AMI Journal

2014
Mid-Year Article

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IMAGINATION AND EXACTITUDE

a 1939 lecture by Maria Montessori

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Editorial

What Is The Mid-Year Article?
The AMI Journal endeavours to present an authoritative double issue each year. The editorial board decides on a theme which responds to contemporary interests about Montessori education. To whet the appetite, AMI introduced a digital mid-year article last year—to inspire the readership to delve more deeply into the theme. The mid-year publication will often use an original Montessori source that encompasses the theme and gives the reader an overview. Both the journal and the article are platforms for new Montessori material being identified from the Maria Montessori Archives.

Introduction: Imagination and Exactitude
This short lecture begins with a big-picture idea of a plant that is nourished by the energy of the sun and introduces the interdependencies of life: the full scope of animal and plants, water and land, and the food chain. The sun is an 'external mysterious force' that makes the miracle of photosynthesis possible but also serves as a metaphor for human work that uses the environment as a means, source, and purpose for productivity on the planet. The dimension of the lecture is cosmic as it brings the reader to see both the whole of human endeavour and the parts of the individual organism that serves its own needs while serving the needs of the whole. The interconnectedness of living creatures and the environment collaborate 'in transforming the substances,' that metaphorically 'cook' the ingredients to nourish all life in the environment. The cosmic work of life on earth sets the stage for creativity as Montessori tells in her unequivocal statement, 'To be healthy, man too must have the capacity

to use all his functions fully.' The partnership of exactitude and imagination constitutes the creativity that is integral to the psychodisciplines, especially mathematical exactitude and imagination, which not only defines the creative process but also links ways of learning and knowing to the totality.

On the human stage, the gift of imagination seeks to connect human perception and ideas that 'did not exist' before to the great work of the planet. 'All humankind's work finds its starting point in the imagination,' writes Montessori, 'and little by little, the different expressions of humankind's work become more and more perfect...there is a force in man that compels us to fashion in practice ideas imagined.' The realization of creativity as an art form in human sculpture, in sound made into music, words made into self-expression, and for educational insight made into a system of learning is her multiple definition of creativity. But for the 'ear that hears, the hand that obeys, and the soul that feels,' the inspiration of the imagination needs a counterpart, a structure, an organization of natural elements, and a reasoning order that classifies and retrieves absorbed impressions. In this lecture Montessori calls this capacity to acquire experience and expand intelligence, to weave a web of the whole and its parts, exactitude.

And so the portal is open, and the reader is welcomed to a spiritual and material definition of creativity that has been hidden in the annals of Montessori's unpublished writings.

Exactitude in the making

These mid-year articles will fulfil the continuing evolution of Montessori's thoughts that were accomplished through her own inspiration of theory into practice and her revolutionary vision that makes her creative work as an inventor of educational ideas the most creative and real that they can be.

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Imagination and Exactitude

Lecture 7, delivered in London on the 24th International Course, 28 March 1939

Maria Montessori

We said (yesterday) there were energies which must be used for practical action, and made a comparison with the child who in walking also carries his head because together they form a whole.

Before proceeding with the subject of tonight's lecture I would like to try and make the idea a little clearer to you with another example. Let us take something which lives on a much lower plane than ourselves—a plant which has its roots in the ground and through those roots takes all the sustenance absolutely necessary for its existence. The rest of the plant is above ground, the stem, the leaves and flowers. The leaves have a different function from that of the roots, and this is to take carbon dioxide from the air, transmitting the carbon to the plant (which stores it up) and sending out the oxygen. This is an example of the function of a living thing which is of the utmost importance for the purification of the atmosphere. Inside the plant something else takes place which is even more important: the plant composes certain substances, such as sugar and starch upon which animals feed. They therefore prepare the primary material without which animals could not exist, and all this work of transforming the substances is done just so that it may be devoured by animals. How does the plant make these complex substances, "cook" we might say, these different ingredients and compose other substances which serve as nourishment to animals? The plant can only do this with the help of the sun's rays; it cannot do it alone. The sun, which is an external force, coming from far away, is a cosmic help to the plan in transforming the substances.

If one thinks about it, one finds that there is nearly always some mysterious force which helps wherever there is a great work to be accomplished.

Something similar happens in humanity. With the plan there is an outside energy—the sun—which compels it to undertake the work it does, and to take its nourishment from the earth through its roots. With mankind there is an external force which compels man to accomplish a certain amount of work, and the means he uses are found in the environment.

It is evident that the sole purpose of the sun is not to help the plant to grow, but it must grow and at the same time it purifies the air and constructs food for animals: in

fact, it does not work only for itself. And if that is true for the plant, it is also true for mankind. The great spiritual strength given to man is not just for his own pleasure, or in order to cultivate strength, it has been given to him for a purpose. He is an instrument with a task to accomplish upon the earth.

I would like you to understand also that the health of the plant depends on its being able to function in all its parts. To be healthy, man too must have the capacity to use all his functions fully.

Plants can be helped by watering them and fertilizing them, but this is not sufficient in itself. It is clear also that if the child is furnished with this great power of imagination, as described yesterday, it is also clear that it must be put into relation with something—so that it can express itself in interaction with the environment. The child has a great store of deposited energies which must be used. And so we see in humanity throughout history this great richness given by imagination, and the use made of these ideas practically translated into work upon the earth. As long as people have walked the earth, they have always accomplished great work that did not exist before. And, if something did not exist before, it means that people must have first imagined it. All of humankind's work finds its starting point in imagination, and little by little, the different expressions of humankind's work become more and more perfect, with man perfecting himself as he works. There is a force in man that compels him to fashion in practice ideas imagined.

Let us take the most intimate plane, that which affects the spiritual life of man, for instance art. The primitive expression of sculpture found in caves is derived from an impression, a sentiment arisen in the soul of man, but in order to give practical expression to these ideas he had to have instruments and therefore first had to invent something in order to realize his art.

Another expression of art is music. And what is music but an adaptation of certain sentiments produced by the organs of the voice without which it could not have existed. Later when tempo or rhythm had to be determined, special instruments had to be made, but first of all imagined before they could be brought to practical realization. Little by little man perfects himself and his instruments, so that he may follow the dictates of art and obey them.

Words, too, are limitations of sounds to convey certain meaning, but the meaning has to be decided by a group of people. A word is the inspired determination of an idea which has been imagined to almost mathematical exactness, and it is very easy to change the [entire] meaning by the slightest alteration. The important thing is man's inner construction in relation to efforts towards external work, or towards a

new conquest. This so happens because man finds himself upon the earth where, in order to live, he has to accomplish great tasks. The spiritual riches of man cannot be considered in itself but must always be considered in relation to his task, which is to bring practical realization to the level of the environment. This brings about the organization of imagination and of mind.

When the child manifests imagination this signifies for us that the child is a real son of man and therefore positively needs to act upon the environment; if it were not so, his development would not be the healthy development of the being who is able to use all his functions.

This is not a theory that we have invented (although we should have been justified in coming to this conclusion), but it is a fact; and experience has shown us that children are not calm or even intelligent if they are left abandoned to this imaginative world of theirs. But if we place the child in direct connection with the exterior environment so that he may interact with it, then the child shows a calm and growth of intelligence which seems miraculous in comparison with the children who are only left to imagination. The child is much more intelligent when he is able to work because he is then functioning entirely; this is the very essence of man, to be able to function as a whole and not only in part.

We have seen, even with very small children whom no one thought to take into consideration, that they have benefited intellectually from the possibility of interaction with the external environment. Why is that? For me the answer is very simple: it is because it is the nature of man to function as a whole.

There is another fact to be considered and that is the contact of the soul of the child and the exterior environment. This is something which is in contrast to the movements of imagination, which are vague and satisfied by the unreal and by the unlimited. When the child comes into contact with the exterior world just the opposite happens; the child needs exactitude, precision so fine that it has certainly not been transmitted to him by the adult, but in the very nature of mental construction.
The important thing is not the work which the child accomplishes exteriorly, but the real task which is the construction of man, the organization of this inner deposit of strength. I said that they were in contrast, and they are indeed as far as this aspect is concerned, but one does not destroy the other—because imagination is the very basis of the mind and cannot be destroyed, and the things that are taken from the exterior world are lifted up to the level of abstraction, which is the real level upon which all work of man is constructed.

The fact that the child seeks exactitude in contact with the exterior world is of enormous importance to the study of the human spirit, and it has been noticed by others than ourselves. If had not been noticed by us, our work would not have existed. It is intelligence which makes man the creative creature he is, and through it he accomplishes his task in the world.

All the images, the impressions that he gathers from the environment are gathered in by intelligence and placed in store for further use. Therefore, man's mind becomes always larger and it acquires a determined form, and one may say this practical work is essential for the construction and organization of the imaginative world.

Exactitude is something which can be analysed. One may have the conception of an exact form, for instance an exact geometrical form; one can consider the quantity of things with exactitude, one can measure with exactitude. This is mathematical exactitude, which helps inner construction.

How can the mind be helped to imagine things which are not there by mathematical exactitude? If I say that the stars are very far away, almost in infinity, we imagine the sky to be immense, but this immensity is really very tiny because our imagination falls short. 'Far', 'immense', 'infinity' are more or less words inside our head, mere words, but the sky is always there and our idea does not change at all. Now, if I say there is a star whose light we can see from the earth, but point out that for that light to reach earth it takes a million years, now that figure gives us some idea, for we have a positive idea of what a million represents in quantity. We have learnt it in school, also we have the experience of the length of a year — 365 days; we have more or less an idea of what a year means. We have studied history and learnt of the doings of men during 5000 years, and thus light takes one million years to get to us.

All this gives us a better idea than when we said before 'far', 'immense, 'infinity'. And, our imagination has not been killed by this little exploration into history, mathematics and time, we still keep on imagining.

Taking of elements from the outside world and storing them as abstractions is the very food of inner life. Imagination needs to be helped, to be built up and organized in order it may be capable of sustaining all that the mind of man can hold.

Man can arrive at very lofty levels if the imagination is helped in its construction and its organization, because in this fashion it can penetrate into the infinite, while the other way is just a word which does not change the construction of man at all.