Fiction As Thought Experiment

Jean-Jacques Rousseau's *Emile or On Education* As a Case Study

By

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Abstract

In this thesis, I will argue that thought experiments are fictional narratives since their aim is to make-believe the imaginary scenario depicted and they are not limited by the "fidelity constraint". Besides, it will be contended that some of the fictions and thought experiments are of the same kind, the former being more elaborate because of its subject matter. In line with literary cognitivists, I will claim that we can acquire knowledge by reading works of fiction. As a response to "banality argument", "no-evidence" argument, and "no argument" argument against the cognitive efficacy of literary works, the "mental model" account of thought experiments will be adopted. According to this account, we can acquire knowledge from fiction by building a mental model that mobilizes unarticulated cognitive resources while reading the book. Finally, J. J. Rousseau's book *Emile or On Education* will be analyzed as an extended, elaborate thought experiment in the light of the mental model view.

Chapter One: A Comprehensive Summary of *Emile*

Jean-Jacques Rousseau's book *Emile or On Education* was published in 1762. Despite the fact that Rousseau adjudicated it as his best book, and Kant views its publication as an event comparable to the French Revolution (Bloom, 1979, p. 4), the book has not been paid attention as much as his other texts such as *Social Contract*. It is one of the few books that cover different subjects from education and morality to religion and politics, like Plato's *Republic* that is, according to Rousseau, "the most beautiful educational treatise ever written" (Bloom, 1979, p. 40).

In *Emile* Rousseau aims a perfect society. He has the same goal in *Social Contract* in which he elaborates on transforming the civil order, but this time, in *Emile* he intends to "transform the individual, [hence the society] through the new pedagogic practices" (McGrath, 2010, p. 123). In other words, in the former one, he tries to change society from outside whereas in the latter it must be changed from within (McGrath, 2010, p. 123). In *Emile*, he follows a bottom-up structure to reach the ideal society. Schaffer (2014) states that in *Social Contract* Rousseau scrutinizes human beings as they *are* and laws as they might be, on the other hand, in *Emile* he investigates how they *might be,* and thus it gives rise to novel political options although they are not completely considered in it (p. 7).

Allan Bloom[1], one of the two well-known English translators of the book, besides Barbara Foxley, describes the book as an experiment to solve one of the vital human problems, namely, "the education of a naturally whole man who is to live in a society". (Bloom, 1979, p.

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[1] I will use Allan Bloom's translation. I shall abbreviate it as "E" while citing from it.

29). Or, as Kant says, Rousseau endeavors to "… reconcile nature with history, man's selfish nature with the demands of civil society, hence, inclination with duty" (p. 3-4, Bloom, 1979) by introducing his novel education.

Although Rousseau abandoned and put his children into the orphanage and many of them died at very early ages (Bertram, 2020), in this book, he describes how he would raise an imaginary child, Emile. Rousseau, as a tutor, sets out to make Emile intellectually and morally independent person before he enters into society.

Emile or on Education consists of five books. It has a mixed genre -it is half treatise, a half novel. Particularly the first book is in the format of a treatise that mostly consists of propositions. For instance, the opening line of the book is a proposition that is one of Rousseau's building blocks: "Everything is good as it leaves the hands of the Author of things; everything degenerates in the hands of man" (Bloom, 1979, p. 37). He views the doctrine of natural goodness as "the fundamental principle of all morality" (cited in Cohen 2010). Then fictional features, such as stories and fictional characters (e.g. Sophie, Robert the gardener) stand out gradually and it turns into a novel.

The first three books are allocated to bringing up a noble savage starting from birth until pre-adulthood. This savage is born in the state of nature. He is not corrupted by society. Although Rousseau emphasizes the importance of raising the child in the country to keep him away from the effects of the corrupted city in his earlier years, Rousseau never completely objects to live in society. As a matter of fact, Emile is raised to live in society. In the last two books, this natural man turns into a citizen through Rousseau's education; he becomes a member of society.

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In the rest of this chapter, I will look at some of the key issues in each book.

1.1. Book I: Infancy

The first book covers infancy. Rousseau gives advice about how to raise a child, starting from birth. According to Rousseau, there is a natural order in human development. This path that nature sets for us should be followed in the child's education and appropriate pedagogic methods should be applied accordingly. On the contrary, what people are doing is searching for "the man in the child without thinking of what he is before being a man" (E, p. 34). Rousseau criticizes such an approach to the children. Once we abide by nature's timetable, cognitive faculties will develop in due course and the natural man will turn into a civil man eventually. In this context, freedom is the fundamental maxim that should be the guiding principle in education during childhood (E, p. 84). Pedagogical methods should maximize the unhindered development of natural tendencies (Bardina, 2017, p. 1384).

Rousseau criticizes and tries to reform some practices, which hamper the physical growth that is a crucial developmental milestone in infancy. For instance, he denounces swaddling which is a common practice in French society during the 18th-century.

> "The infant "hardly … enjoy[s] the freedom to move and stretch his limbs before he is given new bonds. He is swaddled. … The inaction, the constraint in which a baby's limbs are kept can only hinder the circulation of the blood, of the humors, prevent the baby from fortifying himself, from growing, and cause his constitution to degenerate." (E, p. 43)

Moreover, sending babies out to wet-nurses is another convention that pervaded among rich families in that century. Mothers prefer enjoying the entertainments of the city life meanwhile poor swaddled kids are neglected in the hands of wet-nurses. Rousseau emphasizes the importance of "maternal solicitude" which has no substitute (E, p. 44). He enjoins mothers to

breastfeed their babies. In other words, he advises mothers who are endowed with such an ability (i.e. the breast-feeding) to use it and to become mothers again. Furthermore, Rousseau advocates the practices that prepare the child for the hardships of the upcoming years. For instance, he recommends cold-water baths to make the kid invulnerable to the future sufferings or he encourages them to play with various animals and with ugly, scary objects to prevent them from forming phobias in the future.

Another task of the mother in this stage is to avert the development of unnatural desires such as dominating others. One might form "the idea that human relations are essentially ones of domination and subordination, an idea that can too easily be fostered in the infant by the conjunction of its own dependence on parental care and its power to get attention by crying" (Bertram, 2020). When the baby wants to grasp a distant object "he must be carried as [the parent] please[s] and not as he pleases" (E, p. 64). Otherwise, he will see himself as a master and his parents as his slaves. The child is allowed "to relate only to things and never to the will of another human being" (Schaffer 2014).

1.2. Book II: Childhood

Once the child starts to talk, the infancy comes to an end and the second stage of life in which, "strictly speaking, the life of the individual begins" (E, p. 78). Now "the prepubescent Emile is primarily a physical being" (Schaffer, 2014, p. 38). In book II, Rousseau states that in this period of life, nature gives the child solely the desires required for his self-preservation and the faculties adequate to fulfill them. Hence, he is self-sufficient. "Only in this original state are power and desire in equilibrium and man is not unhappy. As soon as his potential faculties are put in action, imagination … is awakened and outstrips them" (E, p. 80). Thus,

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Rousseau tries to postpone the stimulation of imagination as long as possible. If one stays in his natural condition the gap between his faculty and his desires will be small and he will be less far from happiness. The aim of the tutor's task in this period is to preserve this state and the innocence of childhood while bringing the child to "the maturity of childhood" (cited in Schaffer, 2014, p. 37).

Rousseau endeavors "negative education" according to which we should follow the path of nature and conserve what is natural without introducing anything new or contradicting it. All we have to do is protecting "the heart from vice and the mind from error" (E, p. 93). We should not try to teach virtue or truth as it is commonly done. The child is not ready for acquiring them yet. He has no idea about social relations or morality until he reaches the age of reason. Before that, the main sources of knowledge are senses, not the indoctrination or memorization. The education should be in accord with the development of the child's natural capability by a procedure of ostensibly autonomous exploration (Bertram, 2020). The child should be left free to discover the world through his sense organs. Those sensory experiences will be the foundation of his moral and cognitive development in the future. Until the age of twelve, it is the physical world, not the social or the moral one he is experiencing. He mentions a kid who was taught the life of Alexander the Great in detail even though the kid is not able to comprehend signs (e.g. king, conquest), which are frequent in this lesson. When the child was asked whether Alexander the Great was drinking a medicine or poison in a particular episode of his life, Rousseau underlies the child's parents' and tutor's "failure to recognize that the child could not appreciate the distinction between the two" (Schaffer, 2002, p. 59). It is the things, not the signs kids are able to comprehend at this period of life. Signs do not carry any meaning until the child has the experience and the understanding of the things they represent. Hence at this stage, experience has more value than giving verbal lessons.

Rousseau also adds: "[N]ever substitute the sign for the thing except when it is impossible for you to show the latter, for the sign absorbs the child's attention and makes him forget the thing represented" (E, p. 170).

One of the most controversial aspects of Rousseau's novel education is his view about books:

> "[T]he instruments of [children's] greatest misery… is books. Reading is the plague of childhood and almost the only occupation we know how to give it. At twelve Emile will hardly know what a book is. But, it will be said, he certainly must at least know how to read. I agree. He must know how to read when reading is useful to him; up to then it is only good for boring him." (E, p. 116)

There are various reasons why Rousseau condemns reading. First of all, they prevent us from "the authentic experience of the world by functioning as the intermediaries between us and the world" (Schaffer, 2002, p. 64). They inject us with the opinions of others.

Additionally, they awaken the imagination that leads to a rise in desires, wishes, and dreads outside the domain of necessity and beyond the child's capacity. In *Discourse on the Origins of Inequality,* Rousseau claims that imagination "turns man's intellectual progress into the source of his misery" (Bloom, 1979, p. 7). Hence its occurrence should be delayed as much as possible.

Furthermore, books are full of signs that the child is not able to understand. Susan Shell states that La Fontaine's fables were "the most popular French literary work for children (outside of the Bible)" in Rousseau's time (as cited in Schaffer, 2014, p. 63). However, according to Rousseau, children who read La Fontaine's fables before they have the ability to find out the right moral of the stories might go astray. The child is in equilibrium –his desires and abilities match. However, most of the time, parents look for "the man in the child without thinking of what he is before being a man" (E, p. 34). They try to accelerate the maturation process in terms of cognitive abilities. They see reading books is one way of doing it. In one of the

famous fables, a fox flatters a crow's voice to make him sing and get the cheese that is at the mouth of crow. Rousseau emphasizes that the young child is more likely to identify himself with the fox since he likes cheese. He is a physical being driven by physical needs at this period of life. As a result, he learns to deceive others to get what he wants -that is the opposite of the moral of the story. In the same way, Rousseau is against teaching history at this phase although it is basically a collection of facts. Because, according to Rousseau,"[f]acts, like fables, require interpretation" (Schaffer, 2014, p. 69) and Emile, at this stage, lacks the ability of abstract thinking.

1.3. Book III: Pre-Adolescence

So far the focus was on the physical aspect, in book three intellectual development starts. As of the age of twelve, Emile starts to gain abstract thinking. The child is now in the stage of pre-adolescence in which his strength develops faster than his needs and there is not so much time before his passions develop. The tutor does not teach but lets the pupil discover and love the sciences that are not contaminated with public opinion or with the division of labor. "What it is good for" is the guiding principle in this phase. Sciences, particularly physical sciences, rather than imagination, which are acquired by sense-experiences, are useful for him. For instance, Emile is able to find his way back home when he is hungry and lost in the woods thanks to his knowledge of astronomy. Astronomy is not compelled by his instructors or he is not attracted to it to show off (Bloom, 1979, p. 8). Or it is not a responsibility towards others, which is enforced by society as a result of the division of labor. Here, Rousseau demonstrates how the sciences that make men more dependent on each other with time can actually facilitate independence (Bloom, 1979, p. 8). Hence when Emile moves in the civil society he will view the division of labor as a needless cage (Bloom, 1979, p. 8).

Conservation of freedom plays an important role in forming a sense of self -independent of the opinion of others that is pernicious for individual authenticity "in a world where human beings are dependent on one another for the satisfaction of their needs" (Bertram, 2020). Thanks to the right kind of education introduced by Rousseau, he will always keep the "nature" inside of him and he will look at things from the perspective of it. He will know and appreciate the real value of the things, not the value attributed by the people out of conceit.

There are cases in which the utility principle fails. Once, Rousseau explains to a child how the ink is made in order to give him a "taste" for chemistry (E, p. 182). But the child does not understand the importance of the ink since he had been refrained from reading and writing so far. Rousseau tries to demonstrate how " …the knowledge of alkali, which enables one to make ink, is useful because it enables one to recognize doctored wine" (Schaffer, 2002, p. 143). But again, the pupil cannot get the point since he does not comprehend the concepts of poison or death. Rousseau makes the same mistake with the tutor who taught Alexander's life in detail to a pupil. Finally, Rousseau finds the solution in Daniel Defoe's novel *Robinson Crusoe*. Although Rousseau excludes the books from the child's education in the previous phase, he makes an exception and allows Emile to read *Robinson Crusoe*. It becomes the first book Emile has ever read. Because reading it makes the pupil see "that something is 'useful' in a new way without giving him the new needs" (Schaffer, 2002, p. 127). Crusoe is a solitary man whose only aim is to survive on an island after being shipwrecked. He is in the state of nature lead by the utility principle. His survival depends on his rapid "… learning the real value of things rather than being distracted … by a thing's symbolic value or by the value another might ascribe to it" (McGrath, 2010, p. 131). For instance, Crusoe regrets taking a

bag of coins from the wrecked ship in one of his trips to the ship at the expense of his life because money does not have any value, and hence it is useless, on the island.

Forming a differentiated "I" requires an "other". Crusoe fulfills this function, as a model and a foil, without leading "to fragmentation, amour-propre, or the 'living through the eyes of others' that is characteristic of the unhappy bourgeois" (Schaffer, 2014, p. 79). Even though Rousseau asks Emile to identify himself with Crusoe he also asks Emile to evaluate Crusoe's actions and notice his failings. Hence, Christopher Kelly declares, "Emile identifies with Robinson's situation rather than with the man" (as cited in Schaffer, 2002, p. 123). Hereby Emile's first activity of imagination involves seeing himself in a situation free from other people, their desires, vanity, and all other vices of society. Although Emile has not become an active member of society yet, he starts to form some thoughts about the social relations in his mind by reading *Robinson Crusoe*.

The reading represents the transition from nature to society. Conventionally reading is the way of conveying knowledge. During the Enlightenment

> "… [w]ith the publication of the Encyclopedie "an ideal 'everyman'… use the Encyclopedie as a means to expand or deepen his knowledge about the world. For this 'everyman' the Encyclopdie would represent a microcosm of the existing world …, made … available for his reading, consumption, and possession." (Vanpee, 1990, p. 41)

However, Rousseau contested the supposition that reading is an objective means to gain knowledge for all. According to Rousseau, reading is a practice that influences the reader. It does not assure direct access to knowledge; even "… it can corrupt, mislead or turn the reader into a foolish pedant" (Vanpee, 1990, p. 41). He gives an example of a man who seems very happy and in peace but becomes devastated after reading a letter.

1.4. Book IV: From Adolescence to Pre-Adulthood

While Emile is approaching the age of fifteen, he "has become aware of himself as an individual" (E, p. 203) at the end of book III. The "second birth" takes place in Book IV. "We are, so to speak, born twice: once to exist and once to live; once for our species and once for our sex" (E, p. 211). Until this nubile age, there have not been any radical differences between girls and boys. "Everything is equal: girls are children, boys are children; the same name suffices for beings so much alike" (E, p. 211). At this stage, one's sex comes into prominence. This is the time when "ordinary educations end …when ours ought to begin" (E, p. 212).

Now, Emile is an individual who is able to judge utterly. Reading fables and history is allowed at this phase. Rousseau argues that "the moral with which most fables end" should be cut out in order to give the reader opportunity to find it independently (E, p. 248). By reading history Emile judges men's actions impartially. Amour-propre, "the relative I is constantly in play and the young man never observes others without returning to himself and comparing himself with them. … [I]f he just once prefers to be someone other than himself—were this other Socrates, were it Cato—everything has failed" (E, p. 243).

Emile is at the stage of adolescence in which passions grow rapidly. He is still only a natural man, not a citizen. One might ask if Emile is a self-sufficient person, as it has been described so far, why does he ever want to be a part of the society? Rousseau finds the answer in "sexual passion". It makes a person care about other people. If it does not develop appropriately it leads to "amour-propre". Rousseau makes a distinction between "amour de soi" and "amour-propre". Both of them are self-love. The former is the natural one, people

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born with it. It is an instinct that drives us to fulfill fundamental needs such as physiological and safety ones. It is vital for self-preservation.

Amour-propre is self-love in relation to other people. The extreme levels of amour propre would cause to the negligence of others' worth or cause attempts to oppress them. Excessive amour propre is the source of wickedness in society. Rousseau's education intends to foster "autonomy and [to] foster autonomy [while] avoiding the development of the most destructive forms of self-interest" (Bertram, 2020). At this fourth stage of life, Emile is in late adolescence and he is about to become an adult. He develops an interest in others and discerns his sexuality. Sexual passion might exacerbate the amour-propre since it includes comparison, even competition, being liked by other people, jealousy, and so on. When sexual passion and amour-propre are combined, it might cause alienation and exploitation (Bloom, 1979, p. 16).

How can sexual desire be the authentic ground for concern for others? The answer is the sublimation of sex. According to Bloom (1979),

> "sublimation as the source of the soul's higher expressions -as the explanation of that uniquely human turning away from mere bodily gratification to the pursuit of noble deeds, arts, and thoughts- was introduced to the world by Rousseau" (p. 15-16).

Sublimated sex that gives birth to two passions, namely compassion, and love, is the key. When someone feels that he is a part of society for the first time he cannot be unresponsive towards other human beings like him, and unavoidably, he compares himself with them. If he realizes that another person is in a better situation than him then he becomes jealous. But if he is the one who is in a better position then his first feeling towards the others will be pity, not the envy.

Rousseau intentionally puts Emile in a situation in which he sees poor and misfortunate people so that Emile's first feeling towards other people would be compassion. "Pity is sweet

because, in putting ourselves in the place of the one who suffers, we nevertheless feel the pleasure of not suffering as he does" (E, p. 221).

Schaeffer (2014) considers "the stimulation of his capacity for pity [as] the necessary first step in forging a healthy connection between him and the rest of humanity" (p.86) without awakening the amour-propre, feelings of vanity, pride, power, and domination. Since his first encounter with others is mediated by pity, the suffering of others triggers the feelings of care and of gratitude. Thus Emile finds a safe place for his moral worth to be acknowledged where his amour propre is enacted on a non-competitive base (Bertram, 2020). Thanks to pity, Emile never desires to injure others and he never wishes to become someone other than himself as civil man tends to do (Schaffer, 2014, p. 45). He is satisfied and happy in his place. "He will be afflicted at seeing his brothers turn into ferocious animals because they do not know how to be satisfied with being men" (E, p. 242). Furthermore, reading history books has been made him already aware of the sorrowful endings of misled heroes.

We have left the childhood in which "he knows himself only in his physical being, [he] ought to study himself in his relations to things" (E, p. 214) beind. Now "he begins to sense his moral being, he ought to study himself in his relation with men. This is the job of his whole life" (E, p. 214). "As soon as man has need of a companion, he is no longer an isolated being. His heart is no longer alone. All his relations with his species, all the affections of his soul are born with this one" (E, p. 214). Although "sociability may be possible without amour-propre, erotic attachment is not" because "first glance at one 's fellows" is motivated by the desire to be preeminent in the eyes of the beloved, and "emulation, rivalries, and jealousy" will be the inevitable result hence it must be deferred as long as possible (Schaffer, 2014, p.88).

Emile feels sexual longings at this stage but he does not know to whom he is feeling that for. At first, Rousseau does not reveal that too. Because Emile should be educated in compassion and in religion before he is given education about erotic love (Schaffer, 2014, p. 111). We already covered the compassion part. Rousseau discusses his ideas on religion and morality in the subsection of *Confession of Faith of the Savoyard Vicar* in book IV. He follows another method than the rest of the book. He conveys his own experiences with a priest from his own past.

Rousseau argues that Emile should not be instructed in a particular religion instead "we shall put him in a position to choose the one to which the best use of his reason ought to lead him" (E, p. 260). Most of the time, people are indoctrinated into their parents' religion and become a follower of it without judging their dogmas. Since it is accidental, if one happens to born in Rome he would be Christian whereas if he happens to born in Cairo he would be a Muslim. Rousseau criticizes all kinds of tradition and authority that determine the religion of the pupil. It is the reason and the conscience that should be guiding principles in the matter of religion. The mental faculty of conscience is the source of moral motivation that directs us to become righteous and to "appreciate the well-orderedness of a benign God's plan for the world" (Bertram, 2020).

1.5. Book V: Adulthood and Female Education

Finally in Book V, Rousseau tells Emile that sexual longing he has been feeling for a long time actually is the love of God mediated by the love of a woman (Bloom, 1979, p. 21) who is

Sophie. This last book starts with a subsection titled "Sophie or the Woman" in which Rousseau presents his conception of women and their education in a broad sense and then he introduces the detailed story of Sophie.

Sophie's education is different from Emile's education because Emile and Sophie have different social roles that complement each other. I will mention what kind of education Sophie should have in the next chapters. Emile falls in love with Sophie, which literally means wisdom. She is a virtuous woman who will take over the job of "governor" from Rousseau, once they get married. Emile who is an autonomous adult finds his partner "who can be [a] source of secure and non-competitive recognition" (Bertram, 2020). The difference between Sophie and the tutor is that "she is part of the whole that she is trying to maintain" (Schaeffer, 2014, p. 144). For Rousseau, it is not the individuals but the families that are fundamental constituents of the society. It is the family life that prepares men for civic participation, assuming "that the family must be a form of community in which the individual experiences no conflict between his or her own interest and the common good" (Schaeffer, 2014, p. 141). Both men and women have particular roles that contribute to the perfect union of them.

In the very last part of the book, Rousseau conveys some of his political creeds. He notifies about the nature of the world as a trusted advisor rather than a tutor who manipulates his pupils' environment (Bertram, 2020).

Enough for *Emile*. This summary pretty much depicts what Rousseau tries to demonstrate in the book. Does it sound like a thought experiment? For me yes, it is an extended thought experiment. As Allan Bloom (1979) states: "… *Emile* is an experiment in restoring harmony

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[with] … world by reordering the emergence of man's acquisitions in such a way as to avoid the imbalances created by them while allowing the full actualization of man's potential." (p. 3) One can ask how such long texts or namely a literary fiction can be a thought experiment at all. Or one might raise an epistemological problem: "How can one gain knowledge about the world given that things written in fiction are not real?" In the next chapters, I will reply to objections and I will back up my claim.

Chapter Two: A Short History of "Thought Experiment"

Before going into the details of the discussion, I will look at the history of the term "thought experiment" briefly. Although the practice of thought experiments is not an invention of modern science, there is no ancient Greek term corresponds to what we nowadays refer to as thought experiment and presumably ancient philosophers did not have our modern notion of thought experiment (as cited in Brown & Fehige, 2019). But there is no doubt that they did use thought experiments. For instance, the story of the "Ring of Gyges" is an example of a thought experiment. Even, Miščević (2012) argues that Plato's *Republic*, as a whole, is an extended thought experiment.

Ernst Mach (1897) is known as the one who introduced the term 'thought experiment' (*Gedankenexperiment*). In his book *Knowledge and Error,* he writes,

> "[B]esides physical experiments there are others that are extensively used at a higher intellectual level, namely thought experiments. … Our ideas are more readily to hand than physical facts: thought experiments cost less, as it were. It is thus small wonder that thought experiment often precedes and prepares physical experiments" (as cited in Bokulich, 2001, p.286).

However, the idea that there is continuity between thought experiments and physical experiments has been challenged since there might be some thought experiments that are logically possible but physically impossible.

Moreover, Mach is not the one who coined the term "thought experiment". "It was used already in 1811. The conceptual history of 'thought experiment' goes back at least to the Danish "Tankeexperiment," as it was used by Hans-Christian Ørsted" (cited in Brown &

Fehige 2019). Even before him, German philosopher-scientist Georg Lichtenberg (1742–1799) introduced an implicit theory of 'experiments with thoughts and ideas.' (Brown &Fehige, 2019). These two figures belong to the first stage in Brown and Fehige's (2019) four-stages of the contemporary history of philosophical inquiry of thought experiments. Significance of thought experiments in philosophy and science is recognized in the18th and 19th centuries. The beginning of the 20th century is the time when the subject of thought experiments appears again in a more structured way. Mach, Pierre Duhem, and Alexius Meinong are prominent figures of the second phase (Brown & Fehige, 2019). The period between the 1950s and 1980s marks the re-acknowledgment of the role thought experiments play in scientific practice. Although from Dennett to Fodor there are plenty of well-known names, the main representatives of the third stage are Alexandre Koyré, Kuhn, and Popper (Brown & Fehige, 2019). The current discussion of thought experiments is the most plentiful one when it is compared to the previous three periods. Basically, it is a debate between empiricist John Norton and rationalist James Robert Brown. Between these two poles, there are various moderate accounts of the thought experiments that I will examine in the next chapter.

Although it is not certain who introduced the term "thought experiment", they are widely used in different fields. The well-known examples are Galileo's falling bodies, Newton's bucket, Einstein's elevator in physics; Judith Thompson's "violinist", the "trolley problem" in moral philosophy; Rawls's veil of ignorance, Plato's Republic in political philosophy; Frank Jackson's scientist Mary, John Searle's Chinese room in the philosophy of mind; Hume's monetary thought experiments in economics. There are dozens of articles about these experiments. They have an interdisciplinary character whose importance has been recognized in different areas. They play an important role and are extensively discussed in those fields.

Even though various figures declare that *Emile* is a thought experiment, to our knowledge, nobody has comprehensively analyzed *Emile* as a thought experiment so far.

Chapter Three: Thought Experiments and Fictional Narrative

In a recent discussion on thought experiments, several philosophers point out that there are some stimulating similarities between philosophical questions about thought experiments and issues that arise in the philosophy of fiction.

3.1. Similarities between Thought Experiments and Fictional Narratives

First of all, "literary fictions and thought experiments have a narrative structure … [which consists of] a sequence of events with a beginning, middle, and end" (Elgin, 2014, p. 230). Sorensen (1992) underlies that both thought experiment narratives and fictional narratives are incomplete; there is not any correct answer to particular questions about the characters and events featuring in the narrative. For instance, 'Does the scientist Mary in Frank Jackson's thought experiment wear glasses?' or 'What is the price of the ticket Holden bought for Phoebe to take a ride in the carousel in J. D. Salinger's novel *The Catcher in the Rye?'* According to Norton's empiricist view (1996) that I will discuss in the following sections, those details are unnecessary since they are not significant components of the underlying message of the narrative.

David Davies (2007) claims that there are two necessary and sufficient conditions for a narrative to be fiction: The author must (i) aim to make-believe, rather than believe, the content of the story narrated and (ii) it should not be restrained by the 'fidelity constraint' (i.e. they do not have to involve events that have occurred only in the real-life) (p. 31). In the same way, thought experiments appear to follow the same structure. They envisage a hypothetical case in which a series of events is not restrained by the fidelity constraint (i.e. they do not

involve necessarily the actual events). "The reader is intended to make-believe, rather than believe, that the hypothetical situation obtains and the described sequence of events occurs" (Davies, 2018, p.518).

However, Nancy Nersessian has some doubts about the fictionality of the narratives in thought experiments. She argues that unlike the fictional narratives, in thought experiments it is plain that they depict a potential real-world situation, in which "objects would behave as they would in the real world" if the postulated conditions were to meet (as cited in Davies, 2007, p.32). In other words, the motivation behind constructing a thought experiment might be different from the motivation of an author who writes literary fictions.

As a response, Davies asserts that in many of the fictional narratives, the authors have a similar motivation with the authors of thought experiments. He gives utopias and dystopias as examples. For instance, writers of *1984* and *Brave New World* aim to make-believe the reader that the content of the book might be the situation in some societies in the near future. They lead the readers to question the current socio-political system and look for alternative ones. Additionally, when we think about *Emile* this objection fails since it is similar to utopias in this respect. Rousseau intends to make-believe in the content of the novel (i.e. after reading the book one will comprehend that his novel education is better at the fulfillment of human beings' potential to create better societies). Hence, they will be critical of the conventional education system.

3.2. Fiction as Elaborate Thought Experiment

Some literary fictions and thought experiments are of the same kind and the sole distinction is in degree. Fictional narratives are elaborate, extended thought experiments. At this point, it is vital to emphasize that although I claim that every thought experiment is a fictional narrative, I am not claiming that every fictional narrative is a thought experiment. Only some of them are thought experiments.

In comparison to fictional narratives, thought experiments, particularly in science, can be plain since they depend on the background suppositions that are accepted by the scientific community. They get straight to the point without spending so much time on conveying background information. On the other hand, this is not the case for works of fiction. Fictional narratives are more extended and elaborate than thought experiments because they do not firmly rely on fixed and shared assumptions, authors of literary works choose and arrange their own parameters and operate in a compact area of alternatives (Elgin, 2007). Most of the time they build the story from scratch. They give a detailed account of characters, events, and situations to obtain their goal and convey their message properly. Hence, stage setting takes more space in fictional narratives and that makes them more extended than thought experiments.

Moreover, fictions are more elaborate because of their subject matters. Noel Carroll (2002) examines E. M. Forster's novel *Howards End* as a thought experiment. Carroll (2002) argues that the novel "is structured in terms of … [a] virtue wheel", that it consists of comparing and contrasting characters with each other "along the dimension of a certain virtue or package of virtues" (p. 12). An action relies on latent intentions and emotions to a certain degree. In addition, there is an intricate interaction between virtues and personality traits. A great number of factors (from the set of circumstances and its background to the virtues and

personality traits) should be taken into account and should be examined elaborately in a work of fiction (Carroll, 2002, p. 18). As Jane Austen puts: "three or four families in a country village is the very thing to work on" (as cited in Elgin, 2007). Social life is a multifaceted phenomenon. It is complex enough to examine the moral development of members of a small number of families and relationships among them.

Because of its subject, *Emile* includes so many variables as well. For instance, the socioeconomic status of the family the child is born into, the climate of the place where s/he is raised, the order of the course of study, the gender of the child, the developmental stages, and so on. Rousseau gives a detailed account of each of these and other variables that are not mentioned here. Moreover, Rousseau brings his vision into being in Emile. He specifies his character, his education, and even the name of his wife, Sophie. "[T]his concreteness, in turn, is connected to [the] effectiveness in stimulating" (Carroll, 2002, p. 19) the content of the book.

3.3. Cognitive Value of Fictional Narratives

One might object that we can learn something new by entertaining thought experiments but that might not be the case for the fictions most of the time. After reading a literary fiction we assert that we have learned something. However, this claim is too vague. Does it mean that the amount of information we have has increased? Or is it our understanding that has been enhanced? What kind of cognitive attainment we are talking about is not clear.

Literary cognitivists assert, literature "is a source of knowledge … concerning the extra-fictional world" (Davies, 2018, p. 513). We can acquire knowledge from reading literature,

particularly from psychologically realistic novels of the 18th and 19th centuries (Davies, 2007, p. 34). For instance, by reading J. Austen's novels such as *Pride and Prejudice* we can learn about the status of women in 19th century Britain.

One might still ask "What kind of knowledge are we acquiring by reading fiction?" According to Davies (2010) fictional narratives could be a source for gaining knowledge and comprehending the world at least in four aspects:

Fictions can be a source of (i) factual information about the world. Most of the time, authors build their narrative in a specific place and on a particular period (p. 54). Some writers might use a real context as the stage for their literary works. By reading Tolstoy's novels one can be informed about Napoleon's invasion of Russia and its effect on Russian society. In the case of *Emile,* Rousseau uses 18th century French society as the setting. He evaluates traditional methods of child-rearing. For instance, he gives some criteria for choosing the best nurse such as she "… must be healthy alike in disposition and in the body. The violence of the passions as well as the humours may spoil her milk" (E, p. 76). From this passage, we can say that it was a common custom to have a wet-nurse to raise children in 18th-century France.

Fictions can be a source of (ii) understanding of general principles. They might exemplify, overtly or tacitly, an ethical, psychological, or metaphysical principle that might be taken to regulate the occurring events in the real world (Davies, 2010, p. 57). One might get knowledge about the demeanor in which moral necessities affects personal relationships by reading Henry James' novels (Nussbaum, 1990). One can see how Rousseau's views about the social roles of different genders shape his ideas about the education of males and females by reading *Emile*.

Fictions can be a source of (iii) categorical understanding that refers to the new natural, and psychological categories or kinds whose application to the actual world sheds lights on particular matters of fact (Davies, 2010, p. 67). *Emile* renders the reader aware of the role of geography in which people were born in plays a significant role in people's religious beliefs. Or one can see how people inherit their parents' or their home-countries' religion unconsciously.

Last but not least, fictions can be a source of (iv) affective knowledge (i.e. "'what it would be like' to be in a particular set of circumstances" (Davies, 2010, p. 57)). This type of knowledge makes us see the situation through other people's eyes. A plethora of studies has shown that reading literary fiction increases both "cognitive empathy (or a capacity to see matters from other people's perspective) and affective empathy (or a feeling of sympathy for other people)" (Young, 2019, p. 318-319). They deploy our empathy and it gives us new perspectives. If one were asked, "Would you rather prefer the death of one person or five people?" S/he might respond "One person" straight away. Yet, when one places this question into a narrative and asks, "You are on a bridge. A runaway trolley whose brakes are broken goes down towards five people. You have a chance to stop it by pushing the fat man next to you over the bridge. If you do that only one person (i.e. fat man) will die instead of five." In this case, one might empathize with the poor fat guy and it might not be as easy as the previous one to answer. In the same vein, before reading *Crime and Punishment* if one says, "A man kills his a woman" in the book, you might immediately judge how wrong it is and you might blame the guy. However, situations one is in could be more complex than it seems. After reading the book one can empathize with Raskolnikov and can see the situation from his perspective. It leads readers to reevaluate the views about him. Once you contextualize an argument or a question other cognitive faculties, such as empathy, are involved in.

Although Rousseau is revolutionary in many ways when it comes to the women's place in society the effects of his era can be seen easily. He argues that male's and female's education should be different since their roles are distinct. For instance, he says, "almost all little girls learn to read and write with repugnance. But also for holding the needle, that always learn gladly. Sowing embroidery and lace-making come by themselves" (E, p. 368).

Besides, it seems Rousseau believes that women are not capable of attaining higher rational functions (Weiss 1987). Even if they do, it is not in their scope of roles:

> "She must ... make a profound study of the mind of man -not an abstraction of the mind of man in general, but the minds of the men around her, the minds of the men to whom she is subjected by either law or opinion. ... The art of thinking is not foreign to women, but they ought only to skim the sciences of reasoning." (E, p. 387)

A contemporary reader of the book, especially males, might put themselves in the shoes of the female and try to imagine how life would be for them and might conclude that Rousseau seems sexist in terms of his opinions about female education and the role of women in the society. I will discuss this issue more in the last chapter.

3.4. Epistemic Problem of Fictional Narratives

Some question the epistemic status of what we gain by reading fictional narratives. They query whether or not it is genuine learning. They argue that the most we can acquire from reading fictional narratives are "… *hypotheses* about the general ordering of things in the world, or *beliefs* about specific aspects of the world, or *potentially insightful* ways of categorizing things in our experience" (Davies, 2010, p. 58). These are not corresponding to genuine learning; it requires them to succeed in additional tests to obtain the status of knowledge.

Jerome Stolnitz (1992) underlines the "cognitive triviality" of literature according to which the art is not able to confirm any of its truths. Even though general principles might be obtained

> "as 'thematic meanings' from the fictional narratives of literary works, the supposed 'evidence' for the reality of these principles is flawed in three ways: (a) the work cites no actual cases, (b) it relies on a single example, and (c) it is gerrymandered to support such principles, having been carefully designed to exemplify them." (as cited in Davies, 2018, p. 513)

In the same vein, Noel Carroll (2002) introduces the "no evidence" argument according to which knowledge that is implied by the literary works needs to be warranted. Fiction does not have any justificatory power since it does not provide any empirical evidence. Hence it does not provide any genuine knowledge. It offers only some hypotheses that should be confirmed by further tests.

Carroll also mentions two more arguments against the literary cognitivists: the "banality argument" and the "no-argument" argument. Although the banality argument admits that literary works might provide some knowledge, that knowledge does not offer more than a truism. It is just a repetition of what we already know. Nevertheless, they agree that literature might communicate general truths but cannot educate.

The "no argument" argument has two parts. The first part is similar to the no evidence argument. The literary work can imply some general truths at most, but cannot argue on their behalf (Carroll, 2002, p. 6). Secondly, authors or readers are not engaged in judging whether or not claims made in literary works are true. It is often said that readers enjoy the aesthetic value of books and they do not critically engage in the fictional content (i.e. whether or not writers' claims are true). However, while reading, the reader inevitably reasons about the content of the book. This cognitive activity does not hinder the aesthetic value of the book.

Even it is a part of that value. Besides, Davies (2010) makes an analogy between theoretical sciences and literary fiction. He states that even though the tasks of theoretical scientists are developing and refining theories and transferring those theories to empirical scientists to test them, they are still cognitively valuable. In the same way, literary fiction has the same cognitive value, although they do not provide any evidence in support of its assertions.

There are different accounts in favor of literary cognitivism. Before examining the account I support, I will address other views first. Noel Carroll (2002) and Catherine Elgin (2007) are two crucial figures that advocate the cognitive efficacy of literary fiction based on the assumption that fiction is a thought experiment.

3.5. Carroll's view

As a response to objections, Carroll argues that literature can be a source of moral knowledge. Literary fictions are immune to the no-evidence objection because they do not intend to find out empirical knowledge. Once they succeed, they uncover conceptual knowledge that was already possessed by the reader. Fictions "aim at the conceptual reorganization of antecedent knowledge rather than empirical discoveries about the world" (Carroll, 2002, p. 8). Also, they generate knowledge due to the fact that they make what has already known unveil.

Carroll (2002) responds to the "no-argument" argument by declaring that thought experiments are enthymematic. Although it is not explicitly stated in the narrative, one operates on her prior conceptual store and examines the depicted situation (p. 9). He gives an example of a story about a seller who counts money meticulously not to be denounced as a fraudster. Once the reader reads these lines s/he comprehends the goal of the narrative and differentiates

moral action from prudent action by herself. He argues that some of the literary works function as thought experiments. In order to substantiate this claim, as it is already mentioned in the previous sections, Carroll investigates the novel *Howard Ends* as an extended thought experiment that clarifies and purifies our ability to apply moral concepts.

Emile might be read as a challenge to the conception of teaching through indoctrination. Instead of forcing the student to memorize things that are beyond his/her capacity, Rousseau emphasizes the "negative education" according to which the pupil grasps what s/he is able to by experiencing them by himself/herself. As a tutor, he allows Emile to explore things through his senses. In order to clarify the concept of indoctrination and to show the difference between his method and the conventional method of indoctrination, he gives a contrasting example. As you may recall from the first chapter, he mentions a pupil who memorized the details of Alexander the Great's life without understanding them. By presenting a structured array of contrasting cases he underscores the importance of the pedagogical methods that are compatible with the pupil's cognitive ability. Moreover, towards the end of the book, in order to provide an occasion for the reader to judge his novel education, Rousseau presents a thought experiment in which he compares Emile with another imaginary pupil.

> Let us take two young men, emerging from their first education and entering into society by two directly opposite paths. One suddenly climbs up to Olympus and moves in the most brilliant world. He is brought to the court, to the nobles, to the rich, to the pretty women. I assume that he is made much of everywhere, and I do not examine the effect of this greeting on his reason—I assume that his reason resists it. Pleasures fly to him; every day new objects entertain him. … You take him to be satisfied; but look at the condition of his soul. You believe he is enjoying himself; I believe he is suffering. (E, p. 227)

Rousseau argues that this pupil is not happy since he is afflicted with the unsatisfied yearnings for "multitudes of alleged goods which he did not know, and most of which, since they are only for a moment within his reach, seem to be revealed to him only to make him regret being deprived of them" (E, p. 228). These kinds of opposing cases contribute to the

identification of conceptual differences, dependencies at hand.

Even though Carroll has valid remarks on the cognitive value of literary works he limits the function of the thought experiments to the conceptual refinement. However, in addition to that role, literary fictions are more a matter of providing resources for arriving at a rational equilibrium between our concepts and the practices they are intended to serve (Davies, 2018, p. 515). We need a much more comprehensive account that covers not only unearthing conceptual knowledge but also supports us to understand the world in a great manner. Fictions might, also, disclose some empirical truths. For instance, Rousseau's view regarding developmental stages is later supported by Piaget's studies about cognitive development. Moreover, Davies (2018) adds that Carroll's reply to the "no-evidence" objection only works if the cognitivist's claims are confined to conceptual knowledge (p. 515).

3.6. Elgin's view

Another well-known response to the criticism of literary cognitivism comes from Catherine Elgin (2014). Elgin goes one step further from Carroll's account. She adopts Kuhnian understanding: thought experiments not only refine our concepts but also change our beliefs about the world. Elgin states that epistemic problem occurs when one adopts what she calls the "information transfer" view according to which we advance cognitively by accumulating knowledge about the world. However, she maintains that the major barrier to making "cognitive progress" is the absence of correct "ways of organizing, classifying, and properly orienting ourselves towards the information we already possess" (Davies, 2018, p. 315). She

argues that fictions lead to cognitive progress by creative 'reconfiguration' that lets us gain new and valuable ways of configuring our experience thus about the world (as cited in Davies 2010).

She claims that thought experiments, fictions, and scientific experiments have a shared characteristic that allows creative reconfiguration: they exemplify the features of the real world so that they provide epistemic access to those features of the world (Elgin, 2014, p. 222). Exemplification is "the relation of a sample, example, or other exemplar to whatever it is a sample or example of. … An exemplar directly refers to a property or a pattern it instantiates or a relation it stands and thereby … instantiate that property or pattern or stand in that relation" (Elgin, 2014, p. 224). Exemplars allow for epistemic access to those properties, patterns, and relations by manifesting them.

She argues that fictional narratives and thought experiments are hypothetical constructions that enhance understanding by exemplifying particular characteristics. Exemplification has a selective character. Thought experiments depict a setting that makes particular features salient and manifests their importance. Elgin makes an analogy between scientific experiments and thought experiments. She argues that the common belief that science reflects reality as it is is wrong. Because in order to make one of the variables more salient than the others, and to prevent the confounding variables intervene in the results, scientists create an isolated, artificial, and strictly controlled environment in the laboratories. They even use some genetically modified rats that are reared in the labs.

As in the case of scientific experiments, the authors of literary fiction also control the characters and the set of events in order to make particular patterns, features, or phenomena

more salient. For instance, in her novels, Jane Austen focuses on a small number of families in order to bring prominent concerns to the front. By doing that she actually forms a rigidly controlled thought experiment. Even though sometimes she is criticized for not including the national politics or the effects of big historical events such as the Napoleonic wars, as Elgin (2007) states, in her thought experiments Austen intends to pay "attention on aspects of life that are pretty much untouched by the great forces of history." Depending on the intention and the goal of the author s/he selectively disregards some aspect of the world. Some might take a wider view as in the case of Charles Dickens's novel *A Tale of Two Cities*. Even in this case, Dickens selects the events, and figures cautiously. However, nobody can blame them for doing that since "it is no criticism of an experiment on pure water that it neglects the widespread impurities in lakes and streams" (Elgin, 2007).

Hence,

> "Although ... thought experiments are not physical realizations of the phenomena they pertain to, like real experiments, they exemplify properties or patterns that they share with those phenomena. They thereby afford epistemic access to properties and patterns that are realized in fact." (Elgin, 2014, p. 221)

For instance, according to Elgin (2014), Galileo's "Falling Bodies" thought experiment exemplifies the inconsistency (of Aristotelian physics) without requiring the implementation of it in the real world. What Galileo basically does is showing that the speed of the falling bodies is not dependent on the weight, which is in contradiction to the Aristotelian physics. I will discuss this thought experiment in detail in the next section.

In *Emile*, Rousseau exemplifies an education whose aim is bringing the savage into the civilization. While doing that he highlights specific "properties, patterns and relations" such as virtuous parenting, gender roles, the role of first-hand experience in education. Rousseau, himself, instantiates and exemplifies an ideal tutor and Emile exemplifies a pupil who turns

into an ideal citizen through education. Readers can internalize and incorporate their characteristics into their personalities and exemplify ideal tutors or citizens in real life.

Elgin talks about an 'aesthetically sensitive reader' whose experience qualifies her to be aware of what to concentrate on in a literary piece. She "reads a work in light of her understanding of the world and understands the world in light of the works she has read" (as cited in Davies, 2018, p. 516). She "tests her insights to see whether they make sense of the text" and then she projects those insights to the extra-fictional reality to see whether "they ring true … thus heightening her awareness of patterns, perspectives, and possibilities both in the work and the world" (as cited in Davies, 2018, p. 516).

However, Davies (2018) argues that Elgin does not provide a sufficient account in explaining how testing through projecting from narrative to the outer world is essential for our engagement with literary fictions as literature, and hence "why we are entitled to view literature as a source of knowledge rather than as merely a source of hypotheses" (p. 516).

So far, I have discussed Carroll's and Elgin's theories. Neither of them provides a satisfying account for the cognitive value of literary fiction. David Davies (2007) takes a different approach and responds to such criticism directed at literary cognitivists by looking at theories that are offered to solve the epistemic problem of thought experiments. The reasoning goes as follows (Davies, 2018, p. 512): 1) Scientific and philosophical thought experiments are granted a cognitive value. 2) Those thought experiments are short fictional. 3) Since some of the fictional narratives and thought experiments are of the same kind, the former just the extended version of the later, those fictions have a similar cognitive value. Hence, one can apply an account of thought experiment to the fictional narratives.

Like fictions, thought experiments' epistemic value is also questioned. The origin of the epistemic problem of thought experiments goes back to Kuhn. He asks, "How is it that by contemplating what would happen in an imaginary scenario, it is possible to acquire new knowledge or understanding of the physical world?" (Camilleri, 2014).

There are various accounts of TEs in favor of the cognitive value of thought experiments. Davies (2007) divides those accounts into two comps: deflationary theories and inflationary theories, each having extreme and moderate versions. Those who are in the former camp reject the epistemological problem by denying both or either of the following claims: (i) thought experiments present new data or new knowledge about the world, (ii) thought experiments include reasoning that cannot be reduced to inferences of any standard kind without epistemic loss. On the other hand, inflationary responses accept both of the views above and they provide an account of how thought experiments have distinctive epistemic value (Davies, 2007).

I will not consider all accounts of thought experiments; instead, I will focus on only the commonly accepted views. The ongoing philosophical exploration of thought experiments is a debate between rationalist James Robert Brown (extreme inflationist) and empiricist John D. Norton (moderate deflationist). There are also other moderate inflationist theories, such as mental models that I will defend in this debate.

3.7. Brown's Platonist Account

Brown (1991) argues that not all but some thought experiments are "Platonic thought experiments" from which we can gain a priori knowledge. In particular cases, we can go further than the empirical data and acquire a priori knowledge. Thought experiments yield a priori insights into the laws of nature by means of some kind of "intellectual seeing" (Davies, 2007). For instance, in mathematics, we might show an argument to be true by using pictures. In such cases "we grasp an abstract pattern" by means of a sort of "intellectual perception" (as cited in Davies, 2018, p. 519).

Other examples of Platonic thought experiments can be found in natural sciences, such as Galileo's "Falling Bodies". In this paradigm case of thought experiment, Galileo shows how Aristotelian physics leads to a contradiction. In his *Dialogues Concerning Two New Sciences,* one of the fictional characters, Salviati states, "But, even without further experiment, it is possible to prove clearly, by means of a short and conclusive argument, that a heavier body does not move more rapidly than a lighter one . . . as those mentioned by Aristotle" (Galilei, 1914). According to Aristotelian understanding, a heavy body falls faster than a light one. Galileo asks us to imagine a composite object (H + L) that consists of a light musket ball attached to a heavy cannonball. The composite object must fall faster than the cannonball alone (H + L > H). However, at the same time, the compound object must also fall slower (H + L < H), since the lighter part, the musket ball, retards the composite object. It will act as a drag on the heavier part. Therefore, we have we have a contradiction (H + L > H & H + L < H). This thought experiment refutes Aristotelian understanding. Heavy bodies do not fall faster than the light body. The speed of a falling object is independent of its weight. This is what Miščević (1992) calls the "intermediate conclusion" (p. 216). One might take one step further here, so did Salviati. He "jumps to the final conclusion: all bodies fall at (approximately) the same speed" (Miščević, 1992, p. 216). Brown contends that the jump to

the final conclusion is "immediate" since it includes the activity of the intellectual intuition.

His view is criticized for being mysterious since we do not know what exactly this "intellectual seeing" that grants us to "grasp abstract entities in an intuitive and non-inferential way" (Brendel, 2017, p. 280). Besides, Brown's Platonist account does not provide any way to evaluate and find which one is justified among, what Norton (2004) calls, a 'pair of thought experiment-anti thought experiment' (p.45) that can be seen in physics. Those pairs generate incompatible consequences. For instance, Newton provides a thought experiment that shows that the space is absolute whereas Mach offers another thought experiment opposed to the absolute space (Brown & Fehige, 2019). Although details of these experiments are out of the scope of this thesis, this kind of pairs undermines the credibility of Brown's account since it does not offer any explanation for "how the justificatory aspect of the epistemology of thought experiments really work" (Meynell, 2014, p. 4155). He does not provide a satisfactory explication of the cognitive ability that allows us to grasp connections between universals.

Besides, *Emile* involves a posteriori knowledge (e.g. about parenting, education, developmental stages) rather than a priori knowledge. Hence it is not a good candidate for claiming that we can gain knowledge by reading fiction.

3.8. Norton's Empiricist Account

According to Norton's (2004) moderate deflationist account, thought experiments are arguments that are disguised in pictorial or narrative form. He offers the "elimination thesis"

and the "reconstruction thesis". According to the "elimination thesis", we can eliminate any kind of component of a thought experiment that does not have any effect on the epistemic efficacy of the thought experiment, such as narrative and picturesque elements. According to the "reconstruction thesis", every thought experiment can be reconstructed as sole arguments "once we fill in tacit or explicit assumptions, and we are justified in believing the conclusion of a thought experiment" (Davies, 2007, p. 38). The conclusion of a thought experiment is warranted only if it is vindicated by the reconstructed argument. Thought experiments start with premises based on experience; hence it is a posteriori knowledge we gain by engaging in a thought experiment. The conclusion is derived from those premises by applying some rules of inference. Although what Norton refers by "rules of inference" were only inductive and deductive reasoning at first, in his later writings he broadened its scope, including inference to the best explanation, rules of Bayesian confirmation theory, reasoning based on informal logical, or even argument from analogy (as cited in Brendel, 2017, p. 286). Brown argues that although picturesque characteristics provide "experimental flavour that might be psychologically helpful, but are strictly redundant" (Brown & Fehige, 2019).

However, if that is the case why most philosophers introduce thought experiments that have fictional narratives instead of just giving a list of premises and arguments? Some, especially mental modelists, have objected to the dispensability claim by arguing that "Norton-type reconstructions effectively change the content of a [thought experiment], leaving out part of what is distinctive about [thought experiment]s —their imaginative character" (Meynell, 2014, p. 4155). Mental modelists argue that carrying out a thought experiment involves a form of reasoning that cannot be captured in standard forms of logical argument, and which necessarily involves the contemplation of an imaginary scenario (Davies, 2007). They assert that thought experiments are epistemically singular hence it is not possible to reconstruct

thought experiments without epistemic loss. In her article "Galileo and the Indispensability of Scientific Thought Experiment", Tamar Gendler (1998) reconstructs Galileo's "Falling Bodies" thought experiment in various ways. Then by comparing and contrasting these alternative versions with the original thought experiment she shows that recasting thought experiment "as a deductive argument, [as Norton suggests], fail to capture how the way the phenomena are represented in the [thought experiment] invokes experientially grounded 'tacit knowledge' on which the demonstrative power of thought experiment depends" (Davies, 2018, p. 520).

Most importantly, a moderate deflationist account of thought experiment cannot accommodate literary cognitivists' claim that we can acquire knowledge by reading fictional narratives. According to Norton, narrative features just divert our focus from the underlying arguments. Hence,

> "[t]he more detailed and elaborate narratives in works of literary fiction can only serve a negative purpose for cognition, since they make it much more difficult to reconstruct the underlying dialectical structure that, for the moderate deflationist, does all of the cognitive work." (Davies, 2018, p. 519)

Although *Emile* has a mixed genre, the first part of the book resembles a treatise including, mainly propositions; at the bottom line, the rest of the book, actually, the whole book is a novel. Norton tries to eliminate what gives fictions the demonstrative power: the narrative. Thus, Norton's empiricist account is not a good candidate for solving the epistemic problem of works of fiction.

I have discussed Carroll's, Elgin's, Brown's, and Norton's accounts to find an answer to this problem, respectively. Carroll's account is narrow since it includes only conceptual clarification. However, literary fictions and thought experiments might allow us to gain empirical knowledge. Although Elgin's account is satisfying in many aspects, as Davies

(2018) contends, it does not offer a sufficient account in explaining how we can export the knowledge we gain from fiction to the extra-fictional world, and "why we are entitled to view literature as a source of knowledge rather than as merely a source of hypotheses" (p. 516). After eliminating these two views, I moved on to Davies' strategy of applying theories of thought experiments to the fictional narratives. I have considered Brown's and Norton's accounts of the thought experiment. Brown's account covers only a priori knowledge and it is not good at explaining the "intellectual seeing" through which we acquire that type of knowledge. On the other hand, as it is stated just above, Norton's view of thought experiments as disguised arguments fails to capture the reasoning that includes imaginative character of thought experiments. One cannot recast a thought experiment without epistemic loss. Hence, Brown's and Norton's views are not good candidates for solving the puzzle either.

David Davies finds the answer to the epistemic problem of both thought experiments and fictional narratives in the moderate inflationist account that will be discussed comprehensively in the next section.

3.9. Solution to the Epistemic Problem: Mental Model View

Those who find Brown's and Norton's accounts of thought experiment extreme find a place for themselves between these two poles and they have offered more moderate theories. The mental model ('moderate inflationists' in Davies' term) account of thought experiment is one of them. Ernst Mach, the forerunner of this theory, introduced the notion of "instinctive knowledge": the knowledge that we "derived from experience but never articulated and perhaps even incapable of being articulated or made explicit" (Davies, 2010, p. 55). When we

engage in a thought experiment we trigger this type of knowledge from which we jump to the conclusion immediately.

Nancy Nerssessian, Nenad Miščević, and Tamar Gendler are prominent figures in this camp. They argue that whenever we engage in a thought experiment we build a mental model of the content of the hypothetical situation.

Nancy Nersessian describes "mental model" as following:

> "… [A] mental model is a structural analog of a real world or imaginary situation, event, or process that the mind constructs to reason with. ...What it means for a mental model to be a structural analog is that it embodies a representation of the spatial and temporal relations among and the causal structure connecting the events and entities depicted. ... [A] mental model is non-propositional in form and the mental mechanisms are assumed to be such that they can satisfy the model-building and simulative constraints necessary for the activity of mental modeling." (as cited in Meynell, 2014, p. 4155)

The narrative, like a handbook, provides instruction for constructing the model.

> [T]he carefully crafted thought–experimental narrative focuses on the construction of a model of a *kind* of situation and manipulating that model through simulation affords epistemic access to certain features of current representations in a way that manipulating propositional representations using logical rules cannot." (Nersessian, 2018, p. 319–320)

Mental modelists base their theory on research in cognitive science. Antonio Damasio's (1999) study demonstrated that our repository of emotional responses is deployed by both hypothetical and actual situations. Our intuitive discernment about those situations depends on "these emotional responses which are encoded in 'somatic markers': if the somatic marker is related to a particular type of is negative, we will tend to evade to put ourselves in it whereas if it is positive we will tend to search for it" (Gendler, 2004, p. 1160). This empirical finding shows that imaginative rehearsal can provide novel beliefs that might not be available when we think it through in an impartial entirely hypothetical manner. Hence, there is a difference in the information we gained by these two different processes.

Nancy Nersessian (1992), another proponent of the mental model view, builds her theory on Philip Johnson-Laird's research on mental models in psycholinguistics. Findings show that participants drive conclusions by building and manipulating a mental model of the situation described by the narrative (Nerssesian, 2018). People make inferences by operating upon the quasi-spatial mental model of the imaginary situation rather than by deploying logical deduction or induction on the propositions depicting the content of the narrative. There are some types of knowledge that cannot be captured in a propositional or verbal form.

> "Crucially, in constructing and manipulating the model, the receiver mobilises a number of other cognitive resources: her everyday understandings of the world, based on practical experience, and other forms of tacit knowledge, such as individual expertise, practical know-how, and the 'embodied familiarity' with the world discussed by Gooding; and geometrical intuitions." (Davies, 2007, p. 41)

The knowledge obtained by engaging in thought experiments is a posteriori since we acquired them through mobilizing numerous cognitive resources gained from experience. In his article "Mental Models and Thought Experiments" Nenad Miščević (1992), one of the forerunners of mental model view, contends that by creating and manipulating the mental model of the situation one induces his/her "cognitive resources —skills, implicit background knowledge, perceptual beliefs, etc., in a way superior to regimented reasoning" (p. 224) so that s/he can learn new things without new observational data. Thanks to the unarticulated cognitive resources one makes a judgment about the narrative s/he is engaged in. Hence one can solve the epistemic problem of thought experiments.

According to this approach, we get the immediate conclusion of Galileo's "Falling Body" because our implicit experiential knowledge directs us in constructing the mental model of the thought experiment. Such unarticulated background knowledge that is "chunked like schemas and scripts allowing for the use of stored knowledge organized in default hierarchies"

(Miščević, 1992, p. 222). Those "truths that are built into our background knowledge" (Miščević, 1992, p. 225) eliminate irrelevant possibilities that lead to the disparate speed of the fall such as the color and the taste of the objects. Hence when someone is calculating the speed of an object s/he would not take its color or taste into account. That is also why one can easily jump from the intermediate conclusion to the final conclusion. Instead of appealing to some mysterious way of attaining the knowledge as Brown did, mental modelists based their theory on the findings from the cognitive science that is more reliable and has explanatory power.

The mental model account of the thought experiment is the most auspicious one in comparison to the other accounts. First of all, it is the most plausible account to make a connection between thought experiments and fictional narratives.

At this point, Davies takes a crucial point and applies this solution, namely the mental model views of thought experiment, to the epistemic problem of the fictional narratives. As I stated above, some of the fictional narratives and thought experiments are of the same kind, the former being just an elaborate form of the second. "[S]ome literary fiction may be of cognitive power due to the fact that they are thought experiments" (Brown & Fehige, 2019). Fictional narratives mobilize unarticulated cognitive resources based on our previous experiences by making "the patterns underlying the complexity of the actual experience" manifested (Davies, 2007, p. 44) One can judge the message of the fictional narrative based on the feeling whether or not the fiction discloses those patterns to us. This feeling is reliable since it is engendered by the latent cognitive resources. In other words, the mental model account renders "the process of 'empirical testing' internal to the process of reading, rather

than something we have to do through projection after we have read the fiction (Davies, 2018, p.513). Hence, it provides an answer to the "no evidence" and "no argument" objections.

As a result, literary cognitivists are right in their claim that fictional narratives can generate knowledge without requiring success in further tests. When one is reading a novel, s/he builds mental models that mobilize implicit knowledge of the world that assess assertions about the world placed in the literary work. The mental model view gives a satisfactory account in explaining how we can acquire not only conceptual truths but also empirical truths by engaging in fictional narratives.

Before analyzing *Emile* as a thought experiment in the light of the mental model account, I will consider some possible definitions of thought experiment in the next section.

3.10. Definition of Thought Experiment

There are various definitions of the thought experiment. I will mention a few of them.

According to Kathleen Wilkes, engaging in an ordinary thought experiment includes (i) imagining a possible world "in which the possible state of affairs actually occurs—a world like our own in all relevant respects except for the existence in that world of the imagined phenomenon"; and (ii) attempting to draw conclusions for "'what we would say if' that imagined set-up were to obtain; that is, if we inhabited that possible world" (1988).

Tamar Gendler (2002) defines thought experiment as follows. First, an imaginary scenario is described. Second, an argument is offered that attempts to give the correct evaluation of the scenario. Third, the evaluation of the imagined scenario is then taken to reveal something about cases beyond it (p. 21). These two definitions can be summarized in Catherine Elgin's

(2014) description, "a thought experiment is an imaginative exercise designed to investigate what would happen if certain conditions were satisfied" (p. 231).

Emile is a thought experiment in which Rousseau introduces an imaginary pupil who is raised according to the novel education to fulfill Rousseau's aim: restoring harmony with the world by following the nature's path to avoid imbalances created by society and allowing the full realization of a man's potential (Bloom, 1979). One can decide whether or not Rousseau achieves this goal even if we follow his novel education.

I will adopt Geordie McComb's somewhat loose definition of thought experiment since it covers all the definitions above and it is more compatible with the view that fictional narratives and thought experiments are of the same kind. McComb (2012) formulates the definition of thought experiments based on Wittgenstein's concept of "family resemblance" according to which, for instance, we call certain phenomena "games" because they stand in a web of the family resemblance of intersecting relations with each other at various levels of generality rather than having shared characteristics. In the same way, "thought experiment" indicates a cluster concept,

> "… we apply it to a particular object, we do so *rightly* if and only if it has a high enough ratio of relevant family resemblances to dissimilarities; and, if one object simply has *a higher such ratio* than another, then, and only then, ... we apply the concept to it, rightly or wrongly, to *a greater extent* than the other." (McComb, 2012, p. 209)

She scrutinizes paradigmatic cases of thought experiments (such as Galileo's falling bodies) and proposes that all possible thought experiments involve (i) a hypothetical and (ii) imaginable scenario. They also include (iii) our own activity, (iv) a proper cognitive upshot, and (v) no empirical justification.

Emile portrays (i) a hypothetical scenario in which Rousseau, as a tutor raises a fictional child, Emile, who does not actually exist, from his birth until he gets married to another fictional character Sophie. The book is also (ii) imaginable. As one reads it, s/he builds the mental model of the content described in fiction. Besides engaging in the narrative quasi-perceptually, one can (iii) reason about it. *Emile,* as Rousseau admits, is full of paradoxes. Although Rousseau always emphasizes the freedom of the pupil, the tutor always manipulates the environment in such a way that, the freely chosen action of the pupil becomes the only option that he can choose and the one that pleases the tutor. Even on one of the occasions, Rousseau prepares everything in advance to give a lesson about going out alone without the accompany of the tutor. While Emile was thinking that he is going out alone, he was actually watched over by a friend of the tutor and he got caught by his father who has been warned before by the tutor (E, p. 123). When this is the case, how can we say that Emile is a free individual?

Moreover, there is a problem of regress. Where does the tutor come from? Was he educated in a society that is corrupted according to Rousseau? "How did the tutor acquire his education if not from a tutor who, in turn, was educated according to Rousseau's program by an earlier tutor?" (Bertram, 2020).

Emile includes (iv) a proper cognitive upshot. After finishing the book, one could argue that Rousseau's novel education is justified by his arguments and, for instance, one might decide to rear his/her child in the rural area until the age of 12, as Rousseau recommends. Or as I stated above, one can label Rousseau as sexist in certain aspects while reading his opinions about female's education.

Lastly, thought experiments involve (v) no empirical justification. Although some of Rousseau's ideas were supported, later, by some psychologists (e.g. Piaget's works show that there are cognitive developmental stages in line with Rousseau's view), it seems that there is no clear empirical justification for his arguments in the book. Overall, according to McComb's definition, *Emile* instantiates a high enough ratio of relevant family resemblances to dissimilarities, hence it is a clear case of thought experiment.

Chapter Four: Analysis of *Emile* As a Thought Experiment in the Light of Mental Model View

Emile, as a whole book, is a macro thought experiment. Each book is a part of this thought experiment that consists of micro thought experiments. Once the reader starts reading the book s/he builds a mental model of Emile. This quasi-spatial picture of Emile is updated as Rousseau provides new details about him. It is not a passive act. One is cognitively engaged in the process of educating Emile by simulating and manipulating the mental model of it. The reader compares and contrasts Emile's education to his/her own education styles. S/he evaluates Rousseau's novel education, whether or not Rousseau achieves his goals. While doing that, as mental model accounts state some implicit cognitive resources are activated and they generate a cognitive upshot about the success of thought experiment. Thanks to the truths that are built in his/her background knowledge the reader filters out all irrelevant factors that do not play a vital role in education such as Emile's height and weight or the hair color of Emile.

I will analyze two episodes -one from the beginning, one from the end – of the book based on the mental model view.

According to Rousseau "freedom" is the basic precept of childhood. A kid explores the world based on his/her sensory experiences. Hence sense organs play a crucial role in a child's development. However, in this stage, parents tend to be overprotective. They obstruct physical growth, which is the vital developmental landmark in the early years of life, particularly in infancy. During the 18th-century common child-rearing practices in French society tended to restrict freedom. Swaddling was one of them. Rousseau states that the origin of this denatured practice goes back to the neglected "mercenary women ... who find

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themselves mothers of alien children on whose behalf nature tells them nothing" (E, p. 44). Those mothers who detest their first task (i.e. feeding) employ nurses. In general, these nurses neglect kids. Instead of the demanding duty of keeping an eye on a free kid all the time, they prefer wrapping him/her tightly. Although swaddling is an ancient practice the loose versions of it are still in practice. Hence the following lines about swaddling lead a 21-st century reader to critically examine the effects of such practice.

Rousseau decries the effects of wrapping babies in garments. He quotes from Buffon's Histoire Naturelle

> "Hardly has the baby emerged from the mother's womb, and hardly has he enjoyed the freedom to move and stretch his limbs before he is given new bonds. He is swaddled, laid out with the head secured and the legs stretched out, the arms hanging beside the body. He is surrounded with linens and trusses of every kind which do not permit him to change position." (E, p. 43)

While reading this passage the reader imagines a swaddled baby in his/her mind. The reader's previous knowledge plays an important role in his/her reasoning. If the reader is a person who does not have any child s/he might be convinced by Rousseau's arguments immediately. However, if s/he is a parent who is well aware of the advantages of the swaddling s/he might take his/her previous experiences into account and predicts the drawbacks of Rousseau's methodology. S/he critically examines the writer's arguments and imagines what would happen in such a case. What if while mowing in her/his sleep the baby falls down or s/he scratches all of her/his face? Hence, they might be well aware of some conditions that inexperienced ones are not. Those two readers' mental models would be different since they do not have the same background knowledge.

Let's assume that the reader is someone who has experienced a case in which a baby who was not swaddled harmed himself/herself, s/he will immediately judge that Rousseau is wrong

about his claims. His implicit knowledge stored in the memory will be triggered. However, it is not the end of the story. As Rousseau elaborates on his reasoning the reader updates his mental model and incorporates the new details provided in the content of the book. In the following passage, Rousseau explains why swaddling is harmful in detail.

> "The newborn baby needs to stretch and move its limbs in order to arouse them from the torpor in which, drawn up in a little ball, they have for so long remained. They are stretched out, it is true, but they are prevented from moving. Thus, the impulse of the internal parts of a body which tends to growth finds an insurmountable obstacle to the movements that impulse asks of the body." (E, p.43)

As Rousseau continues to delineate, the reader starts to think about it more elaborately. The process of revising the model continues. Rousseau compares the newborn baby with the fetus and states, "He was less cramped, less constrained, less compressed in the amnion than he is in his diapers. I do not see what he gained by being born" (E, p. 43). Now, besides the swaddled baby, the reader imagines a fetus in the womb and forms a mental image of a fetus. At this point, it is important to emphasize that having quasi-spatial mental images that are imagined in a concrete situation rather than having purely verbal medium as Norton states, facilitates the comparison for the reader.

Furthermore, Rousseau argues that babies' first sentiment is pain or suffering because of "[t]he inaction, the constraint in which a baby's limbs are kept can only hinder the circulation of the blood, of the humors, prevent the baby from fortifying himself, from growing, and cause his constitution to degenerate" (E, p. 43). As a result of their failed attempts to move their limbs freely, babies cry and that would be "their first voices" (E, p. 43).

Once Rousseau gives more detail about his argument, the reader contemplates about it immensely. Now the reader who thinks that swaddling is beneficial to protect the baby at first, might start to think about the long-term effects of the swaddling rather than focusing only on

the short-term effects of a couple of scratches. As a result, s/he may reorganize his/her knowledge and judges Rousseau's contention accordingly.

In book V, Rousseau introduces his version of female education, which is one of the most contentious parts of the education system he envisages. He argues that male's and female's education should be different since their roles in society are distinct from each other. I will touch upon some of the points made by him. As it is already mentioned in the first chapter, according to Rousseau, "almost all little girls learn to read and write with repugnance. But as for holding a needle, that always learn gladly. ... Sewing, embroidery and lace-making come by themselves" (E, p.368). Moreover, Rousseau argues that "The art of thinking is not foreign to women, but they ought only to skim the sciences of reasoning." (E, p. 426). In the following passage Rousseau declares that women need men more than men need women.

> "Woman and man are made for one another, but their mutual dependence is not equal. Men depend on women because of their desires; women depend on men because of both their desires and their needs. We would survive more easily without them than they would without us. … They depend on our sentiments, on the value we set on their merit, on the importance we attach to their charms and their virtues. By the very law of nature women are at the mercy of men's judgments, as much for their own sake as for that of their children. ... It is not enough for them to be pretty; they must please. It is not enough for them to be temperate; they must be recognized as such. … When a man acts well, he depends only on himself and can brave public judgment; but when a woman acts well, she has accomplished only half of her task, and what is thought of her is no less important to her than what she actually is. From this it follows that the system of woman's education ought to be contrary in this respect to the system of our education. Opinion is the grave of virtue among men and its throne among women. " (E, p. 364-365)

Rousseau builds female education dependent on male education. Since he introduces the education of men first, women and their education are conceived as the secondary. Reading the following paragraph might remind Simone de Beauvoir's claims that woman is considered as the second sex, or the other, whereas man is the default one.

> [T]he whole education of women ought to relate to men. To please men, to be useful to them, to make herself loved and honored by them, to raise them when young, to care for them when grown, to counsel them, to console them, to make their lives agreeable and sweet -these are the duties of women at all times, and they ought to be taught from childhood. So long as one does not return to this principle, one will deviate from the goal, and all the precepts taught to women will be of no use for their happiness or for ours. (E, 365)

He gives Spartan women's way of life as the ideal one: "As soon as these young persons were married, they were no longer seen in public. Shut up in their houses, they limited all their cares to their households and their families. Such is the way of life that nature and reason prescribe for the fair sex" (E, p. 366).

Moreover, as it is stated in the first chapter, Rousseau allows Emile to choose religion. However when it comes to women he asserts that since they "are not in a position to be judges themselves, they ought to receive the decision of fathers and husbands like that of the Church" (E, p. 377). Hence they ought to have their mother's religion or in the case of marriage they ought to have their husbands' (E, p. 377).

A reader in 18th-century who was raised in a patriarchical society might not see any problem with Rousseau's conception of the women, because s/he was used to seeing women doing housework mentioned by Rousseau in his/her daily life. S/he is less likely to question the women's place and role in society since Rousseau's depiction of them is compatible with his/her general knowledge about life. However, a 21st century reader whose general knowledge about the world is different from the former one might come to the conclusion that Rousseau is a sexist by reading the same passages. This contemporary reader is most likely to claim that Rousseau's aim to offer the ideal education is not successful.

On the other hand, as it is stated in the previous chapter, empirical studies showed that reading fiction increases empathy. Reading a detailed description of female education might provide new insights to the male reader. He might empathize with Sophie's situation. He puts himself into the shoes of the female protagonist depicted in the book and sees how things look

from there. He conceives how the life of the opposite sex (e.g. obeying the male counterpart, being busy with domestic work) is through mobilizing the mental model he builds. It seems Rousseau believes that women are not capable of attaining higher rational functions (Weiss, 1987, p. 88). Those passages might trigger the reader's old information about the mistreatment of women in the past. Or it might activate some feminist teachings he once read in a book or learned in a course. Thus he is likely to conclude that Rousseau seems sexist.

Although Rousseau tries to justify his approach to women by insisting on the interdependent roles of men and women a contemporary reader can easily see the effects of the zeitgeist of the 18th century, especially when it comes to women's place in society. One might conclude that Rousseau's experiment with female education fails.

Conclusion

Thought experiments are fictional narratives since they fulfill the necessary and sufficient conditions for being a fictional narrative: they intend to (i) make-believe the hypothetical scenario illustrated and they are (ii) not restrained by the 'fidelity constraint" (Davies, 2007, p.31). Thought experiments and some of the literary fictions are of the same kind. Fictional narratives are more elaborate than stereotypical thought experiments because of their complicated subject matter, such as the moral development of people, education of pupils. They include more variables and intricate relations. Besides, they do not have the shared assumptions as in the case of thought experiments in science. Authors set the stage and array their own parameters in a dense domain of alternatives. Rousseau gives a detailed account of the protagonists' (i.e. Emile and Sophie) character development and their education in different phases of life. One can acquire knowledge by engaging with fiction since s/he builds a mental model that mobilizes unarticulated cognitive resources that are formed based on her everyday understandings of the world, the implicit knowledge, such as individual expertise, practical know-how and so on (Davies, 2007). *Emile or On Education* is an elaborate thought experiment in which Rousseau tries to show that the ideal education which follows the nature's paths, is a medium to transform the noble savage into the ideal citizen by fulfilling one's potential in line with the developmental stages of him/her.

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