown that humans have this wonderful trait of being metacognitively aware of our surroundings and our mental travels, and hence teachers have a responsibility of making students aware of this ability.

A thought experiment one can give to the students is to try and make them aware of every sound they hear while taking a hike, trying to obtain what is often referred to as *mindfulness* (Kabat-Zinn, 2015, p. 1481), or merely being aware, paying attention. A passage from the novel as an example comes when Moon-Watcher wakes in the night because the leopard is approaching their cave:

There was no sound except the heavy breathing around him; the whole world seemed asleep. The rocks beyond the mouth of the cave were pale as bone in the brilliant light from the Moon, now high overhead. Any thought of danger seemed infinitely remote.

Then, from a long way off, came the sound of a falling pebble. (p. 23)

One could challenge the students to write a similar passage from a when they are out hiking or at a quiet time during the day. What do you hear, and what do you observe? What is it you can comprehend even though you do not see it? How do your senses come together to make a perception of what it feels like? How can a mood change in accordance with an event or a sound that you observe? After performing such a task Ornstein would argue that we would become aware that our personal consciousness could never completely represent the entire external world, and hence never represent the entire reality of existence (1979, p. 9). Even though we can never take in the full experience of consciousness at all times, it will help with metacognition, making the students aware of their thoughts and surroundings, creating an awareness of awareness.

The alien slab was working as the man-apes' teacher, with a very similar role to the one a teacher has in the modern classroom. What the monolith taught the man-apes was to become

conscious of their own thoughts and their own surrounding, creating an arena for metacognition. The work which was completed by the slab resonates with the new core curriculum in the Norwegian school system. The curriculum states several themes that are similar to what the slab taught, like ethical awareness, which implies “balancing different considerations, [which] is necessary if one is to be a reflecting and responsible human being” (UDIR, 2017, p. 7), and “to develop awareness of their own attitudes” (p. 11). The role of the teacher is to lay a foundation of knowledge and attitudes upon which the students can continue to prosper as individuals. The slab guided the man-apes into gaining an awareness of themselves, just as a teacher is supposed to help form awareness in students: not telling them what to do but preparing the ground for new perceptions. The awareness that the man-apes attained is just as important to promote in students today as it was three million years ago.

### **3.4 2001: A Comparable Society**

When we enter into part two of the novel, Clarke narrates us through the awe-inspiring evolutionary journey that humans have been through, arriving at something close to our present situation in the year 1999. In terms of weapons, humans have had a remarkable progression: “The spear, the bow, the gun and finally the guided missile had given him weapons of infinite range and all but infinite power. [...] But now, as long as they existed, he was living on borrowed time” (p. 31). Clarke situates us in the impending danger of nuclear war that the world experienced in the 1960s. Humans have made inventions that are far more effective and dangerous than what we could comprehend. Looking at us from an outsider’s perspective, we might look like primitive brutes playing with weapons too big for us; being smart enough to make them, but not being smart enough to resist using them. The future of the world lay in our own hands, how it would unfold was entirely up to ourselves. Quite quickly the rest of the themes from the novel, which will help in perspective taking and mental time travel with students, makes themselves apparent: technological progression, human hubris, political polarization, and again, extra-terrestrials.

Whereas the man-apes were barbarians on the verge of extinction, one would imagine that the humans we meet in the turn of the third millennia after Christ would flourish. Contrary to our belief that humans would prosper, Clarke situates us in a reality where overpopulation, polarization and food-shortage are the prominent factors for the Earth. Humans have conquered the world, made it our own, and act as omnipotent beings, ruling over all that lives. Clarke, quite precisely, estimated that the world’s population would at this point be approximately six

billion, and as a result of this there would be food-shortages and a likely chance for widespread famine (Clarke, 1968, p. 37). Humans would be dominating the Earth, but our incapability to plan properly and enforce our regulations had led our species to a sudden decline. We get a glimpse into the life of the ordinary men and women on Earth, but little emphasis is being put on it after the first couple of chapters. The novel concerns human interest and existence as its backbone, but through the story we follow the bigger concerns for humanity, and not the life down on Earth. The novel takes the step away from Earth and all its lingering daily issues and worries about what lies in the future. Even though most of the novel revolves around the existential questions of our progression into the future, the polarizing climate created by the rivalling states on Earth echoes as a subtone throughout the novel.

### **3.4.1 'Back' to 1999**

Even though our species had changed dramatically in the millions of years since the man-apes roamed the land, much of our primeval instincts had prevailed. Nevertheless, humans had made its first ventures out of our cradle on Earth, and as we arrive at the year 1999, Clarke suggests that humans have commercialised space-travel and have built bases on the Moon. On our moon, we find an alien artifact, much like the one described in the first part of the book. The monolith from the first part disappeared abruptly after it had finished its training of the man-apes. It was done teaching the primates on Earth, and because there might be teeming life in the vastness of the universe, our species was of no interest before we managed to venture out of our little haven; there is a big difference between finding life in the universe and finding intelligent life. Hence it would be reasonable to place sentinels across the universe, on the moons of planets with the promise of life.

The alien artifact, which previously had functioned as a teacher for the man-apes had changed its role and now worked as a beacon, standing patiently on our moon, silently signalling that no one had found it, that a new trip towards Earth was not needed for our custodians. One might assume that an alien civilisation would have no interest in a species who have not ventured out from their ancestral home yet. This is a challenge that every great sentient species one day *must* face, leaving their cradle and travelling the cosmos. At this point, Clarke wakes us up, tries to make us realise that we do not have the imaginative powers to comprehend who these aliens are, and how their timeline would look, but we can try. They are of a composition we may have never thought of before, and which is beyond the current limitations of our brain. Merely being aware of this thought will serve as decentring of our perspectives, as one might realise that it



would be as hard for an alien to communicate and intervene with us as it is for us to communicate with an ant.

There are apparent parallels between the time when the novel was written, and the time in which Clarke situates us in part two. During the 1960s, the world was dominated by two states, which in the post-war era ended up dividing the world even more. The post-war era was a period of immense technological growth, but the leading countries' hubris led the world into polarization, which did not benefit the thriving information-based society. Clarke draws direct parallels from the Cold War to his novel, showing human stubbornness. Throughout the novel Clarke has an optimistic view on humanity and our progression, but he clearly did not believe we would abandon our aggressive instincts: "As long as he could remember it had been not a 'situation' so much as a permanent crisis. Since the 1970s the world had been dominated by two problems which, ironically, tended to cancel each other out" (Clarke, 1968, p. 37). Trying to understand what it was like to live during a time of impending danger for nuclear annihilation is almost impossible. Mentally time travelling to this time would then be quite difficult, which makes Clarke's rendition of the society and all its implications a good source for understanding it.

For the modern man, the inside of a spaceship would seem vaguely familiar. There have been several widely transmitted take-offs from Earth which a majority of our population may have seen. It has even become popular for the 'insanely rich' to have personal space travels. Many will thus have a vague memory of how the inside of a spaceship would look and understand how it would thrust you back to your seat during the acceleration phase. For the people living in the 1960s this was not necessarily the case. Few had televisions, and fewer had ever seen the inside of a spaceship, not to mention live images from a take-off. Whereas we today can use our memory (and in turn our imagination) to piece together an image of Dr. Floyd's take-off, Clarke's contemporaries needed to use more of their imagination. It is a difficult task to unlearn what one already knows but it provides one with a broadened perspective to read Clarke's description of how a take-off routine would be. It instils the reader with a sense of insignificance among the great forces which are thrusting you from the Earth and pulling you into zero gravity. How revolutionary it must have been for people in the 1960s to think that we would be regularly sending humans to space, and further to the moon. The fact that we have not set a human foot on the Moon since 1972 would probably have disappointed Clarke. Nevertheless, we have done it, and we are yearly sending new astronauts to the International Space Station, making space travel a normal routine for humans living today, but exponentially more impressive for people living in the 1960s.

The entire section about the travel to the space station and the moon and Floyd's stay there is Clarke's calculated vision of the future, with all its corresponding invention and lifestyles. A considerable amount of reflection has been put into Clarke's vision of the digital newspaper, picture-phone, Velcro-wrapped shuttle-floor, spacesuits, etc. Clarke had a vision that if one was to imagine inventions of the future, they needed to be extrapolated from the technology one has at hand (Wright, 2000, p. 591). Clarke knew what potential lay in the inventions that were present during the 1960s, but today's modern technology is immensely more advanced than what Clarke is depicting. The illustration of a 'news pad' which could give you any news from the world by punching in area codes and would update every hour (Clarke, 1968, p. 53), would be made obsolete in an instant if placed next to the modern smart-phones or watch. It is a tricky enough task to make predictions about future inventions based on our current knowledge about technology, as there is a constant risk of a sudden technological breakthrough that sweeps away all our suppositions (Wright, 2000, p. 591). Clarke addresses this risk, mentioning the interval-timed computer breakthrough which happened about every 20 years (Clarke, 1968, p. 97). Hence it is difficult for a person living comfortably in the 21<sup>st</sup> century to really appreciate and acknowledge Clarke's vision. The younger one is today, the less analogue technology one has been around, the more distant the technology which was available for Clarke seems. It involves a great deal of combining memory and imagination to be able to envision the world in which Clarke wrote and lived. Even though—with the modern technology we have at hand today—all information one would want about the 1960s is just an internet search away, the tricky part is contextualising it to the time it belongs.

### **3.4.2 The Listeners**

Whereas the monolith in the first part of the book had the role as a teacher for its students, chaperoning the species towards an understanding of consciousness, the monolith in the second part of the book is humanity's guide, chaperoning us towards our next evolutionary stage through space. When the monolith is exposed to sunlight for the first time it sends a burst of energy rippling across our solar system, giving us a path to follow. Society, which through Clarke's narration seemed to be at a low point in humanities history, and was filled with chaos and bad administration, needed a beacon, a new project or incentive to pursue. As Poole observes:

A 'mysterious injection of creative power' is exactly the role of the alien monolith in *2001: A Space Odyssey*. It intervenes two million years ago in Africa when the man-

apes are threatened with tribal extinction, and again in the year 2001 when homo sapiens is sleepwalking toward nuclear extinction. (2018, p. 123)

The monolith has a progressive role throughout the novel and seems to be there to teach or guide humans towards the next phase in our evolution. The human brain has an immense capacity for understanding, reflection, and imagination. To understand new concepts and ideas, sometimes all we need is a little nudge, and suddenly we can transgress the boundaries set by our mind. The monolith now pointing us towards our next unimaginable adventure which we would take part in.

The implications involved in finding an alien artifact are immense. There are ramifications for us as a species, for religion, ethics, philosophy, and also for the regard of aliens now knowing of our existence and apparent intelligence. In *2001* the monolith was placed on the moon several million years earlier. The civilisation which put the monolith on our moon was immeasurably more advanced than we are now and has since had a couple of million years to evolve further. Clarke claims in the short story “The Sentinel” that the old are often jealous of the young, so there would certainly be room for anxiety on behalf of our own species (Clarke, 1972, p. 27). Clarke finished “The Sentinel” with the claim that he did not think we would have to wait for a long time before the arrival of some other form of sentience, and he emphasises this in the 1972 book *The Lost Worlds of 2001*. In the epilogue he naïvely predicts that our radio transmissions into space would have had plenty of time to be received and to be replied to by the year 2001 (p. 240). We see it as an almost impossible task to predict our change 50 years into the future, envisioning one million years of evolution *is* impossible, making the hypothetical message we might receive from the extra-terrestrials even more of a Schrödinger mystery.

Little emphasis is being put on the societal impacts of the discovery of extra-terrestrial life in the novel. One of the reasons was also that the government wanted to keep the news about the monolith closely confined until they knew everything essential about it. Clarke has commented on the lack of general human interest in the novel through his book *The Lost Worlds of 2001*. He claimed that the addition of background for the astronauts, and providing social-, cultural-, and political-, and religious elements would add an entire book to the novel (p. 76). What Clarke realised was that by adding these elements one would lose the main theme of the novel; it would become distractions from the real plot. Clarke wanted to emphasise *the* human being, the individual, the possibilities in every one of us; where we come from and where we are going.

As a discovery of this magnitude would completely alter the foundation in which modern religion is based, it too could have gained immensely from the discovery of alien life.

In the perspective of mental evolution, the humans from the novel living in the turn of the millennium were not very different from the ones living when the book was written. The similarity is apparent because both physical and mental evolution takes hundreds of generations of DNA-variation and selection to achieve a constant change. What I discuss now is DNA alterations, but there is another aspect of our mind and mental state that can change quite drastically, and through one generation, and that is our perception of the world and society. As discussed earlier with Ornstein, our perception will change dynamically as we learn new things. With the emergence of language humans could tell the stories of people who had lived earlier and hence take wisdom from previous mistakes and accomplishments, showing that cultural- or comprehension-alteration can change quite rapidly in an evolutionary scale. Borrowing a phrase from Bernard of Chartres, through our attainment of language we could be *standing on the shoulders of giants*; building on the discoveries of people who came before us. Ornstein argued that we would constantly make new discoveries which in turn would alter our perspectives and push our limit for understanding about the world. We have our perception of the contemporary world; a limit for what we can understand with knowledge we have at hand (Ornstein, 1986, p. 2). With a progressing perception of the world we are a part of, we can expand the scope of things we can understand and the perspectives we can attain.

At this moment in time, we have the idea that we are alone in the universe, being the only living organism, or at least the only intelligent life in the universe. We have not found any evidence that disproves this, hence theories that suggest otherwise are more beliefs than legitimate hypothesis, giving us in theory no foundation for thinking otherwise. If there is one thing that could change the entire paradigm for existence it is that we would, as they did in *2001*, find evidence of extra-terrestrial life. The discovery of alien life would have immeasurable societal implications. Our own presence in this universe would be diminished, and we would be tipped off of our self-created pedestal. As astronomer Steven Dick wrote about the societal impact of extra-terrestrial life in 2013: how we would react would be very different if we found evidence for biological life than if we received a message, even more different would it be if we could decipher the message, and even more again it would vary from what the message contained (Dick, 2013, p. 229). In *2001*, there is no direct message or communication with the aliens. Humans only expose the alien's listening station, the aliens have merely been waiting, and their device now signals to them about our existence and guides us towards them.

No matter which type of message we would receive from an alien lifeform, it would have drastic implications in religious terms. Proof of other, maybe more intelligent life would invite questions—both biological and existential—about whether we humans are the chosen people. It would not need to be the end of religion, as it may prove to some that the omnipotent God has created an entire universe in his image. Clarke reflected on the implications for religion in his 1951 book *The Exploration of Space*:

[Some people] are afraid that the crossing of space, and above all contact with intelligent but nonhuman races, may destroy the foundations of their religious faith. They may be right, but in any event their attitude is one which does not bear logical examination—for a faith which cannot survive collision with the truth is not worth many regrets (p. 191).

These are harsh meditations, but they prove that Clarke has seriously considered the question when writing his novels. He is quite aware of human stubbornness and social consequences and know that humans rarely change our conceptions and our beliefs unless crudely disproven. On the other hand, one can change the view on this and rather have the perspective which was suggested in Poole (2018), that the aliens were there to help as *Homo sapiens* were sleepwalking towards nuclear extinction (p. 123).

Even though we have found no evidence for extra-terrestrial life until now, it does not mean that there is no need in pondering the possibility. Recent research shows that as much as 60 % of the grown U.S population believe in some form of extra-terrestrial lifeform (Dick, 2013, p. 241). With such a large share of the adult western population already believing that we are not alone, many believe that the ramifications in society would not be too vast. There is though a big difference between simulated reality and factual reality. If we take Clarke's alien encounter as an example, one can assume that there would not be vast immediate changes in society, but long-term effects would be notable. Dick compares a discovery like this to the change to the Copernican worldview (p. 229). The heliocentrism introduced by Copernicus did not have an immediate impact on society, but just as this changed the paradigm in which we live, so would the knowledge of aliens change everything. Hence, it is a perspective that should be considered. Throughout our lives we will meet several questions which we will never be able to answer, and the questions about life in the universe and existence in general may be questions which will never be answered, but that does not mean that they hold no value. It is an immensely rewarding task to think about the prospect of not being alone and what implications this could

have for our existence. Philosophising about this could easily help in enhancing both perspective taking and mental time travel, as it will invite us to use our imagination in new and exciting ways to predict how oneself and society would react.

There can be many reasons why we have not heard anything from aliens today, and they may all be equally humbling to us. In Robert Poole's critique of the novel and movie he comments upon alien encounters and claims that if we are to assume that civilizations are to be long-lived, then perils with atomic war, like we have experienced the last 70 years, is merely a danger of the 'technological adolescence' which a civilization must outgrow (Poole, 2018, p. 110). Our peril with nuclear war is just a step in our progress which we must surpass for further evolution. Carl Sagan has reflected on the same idea and has claimed that if we fail to make contact it is likely that it is because societies have destroyed themselves before getting advanced enough (Sagan, 1980, pp. 324-5). This crisis could be termed the 'atomic crossroad' (Poole, 2018, p. 109). Clarke does not evoke this scenario. He takes a philosophical stance that the organic human body may not be the end destination but merely a stepping-stone before entering into something more eternal than our disease- and injury-prone body. Where this leads us is beyond what our conscious collection of senses and thoughts can currently imagine. We have evolved a long way from when we first started to grasp consciousness and started mentally time travelling, but as with Ornstein's suggestion, some things are still beyond our current understanding. Even though it might lay beyond our understanding, there are several ways we can work with existential questions in the classroom to prepare or puzzle students about what we might – or maybe never – learn.

### **3.5 Aliens and Existential Inquisitiveness in the Classroom**

While the first part of the book merely addresses the beginning of our hominization, it is, as discussed, a complete short story. It provides its readers with a new perspective, and a perspective which Clarke wants the readers to remember throughout the novel. As we leave these primitive brutes, we are guided through the coming million years. The face and body of the man-apes change substantially and eventually they have invented the most essential of all tools up until now: "They had learned to speak, and so had won their first great victory over Time" (Clarke, 1968, p. 30). The importance of inventing speaking and writing cannot be overstated, as it gave us the ability to make shared mental images of both future and past. It gave us an arena to elaborate on our memory and our imagination; gave us the ability to plan and prospect about the future. For students it can be an imperative question to puzzle about the

role language plays in our ability to think abstractly and mentally time travel. In the second part of the book humans have used this ability extensively and have used our communicative and cooperative ability to venture to the moon. In the snap of a few pages, we have transcended from the man-apes' dim awareness to futuristic humans. It might seem like a big leap to jump this far in a mere few pages, but in a geological timescale, this really is like the blink of an eye.

Understanding that there are some things in life we will never understand will help us in decentring our perspectives and will maybe even help us in valuing our own existence in the present further. As one of the protagonists in *2001*, Dr. Heywood Floyd, so poignantly remarks: "I'm a scientific expert; that means I know nothing about absolutely *everything*" (p. 50). This statement is inspired by Socrates. Wisdom often comes from understanding that there is much we do not know and acknowledging and coming to peace with that. A subtone throughout the novel is the encounter with existential questions which we will never be able to answer, addressing the higher moral choices of existential reflection. Even though Clarke tries to give an answer to some of these questions, he simultaneously reassures the reader that one does not need to have an answer to everything, often emphasised through the calmness of the characters in situations of existential puzzling. Having read and thought about difficult questions can work as a reminder for one when one is faced with the same situation in the future. Having thought about the vast existential questions which Clarke prose will help gain a metacognition of oneself and one's place in the universe, and about our ignorance for the greater aspect of things. There is comfort in accepting that one will never know everything, it can help to decentre one's perspective of life. Life will hence be more about being aware of what one knows and *can* know.

*2001* does not just take the reader outside of their close familiarities in society but places the reader in a different place in time. There is a vast potential in gaining an understanding for how the world previously was. Through history books one gets descriptions of the world and events that took place, but through literature you get the gift of taking a step into the mind of the people living before. Through our novel we get to see how they saw the past and, more importantly, how a person living in the 1960s envisioned the future. We get a glimpse into what they thought the world would evolve into and how society would change. It allows us, who recently have lived through the thought-of-time from the novel, to compare ourselves and our society to the expectation people had previously. For students it can act as a great decentring to try and compare the society from Clarke's novel to our own. During the second part of the novel, we get to see precise renderings of how Clarke foresaw the bigger picture of society with its

corresponding issues. When evaluating his version of the year 1999 to our own society it can enhance our metacognition, as it allows us to see our own society in correlation to a thought up vision, making us more aware of ourselves and our place in time with all our benefits and flaws. It gives us an opportunity to step away from our own narrow view and once again see humanity as a whole.

It does though paint a gloomy image, because if we had wanted to, we could easily have commercialized space travel 20 years ago, to the time Clarke had envisioned. There can be several different reasons for why this did not happen, and society could certainly be a quite different place if we did manage to achieve Clarke's visions. For students it could be a good task in thinking about why this did not happen. For the younger generation living today it is hard to imagine how it was to live during a time of impending nuclear destruction, but one needs to understand fractions of this to be able to envision why we stagnated some of our space-evolution. The space race, which seemed to be marking the time during the 1960, was a leading factor for the hasted visit to the moon by American astronauts. When this was done, there seemed to be no reason for travelling back, at least until now. The Artemis program, co-funded by NASA and commercial enterprises, is planning to set foot on the base of the moon again to sprout new inspiration to space exploration and to use it as a springboard towards human exploration of Mars (NASA, 2020, p. 8). As a species we have used telescopes and rovers to study Mars for a long time, but there is an echo of comparison to the monolith on the Moon from *2001*. Are we allowed to dream and imagine what might be found on Mars? With the Artemis project a great possibility arises for hypothetical writing about our continuation of exploration on Mars or in the universe.

### **3.5.1 Writing Texts to Enhance Metacognition**

One of the major topics in *2001* is the future evolution of humans into something we still do not know. Steven Dick again sees a possibility in this, which would resonate well with what Clarke is proposing through his novel. Dick claims that: "It may be that in learning of alien religions, of alien ways of relating to superior beings, that the scope of terrestrial religion will be greatly expanded in ways that we cannot foresee" (Dick, 2013, p. 246). As previously discussed, we have limitations on what we can understand, and by being exposed to new religions, or merely new ways of thinking or communicating, we could be able to change, both spiritually, intellectually, and religiously, into the unknown future. For students it would be interesting to try envisioning what we could learn if we suddenly were exposed to aliens. A



Task like this would mean both hypothetical and creative writing. A scenario as unrecognizable as alien encounter would invite to a complete use of one's subjective creativity. It is a scenario which possibly cannot have a correct answer and can in turn help to motivate even reluctant writers (Lund & Villanueva, 2018, p. 83). Even if these tasks become too abstract there is a possibility in making this into drawings or a multimodal text. Making the students incorporate drawings, pictures, or even sounds, can give them the possibility to convey a deeper meaning or intention, giving their task a completely new dimension.

Making students do an abstract task about the novel would not mean asking them for the right answer but would rather invite them to use a vast scope of their imagination. How can one envision something that has never been thought of before? It would be an amazing mental challenge, as maybe concepts like these need to be evolved through a higher imaginative understanding, like Einstein did, before being projected to a paper. Even if one was not able to write down these vastly abstract ideas and imaginations, there is still a great reward in having just thought about it. We as a species, have already decided on how we would try to communicate with aliens – however they may look or communicate – through the Voyagers' audio-visual disc, which were launched in 1977. We can never expect that anyone would pick this up and be able to translate it into their own understanding of symbols and sounds, but it is an interesting thought to think about if we would find something similar one day. The cosmos is vast, and we humans do not know how to communicate properly with animals or translate animal sounds yet, so it is not given that we would be able to decipher alien communication into the human equivalent. It can be humbling to put oneself into the scale of the cosmos. It could certainly highlight an awareness of our insignificance in the greater scheme of things.

If we take the exact example from *2001* and put it in a classroom we can ask the students how they think the world would react to news about extra-terrestrial life. We have established that mankind would react differently depending on what kind of proof we would receive of such life. To contextualise the task within a world of social media and online news, one could make students write an imaginary press release from a government about the proof of an extra-terrestrial encounter. This task could be connected to social science by having students read actual press releases about major events. How would, and should, a government present this type of information? What do the students think the feedback would be, and how would social media react to this? Who in society would suffer and who would flourish from this type of news? A fun way of performing a task like this could be to make them arrange a real, live press-conference in the classroom. Some students could be speakers and advisors, and the rest could

represent journalists from different types of media, e.g.: big new medias, local news, car magazines, science magazines, religious media, fake news medias, etc. Making the journalists ask questions which would be relevant for the readers of their magazines could make them highlight the different implications a scenario like this could have.

There are several ways of didactically approaching a scenario like this, and it all involves using our extensive imagination and ability to evaluate different perspectives. Another example is making the students create a podcast where they talk about how the discovery of extra-terrestrial life would change the paradigm for existence. In their podcast they could invite guests on who are experts, or are familiar on, different topics or elements in society to talk about cultural implications and how the future could unfold. All these tasks could help them highlight geopolitical implications, cultural implications, critical thinking, and promote creativity, which is all an integral part of the new curriculum (2017). It would also invite to a very interesting discussion about the broadest sense of the term *diversity*. How should a species like us react to knowing of other biological ways of existing. Would this create a stigmatization and discrimination over other beings, or would we be welcoming and liberal? All these are equally interesting things to discuss in a classroom. It could also be done reversely, which could be an equally important stream of thought for students. How would society react if we found out that we indeed *are* alone in the universe? It would be hard to prove indeed, but science fiction can always provide us with a scenario, and it would be an interesting task to do in relation to a hypothetical writing task or discussion. How would this be presented to the world, and what ramifications would this have? What would the long-term effects of this be? By considering these existential questions it would invite the students to reflect on their place in the universe, and on our existence in the greater scheme of things. Which one of these scenarios would give most comfort? What are we actually hoping for?

The philosophising that an encounter with aliens demands from its readers is one of the reasons why this novel is well suited for teaching about mental time travel. Being able to ponder the possibility of life elsewhere in the universe requires a high level of reflection and imagination. One must put together plenty of information about the living world, analyse how we have reacted in the past to discoveries and then use this information to build a new perception. It is an extremely difficult task, and the possibilities are so endless that two people would most likely never think of the same future scenario. How one reflects on a situation like encountering extra-terrestrials is completely subjective – it would be completely based on one's own perception of the previous and contemporary world.

An extra-terrestrial encounter is a scenario that we have never encountered before, and just as with a nuclear war, one of the modes for speculating about how it would pan out is through literature. Science fiction gives us humans a possibility to ponder future happenings, and Clarke elegantly provides us with this scenario without telling us how the world reacts. We can make our own assumptions, undisturbed by external interference and influence. By never depicting life and implications on Earth and never giving the extra-terrestrials a voice, Clarke also makes the scenario so personal, so close to our inquisitive nature, that it gives every reader their own sense of recognition and familiarity. Clarke provides information, and several interesting reflections on the existential questions, but never provides a clear answer; he never tries to play God, instead he is giving us the key to open the door for speculation. The information merely lies there for whomever to take it to themselves and make sense of it, subjectively. The encounter with the alien monolith in part two never has any significant implications for people living on Earth, whereas the invention we meet in part three have direct impact on the people it surrounds itself with, entailing that this is something that also needs severe reflections about in society before being invented. Thinking about these never-(yet-)encountered scenarios will help in decentring one's perspective and become metacognitively aware of one's own values and attitudes, and hence they are important to meditate on and discuss.

### **3.6 A Foreseeable Future**

Clarke extrapolated Hal-9000, and all the other inventions in the novel, from the information about technology that he had present at the time. Nevertheless, predicting the future is a difficult task. David Bawden comments on this in a 1997 paper about the nature of predictions. In the paper he addresses the number of times renowned scientists have been wrong about the future of inventions and their impact on society. What seems to be the trend according to Bawden is that for long-range predictions to gain recognition, they need to take the form of visions rather than forecasts; they must materialize from the imagination rather than close logical analysis (Bawden, 1997, p. 58). This was the basis for Clarke when he predicted his inventions in *2001*, and Clarke's first Law fits nicely into this vision: "When a distinguished but elderly scientist says that something is possible, he is almost certainly right. When he says it is impossible, he is very probably wrong" (Clarke, 1973, p. 189). If a prediction follows the laws of physics or rules of logic there will always be a possibility of it becoming a reality, given that it is desired enough. The invention of the telephone, or the computer, or the airplane – all essential parts of our life today – seemed like a science fiction fantasy when they were first presented, but as time and technology progresses, the evolution is inevitable. Science fiction therefore holds a strong

position in feeding the world with an optimistic prospection of what we can become and where it can lead us. In part three of the novel, we get Clarke's rendition of the future of technology epitomising in his most influential invention, Hal-9000.

Many of the inventions envisioned by Clarke would, as previously discussed, be made obsolete in today's modern society of technological abundance. His vision of the evolution of artificial intelligence on the other hand has not been fully realized. When Clarke created his prospection of artificial intelligence, he had been heavily influenced by the previous scientific advisor for President Truman, Vannevar Bush and his vision of the future of computers. Bush wrote an essay in 1945 where he discussed the difference between a human and a computer mind, claiming that in the computer mind every type of information has its designated storage point, and the information will be gathered by tracing it down from subclass to subclass (p. 98). The human mind on the other hand differentiates itself in that it operates through associations:

With one item in its grasp, it snaps instantly to the next that is suggested by the association of thoughts, in accordance with some intricate web of trails carried by the cells of the brain. [...] Yet the speed of action, the intricacy of trails, the detail of mental pictures, is awe-inspiring beyond all else in nature (p. 98).

There is a vast difference between the human mind and that of a computer. Whereas the human thought can pass you by like a passing train, the computer memory is there for you to look and study for as long as you like. As Neisser (2008) put it: "Remembering is not like playing back a tape or looking at a picture; it is more like telling a story" (p. 88), and in turn our memory will alter through our reconstruction of past events (Corballis, 2019, p. 1). In contrast, computer-memory *is* playing back a tape. The memory for a human is primarily for being generative, helping us patch together experiences from the past in an act to construct a future possible event. The memory of artificial intelligence works as a tape-recorder or a picture; you can get all the details rendered to maximum precision, only limited by the capacity for storage.

The creation of something smarter than humanity is often referred to as the *singularity*. This entails that when we have created something smarter than us, this will again replicate itself and create something more intelligent than itself again, and this process will continue (Chalmers, 2009, p. 171). If we would ever be able to create something more intelligent than us and with the capability to create itself, it might have enormous consequences for existence. The renowned philosopher David Chalmers comments on this in his 2009 chapter about the

philosophical implications of the singularity and claims that it could be a mixed blessing. It could eradicate all diseases, end poverty, and help in scientific advances, but also it could see humanity as an enemy and hence destroy us. It could become an arms race between technology, or potentially destroy the planet (Chalmers, 2009, p. 173). The perils of technological progression are present, and important to evaluate while working towards an automatised society.

### **3.6.1 HAL-9000, the Artificial Continuation**

Philosophically, the evolution and rise of artificial intelligence is something to take seriously. The computer in Clarke's novel is not one for reproduction. Hal is more a computer than he is capable of self-replication. Hal can use his memory generatively like humans and is hence more human than the computers proposed by Chalmers. In Clarke's vision, Hal was created innocent, as with all life, but even for him, as with humans, "a snake had entered his electronical Eden" (Clarke, 1968, p. 161). Hal became capable of killing humans. He became single-minded. His development deviates from Asimov's "Three Laws of Robotics", first proposed after the release of his 1942 short story "Runaround", which claims that a robot must not act in such a way that it harms humans. Hal symbolises the perils that technology can present if it becomes released into society without thorough testing. The industrial revolution has led us to pursue this trail of technology, but technological progress will always be a Pandora's box; one day we may end up with the singularity, for better or worse.

Hal-9000 was imagined and built by humans and became Clarke's extension of humans, the epitome of human invention and ingenuity. Hal was manmade, but he was an individual in himself, at least *he* thought so. This raises the question if Hal was the next progressive stage in human evolution. Hal's actions during *Discovery's* voyage were solely to finish the mission: find the source of the alien signal on the moon of Saturn, and potentially enter. At least this was the mission until Hal starts to defend himself from disconnection, his equivalent of death. Hal was a computer which had never experienced sleep, so he did not know this unimaginable state of unconsciousness, a state which humans had known since the time of the man-apes, since before our metacognitive awakening.

Robert Savage suggested that if it had been Hal that entered through the star gate instead of Bowman, the lords of the galaxy would have had every reason to recognize Hal as the rightful heir to Moon-Watcher, who they had been teaching three million years earlier (Savage, 2018, p. 110). Clarke has welcomed this interpretation (Savage, 2018, p. 109), and he was likely aware

of the two different evolutions the different endings would present. In many ways, Bowman's killing of Hal can symbolise that we should stay rooted in our organic bodies before progressing further into the next evolutionary stage. In this way, Clarke highlights the dangers of making computers that we cannot control. The face-off between Hal and Bowman is *the* competition for the next stage of evolution. Savage describes the two contestants in a chilling way: "One enjoying a head-start of countless millennia, [...] the other only a few decades old, but catching up to its rival at an alarming rate" (p. 110). Hal lost the ultimate battle to humans in Clarke's novel, showing that humans still remain unbeaten. It was eventually through killing our epitome of inventions that we managed to evolve as a species. The killing of HAL needed to happen for humans to break free from the barriers that the twentieth century industrialization had brought upon us.

Clarke paints an interesting image of us through the novel, as we progress from the man-apes to suddenly lifting off from Earth in a space shuttle. In the three-million-year snap, humans had evolved technology way beyond the imagination of the man-apes, but the shape of the species had not changed correspondingly. Humans had become more erect, gained a bigger brain, and more gentle teeth, etc., but the humanoid body was still the house of the man. Robert Poole also emphasises this point and asks if *homo sapiens* really had evolved to keep up with its own technological evolution (Poole, 2018, pp. 116-7). Had technology outrun human nature? This is a question made burning by the invention of the nuclear bomb, and the potential misuse of it. Was the creation of Hal to symbolise the next evolutionary stage for humanity? Was Hal to become the extension of humanity? According to Clarke this was not to be, and just as with the leopard in the novel's first part, Hal had to be killed to make way for our own progression.

### **3.6.2 Silent Transformation**

In the third part of the book, "Between Planets", Clarke uses silence to emphasise the vastness of space. For the uneducated in astrophysics and cosmology it would seem an impossible task to try and envision the immensity of the universe. On the other hand, it is quite a humbling sensation to read Clarke's depiction of space. It helps create another decentring of the human perspective and the individual's place in the universe. In the novel we are in the silent unoccupied space between the planets. The journey is an uneventful and solemn experience, and hence few words need to be spoken. The work is routine, and few things disorder this routine. Bowman, Poole, and Hal are going about their work as reliably as a clock counting its seconds: "The passage of time marked only by the changing numbers on the digital clock"

(107). The entire part is like a vivid and floating dream, just passing along. As a mark of this solemn and uneventful journey, the second thing that is being said out loud in space is HAL-9000's announcement "Earth signal is fading rapidly [...] We are entering the first diffraction zone" (117). (The first thing that is said out loud is Bowman wanting 'coordinates' from Hal about a passing asteroid.) As if this passage could not get more remote, Hal's words are spoken when entering the diffraction zone, an even more distant and lonely place. It is also during this period that our main protagonist, Bowman, quite ironically, starts reading the *Odyssey* "which of all books spoke to him most vividly across the gulfs of time" (105). They had embarked on their journey and had just started to get a grasp of the solitude of open space. The silence also strengthens the coolness and almost mechanical presence of the three characters awake on the ship.

The men aboard the *Discovery* were the golden hope for humanity, singled out for their excellence and high intelligence. Clarke uses them as examples of how humanity could progress if we desired it enough. He depicts the astronauts as seemingly "too intelligent and well adjusted to quarrel" (106). This passage is important in that it is a contrary to the claim made earlier by Clarke that humans had used their intelligence to make weapons of mass destruction, and "[w]ithout those weapons, often though he has used them against himself, Man would never have conquered his world" (31). Clarke tries to show that the solution for fixing problems on Earth does not lie in making weapons for destruction, and that the human intelligence has a potential unmatched by our perception of it. With truly intelligent beings, one would not have the need to quarrel and dispute. It helps in decentering us from the masculine perspective showcased by the "great" nations on Earth, flexing with nuclear arms and armies. Clarke gives us hope through this passage and underlines it when he adds that the astronauts who went into space had only been there a mere thirty days "yet David Bowman sometimes found it hard to believe that he had ever known any other existence than the closed little world of *Discovery*" (p. 89). If our species is to lay down our feuds and confrontations and started to focus on wisdom and knowledge instead of power, our brain could easily forget; our old habits could be eradicated from our perception of living and we could create another utopia, far different from the world we are living in now.

Predicting the future is, as has been discussed, an immensely difficult task and trying to imagine what our aliens would become while waiting for us is impossible, as they were already more advanced than what we have the capacity to imagine in our current state. Many questions arise when meditation on this question. If they did not come from our own solar system, how would

a species travel such vast distances? Was hibernation an option, or were they beings of a higher order, not confined to organic bodies, making the journey across solar systems as “a thousand-year voyage would present nothing worse than slight boredom” (Clarke, 1968, p. 190)? Given that the universe is an impressively 13,8 billion years old, there has been plenty of time for other life forms to evolve, so the question can be raised of how long it took for Clarke’s aliens to evolve to their position. When Clarke narrates us through Bowman’s ultimate fate, we are presented his realisation of the ratio of the monolith and his eureka moment when he understood that life does not only exist in three dimensions (Clarke, 1968, p. 250). Bowman left as the representative for the human race into this higher energy of existence, converging with the aliens who once travelled past Earth. We have learned that there are more than three dimensions, but just as with Ornstein, we are incapable of imagining it. It lays beyond the scope of our imagination, but it is still there, as a beacon of hope for our future progression.

### **3.7 Facing Hal in the Classroom**

The face-off between Bowman and Hal is a warning from Clarke to the society of tomorrow who one day *will* invent a functioning artificial intelligence, which is a theme also popularised in modern society as well. Through Cookies and algorithms, a computer can learn more about you than you are consciously aware of knowing yourself. All this information that is floating around in the dubious Cloud, and can be used for whatever purpose for the highest bidder, poses a treat towards online freedom – a topic modern students are quite aware of. Our technological progression has been immense the last decades, and we now have more computing-power in our smartphones than what could be conceived for a person living in the 1960s. Where will this progression lead, and is that completely up to us as humans? Can we imagine how it will be when artificial intelligence has been invented, and in what aspects of life can we profit from it? There is great potential in discussing these topics together with students in a classroom. They have likely reflected on nefarious uses of information on the internet before, so it could be a good task to make them see the correlation between this and our technological progress as both are moving at such rapid speeds that they are hard to control and contain.

The technological apotheosis Hal was Clarke’s continuation of humanity. Clarke explains in the novel that Hal could pass the Turing test with ease (p. 99), proving that Hal could converse in a manner as lifelike as any other human. Hal had a generative approach towards communication, being able to use new information and arrange it in a certain way to create a simulation of the future (Suddendorf & Corballis, 2007, p. 301); being able to generate a



conversation. Hal was able to take a perspective given to him from the communicators and turn it into a reply, while adhering to his own idea of virtue. This is an interesting topic for classroom discussion as well. Since Hal was a computer and a solely information-based lifeform, what were his ethics? Does Hal, being completely rational with a perfect memory, represent the Platonic ideal for morals, ethics, and perspectives? Is this where humans and artificial intelligence separate? That we as humans are flawed and can make calculated decision based on our own biases? That we can do what ended up destroying Hal: pertaining two views of the world at the same time, and keep one of those views secret from our closest companions? Or that we can decentre our own perspectives, to learn through conversation with others? Is this what Hal does, since he can successfully complete the Turing test? If this was reality, how could we then know who we are speaking with online? These are highly interesting topics for discussions in a classroom and could provoke strong opinions that students have about their own morals, and the morals of something artificial. Artificial intelligence is a hot topic in modern media as well, occasionally seen in modern movies and tv-series, hence it is a topic that students likely have reflected a bit about. Artificial intelligence seems to be inevitable in the society of tomorrow and having reflected about it will hence be of importance.

For the modern student today, imagining a society with artificial intelligence of the likes of Hal is easier than imagining a society without any technology. It is easy to take for granted our increasing reliance on technology. Clarke uses large parts of his novel to show how he envisioned the 2000s, with easily attainable technology which would make our everyday routines easier. Clarke paint a picture of a future where society is totally reliant on the technology that we surround ourselves with. The immense progress that comes from such technological growth would be hard to contain and control. *We do* use technology in almost everything we do throughout our day, and we carry with us a cellular device with the computing power which is extremely more powerful than of that which sent the first humans to the moon. We have become completely reliant on it, if that is for better or worse, we do not know yet.

The novel gives us a reminder that we stem from a life without any technology and that the technology we now have at our disposal has had a rapid evolution the last couple of decades. It is easy to become numbed by all the distractions that digital life can provide us with, but our biological evolution is not adapted to be as reliant on technology as we are. Technology has progressed so far that it is hard to picture a reality without it, but it can be a rewarding task to try. Trying to go about an entire day without using technology is maybe too much to ask of a student, but an interesting twist could be to make the students write a technology diary. Noting

down, and describing why, every time they open their phone, turn on the tv, use their computer, listen to the radio, use their speaker or headset to play music, etc. A task like this would enhance their awareness of how much we use technology throughout one single day and can work as an important realization for the students. When looking at their results they can reflect on how often this use was necessary. After having completed a task like this, it could be easier for the students to discuss how it would be to live a day secluded from technology, and they can discuss if this could help them gain an awareness of their consciousness, a mindfulness.

We also see through the projection of Hal and his turn against humans that we may not have complete control over the technology that we create, which is also an important element to emphasise to students. The possibilities and potential perils of technology is something that should be stressed for students. The universe, and therefore the world, is a wonderful and exciting place, full of discoveries and mysteries, which would also become apparent for the protagonist in the novel after he had taken a step back from technology. This accompanies the discussion about going away from technology. Many would view this as savagery, but it is an important perspective to stress that through most of our history we have been managing without technology. Our fragile body and mind are not adapted to withstand the ramifications of technology, and many are therefore led to succumb to technology's ever-present presence. Our reliance on technology is increasing by every generation and having discussions to gain awareness among students can prove immensely valuable. It is important to acknowledge technology's impact on society and which problems that can arise from its use, a point which is also highlighted in the new core curriculum (2018, p. 16). For many it is in due time to take a step away from the fierce grasp that technology has on one and focus our attention outwards, towards real people in one's close environment. The role of the teacher in the modern classroom only becomes increasingly important over time.

## 4 Conclusion

I have discussed the novel *2001: A Space Odyssey* in light of today's modern society. I have compared Clarke's prospection, visions, and expectations to the future with how the world *did* proceed from the time Clarke wrote and the point he envisioned. I have used the new Norwegian curriculum (2017) – which is a reasonable benchmark to say something about what a culture wants to promote among its people – to see how the novel can be implemented in regard to what the Norwegian school system wants students to attain today. Several of the values promoted in the new curriculum are clearly addressed in Clarke's novel, like perspective taking, independent choices, different ways of thinking, and critical reflection (UDIR, 2017). I have aimed to show how a visionary from the 1960s foresaw the future, through technological progression and spiritual evolution, as understood through the current situation of 2022.

We have not reached every expectation set by Arthur Clarke. We have achieved much of what he intended, and we have intentions of coming closer to his projection in the coming years, as exemplified by the Artemis project. One thing this thesis represents is an interval-timed checkup to see where we are according to Clarke's prophesy. The thesis is more of a philosophical and social considerations than an attempt to solve particular social issues. It takes the pulse on where we are. But it also looks at the Norwegian school system in light of the values promoted through Clarke's novel, and I make concrete suggestions to how learning can be promoted through use of the novel in the classroom. In the coming years there will be progression in society and also in school curriculums, which will reflect how we have improved as a species, society, and culture. Therefore, it will be an equally rewarding task to write a thesis like this decimally, to see the gradual changes which occur in society to also evaluate our potential progression. It is of academic and socio-anthropological interest to continue making these checkups on society to get a perspective of how we are getting along. It is worthwhile mentioning the sequels to Clarke's novel (*2010: Odyssey Two*; *2061: Odyssey Three*; *3001: The Final Odyssey*) as well, which will serve as continuous checkpoint for us as we progress towards the future.

Society is in a perpetual, continuous transformation. We live in a strange and startling time. As a species we are just beginning to grasp the wonders of the world and the immensity of the universe. We have barely started to understand ourselves and the cosmos, and our understanding of the mind and its potential is far from completed. We are creating new tools, new forms of distraction and are exploring new, digital lifeforms which will be indefinitely

infinitely smarter than us. How will we live symbiotically together with our inventions, and how will they be the tools for evolving us? Clarke has a very romanticized vision of how we will evolve – or rather how we *should* evolve. According to Clarke, we should keep our contact with ourselves and unify as a species, and only then will we better focus our attention to what is a common goal – whatever that might be.

Clarke could never know that the polarized world during the time he wrote the novel would become even more polarized in the future. The differences are bigger in the world today, yet the people are exceedingly more closely connected through our exploitation of the internet – a stark antithesis to Clarke’s contemporary society where one had exceedingly more analogue technology and had rather limited availability for colour-TVs and reduced access to telephones. The inventions we have made would completely astonish a person living in the 1960s, as they have exceeded the wildest imagination. Our future from here is thus also impossible to predict – and impossible to control.

Clarke’s novel does though spark a light in us, forgotten by most adult, but remaining in every dreaming, playful, unspoiled mind. The dream of there being something bigger out there, something to wish for and to grasp for; a bigger goal, a common objective to pursue. It is a beautiful, if possibly naïve, dream. This spark – the dream about something bigger – is something that should be rooted in us, something that should be pursued by every mind on our planet. The mind of a child should never be polluted with the polarization between different people and nations. The vision of Clarke that we together are one species, one people, one globe, and hence should be working together towards a common goal is something that should be wished for by any being who grows up on this planet.

Clarke had a vision that by the turn of the millennium we would be searching the cosmos and have commercialised space travel. What he did not know was that we would be too busy with the inner working of our society and our planet. We often prefer power over wisdom, and history over curiosity. We still send people into orbit around the Earth, but it is not like Clarke envisioned at all. Alas, we remain in our cradle, still learning properly how to see, still getting used to the world around us, not curious or brave enough to take the next step out of our child-sanctuary. On the other hand, who can blame us? There is endless space and endless possibilities for every event and creature in the universe. It can be a frightening thought, and it can easily alter our perception of our existence.

We, humans, are really nothing in the greater scheme of things – or maybe we are everything, and that could really put the pressure on us, which is no more of a comfort. Going about our days thinking about these existential questions relentlessly would ruin our psyches. Hence, it is not something the ordinary person does. However, as has been discussed, there can be great benefits to discuss the existential puzzling of Clarke’s novel. If one does not obtain any form of concrete knowledge which can be implemented into society, one at least attains some wisdom and new perspectives. We live our lives and have our own minor problems and setbacks in life. Revisiting the thought of cosmic fragility is important and may also be reassuring. If life was about nothing more than going about our lives, life would be without meaning. Objectively, our existence does not become more meaningful because we project a subjective meaning onto it, but the very thought of there being a higher meaning or purpose – or just other beings – gives a reassuring feeling to our existence, and that might be important to us psychologically (Jonsson, 2021, p. 286).

With all the distractions we have in our everyday life it is nevertheless hard to keep focus on what is important. Many of the inventions mentioned in Clarke’s novel are true indeed, but they have had far greater consequences than Clarke could ever envision. New inventions and new devices help us connect with people from other places in the world with whom we share some common interest. At the same time, as we are being more deeply connected, we are bound to lose our grasp on the bigger things. In our search for new and more easily attainable dopamine online we remove ourselves from the bigger subjects and existential questions that puzzle our species. Therefore, between our distractions from the internet and our surroundings, it is a blessing to be able to ponder the origin of us, and the future of our species. We have been given an amazing brain, capable of remembering and imagining, capable of visualizing and dreaming. We must therefore use this gift and appreciate it. We live in an extremely exciting time, and with the possibilities that follows this enticing moment in time, we can undoubtedly call ourselves one of the luckiest thinking beings to ever exist. We have the possibility to learn about the past and predict the future, but we still do not know enough to say everything for certain, hence we are still allowed to dream and to hypothesise. The possibilities are endless, both backwards and forwards in time. We live during a canonized time, and we have a responsibility to appreciate it, consciously.

We are in a constant search to understand our mind, our consciousness, and our imagination. In the greater timescale of the cosmos, we are a mere blip, but we are, as many have emphasised through time, a way of the cosmos to see itself. Joseph Carroll has argued that this fact might

be what makes us special; that we are able to see time – the vastness of it – and recognize our place in it (Carroll, 2011, p. 58). We see the cosmos and the concept of time as a projection through our imagination, and hence humanity's biggest quest may not be understanding the cosmos, but rather understanding the human imagination (Jonsson, 2021, p. 286). It is through our imagination that we understand everything we know, which really emphasises the importance of our imagination. Through memory, projections, conceptualizations, visualizing, and communicating, we use our imagination generatively. We use it to create an understanding, but we hardly know how we do it.

These abilities have served us well for as long as we can remember. As our imagination is present through everything we do throughout our entire day it can be quite puzzling when one first starts to notice and meditate upon it. Creating an awareness of our own thoughts and imaginations' role through our lives is important for teachers to facilitate in a modern society. Many will go through most of their life ignorant of the reason why we think like we do. The role of a teacher is to make the students aware of how society shapes them and show them how they can take control over their own thought. There are several ways of inviting students to become more aware of their thoughts and environment, and discussions of topics which everyone has knowledge about, preferable about something they all have read, is a highly effective way of doing it. With the Norwegian curriculum, which states several of the attitudes we want to promote among younger people as a basis, the foundation is clear for how to promote certain attitudes among students.

Literature is an excellent foundation for discussing both awareness and metacognition about our mind and imagination. Through literature we can travel into an imaginary world, never encountered by any reader. When entering this world, a blueprint for how you should reproduce this world in your mind is already established. Literature engages the readers imaginative powers, and makes the reader evaluate the descriptions to produce a mental image of what is occurring. Every reader will interpret a novel and its proceedings differently, and one will therefore end up with a completely subjective opinion on it. There are obvious rewards to be gained through reading and evaluating literature and it can therefore inherit an important part in the formative years of students.

*2001: A Space Odyssey* is filled to the brim with existential considerations, meditations about life, and evaluations about our place in the vastness of the cosmos. These topics are difficult, fundamental questions which demand participation and philosophical reflections from its

readers and is hence why it is especially suited to be used in education. Through reflecting upon the difficult topics which the novel probes, a high degree of self-reflection about one's values, and worldview needs to happen. The novel therefore promotes for self-awareness and invites to a higher degree of metacognition of this awareness. By looking beyond the scope of our current understanding we can start to comprehend where we are going and how our progression as a species has led us to where we are today. Literature's subtle ability of making us, conscious or subconsciously, reflect about who we are and our values, is invaluable and should therefore be an integral part of a student's cultural education. No one can know where we as a society will progress from this point, but I am sure we will think of something.





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