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How Dr. Montessori's Principles Intrinsically Foster Creativity, the Foundation for All Human Progress

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INTRODUCTION

Has the muse of creativity ever perched upon your shoulder provoking you to act on an idea, a thought, a vision, a burning curiosity that excited and titillated your intellect, one that niggled at your imagination for realization and expression? Have you ever been driven to unleash something that seems to be bursting from within, seemingly crying for a portal to emerge into some kind of novel physical expression? If so, you probably were touched by that **passion or inner spark** that has motivated all artists, innovators, scientists, throughout time who have ever created or invented anything.

To **define** or **articulate** this feeling of one's need to express himself in a way that no other has before has been an ambition and objective of human beings since the time that people have had the leisure to reflect upon those first stirrings of that inner spark. Although there is **no universally accepted definition** of creativity, many ideas and conditions have been proffered by people who want more fully to understand this illusive and intangible concept. Among those luminaries who have lent their formidable intellects to this seemingly impossible task are Aristotle, who thought creativity was the act of making; Charles Darwin, who believed that life itself is creative; and Carl Rogers, who defined creativity as the expression of the individual.

Although no one definition reigns above all others, what is generally accepted is that the **phenomenon of creativity** distinguishes and makes humans what they are today, and is the force to which all human progress and development must be attributed. The entire face of the earth has been transformed by human ingenuity and aptitude, through the ability of humans to assume the role of creators. As Jacob Bronowski asserts, *"Man is a singular creature. He has a set of gifts which make him unique among the animals: so that, unlike them, he is not a figure in the landscape – he is a shaper of the landscape. In body and in mind he is the explorer of nature, the ubiquitous animal, who did not find but has made his home in every continent."* Clearly, this set of gifts possessed by "man" so that he can "make his home in every continent" must be attributed to his creative urges and abilities. In fact, it seems that what makes each "man" human is the universal stamp of the creative mind.

This ability to transform the landscape, then, indicates that creativity is not limited to just the arts; the scientist is as creative as the writer, the inventor as creative as the artist. Bronowski has more to say: *"The discoveries of science, the works of art are explorations—more, are explosions, of a hidden likeness. The discoverer or the artist presents in them two aspects of nature and fuses them into one. This is the act of creation, in which an original thought is born, and it is the same act in original science and original art."*

Thomas Carlyle believed that creativity cannot be truly understood. Creative acts, he believed are a product of certain kinds of thinking that lie in the subconscious, and while great, cannot be comprehended. Although this may, indeed, be true, it still remains that many of us have felt and experienced the impulse to create, even though we may not be able to articulate an exact definition of it. And we humans will be humans, we have a need to know, thus we will continue to attempt to define for ourselves this innovative force that moves us to change the face of nature. Perhaps our reason for doing so is to control creativity in some way, as it truly can be a world-altering force; or perhaps we merely want to foster the conditions under which it can thrive. In either case, for us as educators of children in their formative years, an understanding of creativity and its ramifications are worthy of consideration.

TWO ELEMENTS OF CREATIVITY

It is commonly agreed for an idea to be creative it has to bring into existence something genuinely new that is valued enough to contribute to the cultural pantheon. Individuals like Leonardo da Vinci, Thomas Edison, Pablo Picasso, or Albert Einstein easily epitomize this characterization of creativity. If we extrapolate from the fruits of their ingenuity, this suggests that a definition of creativity must include **two essential elements**, the first of which is **novelty**. The act of creation is when an original thought is born, when invention, scientific thinking, or aesthetic creation have rearranged previously experienced elements or symbols into new configurations. Any new concept or innovation that we contrive and express must be new to us. Thus, the child who independently discovers perspective in drawing is creating just as much as Brunelleschi did 600 years ago.

But a distinction must be made between a discovery that is new to one, yet already in existence, and the highest kind of creativity, which is a new idea that shatters the mold of custom and extends the possibilities of thought and perception into completely new realms. Beethoven in his third symphony, *Eroica*, cast aside the motifs and traditions of classical music, which shocked, and in some cases affronted, the Viennese public (the self-proclaimed arbiters of acceptable music), to express his individuality and his distinctive emotional expression. By so doing he rocked the musical world, at the same time opening the door and ushering in a new period in music, the Romantic period.

To be truly creative requires courage. Risks must be taken and the safety of tradition must be shed. In many cases the price of novelty can be considerable. It can provoke skepticism, hostility, in some cases even ostracism and death. Copernicus and Galileo risked the stake; Darwin hazarded the wrath of the clergy. Innovations that are so significantly different from the generally prevailing thought can be earthshakingly disparate, thereby producing potentially extreme and dire consequences for the creator. But it is only a leap of imagination into a world that is different from the present that gives rise to truly great art and great science. Dr. Maria Montessori, too, can be counted among the constellation of innovators who have shaken traditional foundations, when she dared to suggest

that perhaps a new approach to educating children would be more favorable than the established educational thought of her day.

When one actually discovers a new idea, by virtue of its novelty there no longer are standards by which to judge the work since it newly has come into existence. One can determine only if it makes sense, or if one likes it or not. And sometimes, in the case of Beethoven's *Eroica*, acceptance, recognition, and appreciation require time and an open mind. This certainly has been the case for Montessori's ideas.

The **second element of creativity** identified by researchers is **relevance or appropriateness**. The product of the creative act must be meaningful in some way and must be directed toward achieving a positive goal. Csikszentmihalyi, grappling with this same concept as others, in his distillation of the aspects of creativity has identified, not only novelty as a factor of creativity, but also the necessity to have a field of experts who recognize and validate the innovation. This would imply that for an innovation to be deemed creative, it must be a positive contribution, one that will contribute to the greater good of the whole; one that will contribute to progress, rather than impede it.

CREATIVITY IS INHERENT WITH ALL HUMANS

Another observation of note vis-à-vis creativity generally agreed upon is that everyone is imbued with the potential for creativity in some domain and to some extent. Louis Fliegler in *Dimensions of the Creative Process* states,

Creativity is within the realm of each individual depending upon the area of expression and capability of the individual.

And, in the words of Dael Orlandersmith, playwright and poet,

All children have an artistic streak, but if it's not nurtured it can be destroyed.

She goes on to say,

There is a clarity within a child's eyes that will be buried as that child goes into adulthood…I suppose this must happen for the sake of survival…. Yet despite all of that, all of us dream. Where do those dreams go?

Any **inability** to express one's self creatively is due usually to the failure to recognize this inherent creative potential, rather than limitations in ability. And, due to the fresh perception of life and experience, children universally have the desire to create and produce original work. It is also understood that latent creativity varies from person to person, and this variation must be transcended by providing all children opportunities to express their unique creative gifts however they might reveal themselves. It is unrealistic to expect all children to be equally gifted and gifted in the same area.

As Montessorians, who base their method on recognizing and **educating the human potentials**, among which creativity can be listed, we can easily understand how our approach and the **environments we prepare** for children are conducive to the realization of each child's unique creative potential in whichever realm its expression lies. Since the recognition of the individual in all capacities is fundamental to our purpose, there is little danger that we would limit the individual's creative development by failing to recognize a child's distinctive abilities by treating all children alike. Indeed, if we heed Dr. Montessori's advice to the teacher, *"to follow the child, adapting himself to the child's rhythm and the psychological needs of his growth,"* we will assist the child's development, rather than hinder it. It is inherent within our creed not only to recognize the individual needs, talents, and potentialities of children, but also to accommodate their positive expression.

Author **E. G. Schachtel** maintains that creativity results from openness to the world without and hence from a greater receptivity to experience. Lack of creativity, on the other hand, is the state of being closed to experience. Schachtel says,

Man needs to be creative, not because he must express drives within him, but because ***he needs to relate to the world around him****. He must escape from customary concepts in order to see the world afresh.*

These ideas correspond with our educational mission since the focal point of Montessori philosophy is to help the child find his place within society and the world, by discovering, developing, and refining his personal gifts so that he can use them to offer his singular contribution to the whole. As Montessori teachers, we provide opportunities for the child to relate to the world in which he lives by deliberately orchestrating opportunities through which the child can experience the world first hand. Before the child can see the world afresh, first he must see the world. This exposure we provide the child, allows him to relate directly to the components comprising life, thereby expanding his knowledge and understanding of how things must work together in order to be efficient, harmonious, and productive. Once the child has experienced the workings of society and the world, he is in a better place to envision, design, and create a particular role that allows for a creative intersection between his interests and his skills.

Psychologist **R. W. White** corroborates these ideas when he argues that the leading motive in the creative growth of children is not just the satisfaction of any inner drive, but effective **interaction with the environment**. He believes the child not only needs to satisfy drives, but also has needs for excitement, novelty, and the chance to cope with the problematic, needs that can be gratified only by stimulus. What is a Montessori environment if it is not exciting, novel, and stimulating, as well as conducive to interaction.

FACTORS AND CONDITIONS OF CREATIVITY

Inspirational influences

As we consider other recognized aspects contributing to creativity **inspiration** is paramount. It is generally accepted that artistic endeavor springs from inspiration of some kind, and serves as a catalyst first for the fomenting and then for the congealing of subliminal creative ideas. Creativity is the child's birthright and education should nourish it. Inspirational opportunities abound in a Montessori classroom, and are derived from several sources. One source is the **stories told by the teacher** from all aspects of the world and universe, moving stories that are designed to fascinate, thereby titillating and tantalizing the child until he is so moved that he can't resist pursuing and discovering more of that which intrigues him personally.

Within our Montessori environments inspiration also comes from another source: **the work of other children**, some older, some younger. Because a child may observe freely the work of others within his sphere of activity, it is not uncommon for him to be inspired by the work he sees being done around him. First he observes the possibilities; then he considers the attractions of each of them; next he selects an occupation that is personally alluring; and then, finally, in his own way, after a lesson, he executes and experiments with it according to the dictates of his own creative urges and ability. It is because of the possibility of this communal inspiration that Montessori teachers take pains to present lessons from all domains within the immediate environment. Omission of proximal exposure to all fields removes a vital and indispensable source of inspiration.

Knowledge begets knowledge. It is the existing knowledge that lends itself to reflection, reconsideration, and possible reorganization of information into a newly creative element. Therefore, a body of knowledge also can be seen as a source of inspiration as it provides material upon which to ruminate, consider, and perhaps, ultimately to found innovations. Thus, the **inspired mind is the prepared mind**.

It is easy to say that Thomas Edison invented electricity or Albert Einstein discovered relativity, but neither could have accomplished what he did without the **prior body of knowledge** that had been accrued upon which he could ponder, rearrange, and eventually build and develop anew. Preparation for artistic expression requires that the artist, in whichever domain of interest he chooses, have the opportunity to repeatedly investigate and explore the existing knowledge in the subject of his interest. A pictorial artist must look incessantly at the work of others to evaluate what works harmonically and what doesn't work. Indeed, Pablo Picasso's examination of Diego Velasquez's Las Meninas (The Maids of Honor) played a role in the design of his own depiction of the same subject. Authors have to read all styles and genres of writing to ascertain what is lasting and what is good. From these repetitive activities and analyses the creator is developing a database of information that fortifies his understanding of the elements and successes within the domain of his craft, and thus prepares himself for ultimate manifestation of his own ideas.

This phenomenon of preliminary preparation occurs at every level of Montessori education. Through their experiential, self-chosen work in the prepared environment Montessori primary children develop a **substantial fund of knowledge** that is comprised of facts from all facets of the world. It is this body of knowledge that serves both as fodder for their imaginations when they move to the elementary class, as well as a foundation on which they can launch new investigations. Each child in his turn must learn everything anew, as creative endeavors are neither genetically nor automatically passed from one generation to the next. To prepare for creative development the child needs information regarding language, numbers, theories, songs, stories, formulae, and values, to serve as a foundation from which to instigate changes from that which already exists to something new. He needs a body of knowledge in all capacities to buttress and sustain this resourceful effort, and he initially acquires his first body of knowledge in the primary class.

Using this inspirational body of knowledge derived from earlier experiences, elementary children, who have a natural capacity for great work, strive endlessly on selected tasks. By so doing the elementary child continues to accumulate facts and information, further building his foundation of knowledge. Together in tandem, the child's impressive work ethic and his considerable body of knowledge enable the child to arrange and rearrange ideas, thus supporting the child in his efforts to conceive and execute novel ideas. While the ideas and products they invent and create may be lesser in importance than those of Edison, Einstein, and Picasso, the process is still the same.

QUALITIES OF CREATIVE INDIVIDUALS

As we investigate common qualities of creative individuals, again it is remarkable how commensurate they are with the characteristics that Dr. Montessori a hundred years ago felt essential to develop in each individual child. **Independence and passion**, two characteristics deliberately cultivated and engendered in Montessori classes, are among those commonly attributed to creative people across different fields and through different generations. In fact, Albert Einstein said of himself, *"I have no special gift – I am only passionately curious."*

Passion

Let's first consider this notion of passion. If we accept the definition of **passion** given by Teresa Amabile, author of Growing Up Creative, as the **intrinsic motivation** to do something for its own sake, because one is interested due to the enjoyment, satisfaction, and challenge that are derived from the work itself rather than for rewards or the avoidance of punishment, we immediately recognize how true Montessori environments complement this essential element of creativity. Our children typically make work choices based on personal preferences, or in other words because they are intrinsically motivated to do so, rather than due to the external dictates of others. It is widely recognized that people who act as a result of intrinsic motivation are more creative than those who aren't. Therefore, again we have a central condition within our philosophy that is equivalent to the cultivation of creative development.

Independence

In consideration of independence, a second characteristic attributed to creative people, it is well to note that both intellectual and physical **independence** are Montessori aspirations for human development. That development is facilitated by offering the children the **freedom to interact with the environment** within the context of discipline and responsibility. Since the child can independently and freely choose to pursue avenues of interest, those avenues usually tend towards that which stimulates his passion and his intellect. There is no adult telling him to stop when a child is concentrating and employed in an endeavor that kindles his interest and fuels his passion. On the contrary, the admonition to the Montessori teacher is to leave that child alone with his work and activity without interruption, and let him express himself until he is sated, satisfied, and fulfilled. By allowing the child intellectual freedom, we provide him the opportunity to take what we offer by way of lessons, and then independently to arrange and rearrange, combine and recombine different elements in a manner that suits his imagination and creative explorations. Genuine creativity, in short, presupposes mental discipline through mastery of subject matter. This opportunity is readily apparent in many of the sensorial materials of the primary class, which, while providing knowledge, provoke the children to make their own discoveries by rearranging and recombining elements, thus meeting the criterion of a creative process. By having been given freedom to think and experiment independently, the child gradually develops intellectual and mental independence.

Alice Miel's words underscore Dr. Montessori's long-standing tenet of offering children freedom balanced by responsibility for development. Miel says, *"Creativity requires freedom—freedom to rebel against stifling conditions, freedom to make decisions differing from those made yesterday and differing from those made by others—but it is not unlimited freedom."* This expression and understanding is basic Montessori.

After independently engaging in activities stimulated by passion or intrinsic motivation, children frequently emerge from the work with a **sense of accomplishment and competence**. Thus, along with creative expression we can see other derivatives of allowing passion to guide one's independent choices. Children who are engaged in true creative endeavors develop confidence in their abilities, a characteristic recognized commonly in creative people, because they recognize the value of their actions, and more likely than not, have mastered independently a task that was worthy of their time and interest. The enduring periods of work and concentration that we witness daily in the classroom bear witness to the manifestation of passion and the importance of nurturing it.

Certainly some children exist who **lack the kind of passion** that leads to creative acts, but even those children can learn to develop a focused interest in some activity for its own sake because it is fascinating, challenging, and stimulating. And what better place to stimulate creative passion than a Montessori classroom? There the lessons and material inherently manifest those same characteristics and are designed to expose the children to all enthralling components of the world and universe. An environment such as this recognizes and promotes a love of learning and fosters the naturally occurring creative urge within all children, keeping it alive and prosperous.

CONVERGENT AND DIVERGENT THINKING

Any discussion involving creativity must include the work and revelations of J.P. Guilford, the most influential pioneer in the field of the psychology of creativity. It was he who delineated an aspect of thinking abilities into three categories: cognitive abilities, productive abilities, and evaluative abilities. In his delineation specifically of productive abilities he has made a distinction between

convergent and divergent thinking, the latter being the kind of mental ability involved in creativity. **Convergent thinking** moves toward a determined or conventional answer, whereby there is a standard method for solving an unknown, where the solution can be guaranteed within a finite number of steps. **Divergent thinking**, on the other hand, is a kind of thinking that rather than moving linearly, moves in various directions toward no given answers. It tends to take place where the problem has yet to be discovered, and once conceived, where there is no set way of solving it. Convergent thinking implies a single right solution, whereas divergent thinking may produce a range of appropriate solutions. It is another of the characteristics of a creative thinker.

Again, we must hearken back to the prepared environment of a Montessori classroom and the freedom allotted for the conception of a problem or situation and the discovery of its ultimate solution. There is a **fluency** within a true Montessori environment that allows for the opportunity to generate a great quantity of ideas; also, there is **flexibility** that allows for the ability to switch from one perspective to another, as evaluation occurs; and finally, we have **originality** that permits the selection of unusual associations of ideas. An environment in which there are fluency, flexibility, and originality is more likely to produce an individual who is capable of designing novel and appropriate ideas, because it promotes divergent thinking.

Guilford believes that education, in concentrating too much on convergent thinking, has limited the student to reaching only the answers that society considers correct. Within socially accepted limits it has taught evaluation or critical thinking, though generally with the emphasis that to every question there is one right answer. But outside the arts it has tended unwittingly to discourage the development of the abilities involved in divergent thinking. Consequently, environments that predominately emphasize convergent thinking squelch creativity, while environments such as Montessori classes that promote divergent thinking, complemented by convergent thinking, tend to produce budding artists, inventors, and scientists.

Work

The love of work is another element common to extremely creative people. They have a desire to work constantly on that inspired idea, until it comes to fruition no matter how much time is involved. In fact, a genuinely creative achievement is almost never the result of sudden insight, but the product of years of hard work to realize it entirely. To wit, both Galileo and Darwin, who had few new ideas, but who both fastened tenaciously on their respective ideas that were so generative, worked on them for the duration of their careers. **Much hard work** is necessary to bring a novel idea into existence, not only due to the testing, fleshing out, elaborating, altering, all elements that are part of creation, but also due to overcoming the day-to-day random obstacles a creative person encounters along the way.

Dr. Montessori from her observations of children, was well aware of the **concept of work** and its importance to the development of the individual and to the continued development of culture and society. In 1938 at the International Montessori Congress in Edinburgh, Scotland she said,

We have continually repeated that the child has revealed to us in a clear and human way, that there exists within human nature an impulse towards work, and he has shown that upon the circumstance of this impulse depends normality or the opposite.

If work is natural to the individual, then we can capitalize on this characteristic as we attempt to foster the elements of creativity. Recognizing that work is natural to the child, Dr. Montessori realized that an educational environment, one that aids in the construction of the human being, must involve a means to ensure that the child develops a **strong work ethic**. She believed offering in very specific ways a variety of meaningful and interesting work opportunities for original self expression were enticements in which the child naturally would invest his time and energy. By virtue of this spontaneous involvement in these endeavors, hard work would be produced, and the child in a very real way would recognize for himself the value, satisfaction, and enjoyment from immersing himself in his self-chosen occupation. The child learns from his own experiences that hard work is rewarding.

Montessori also firmly believed, that once a child was engaged in such an activity, he should never be interrupted. Interruptions to constructive work of any kind, she believed, are impediments to the child's development. In particular, they are an impediment to the development of his work ethic, and ultimately to creativity. In a Montessori classroom the child is granted the time he needs for his intellect and imagination to process whatever has gripped him. He has the luxury of time to reflect and ruminate, a critical step in the process of creativity. Thus, we have another aspect of the Montessori approach that lends itself to the development of a creative individual: indeed, Montessori teachers are charged with the mission of protecting the child's work period. The work ethic that is ultimately developed through such efforts, sustains the child in his labors and fosters the actualization of any creative inspirations.

The recognition of the child's great ability to persevere endlessly and constructively on an inspired idea is a familiar Montessori tenet, especially witnessed in the elementary child. Montessori observed that the child from six to twelve is particularly capable of bouts of great work. From his freely chosen work in the primary class the child comes with a healthy love for learning still in tact, a developed work ethic, and an internal sense of discipline. He, thus, is prepared for the new inspirations awaiting him in his new environment. He does not shrink from his work, because again he is allotted the freedom to choose an activity that appeals to his intellect and creative aspirations, as well as being offered the freedom to invest whatever time it takes for completion of his project as long as he is gainfully employed. This freedom to work endlessly provides **fuel for his passion**, the passion needed to drive the project to completion. Take the freedom away and you extinguish the passion. It is then that the child will lose interest in his task. Csikszentmihalyi concurs when he suggests that without a burning curiosity, a lively interest, we are unlikely to persevere long enough to make a significant new contribution.

PHASES OF CREATIVITY

Once the germ of creation has been born, and the apprehension of the idea to be realized or the problem to be solved has taken form, we must then consider what happens next to bring something potential into reality. It is widely held that there are four **recognizable phases of creativity**. Since a portion of our goal as Montessorians is to cultivate and promote creativity, it is well for us to consider them now so that we can be equipped consciously to assist however we may in this process. These four phases are preparation, incubation, illumination, and verification.

The **preparatory phase** must include a thorough investigation of the germinal idea, which will include reading, noting, discussing, questioning, collecting, exploring, observing. This investigation, however, will vary with the domain of the creator. A painter may observe colors, shapes, textures, the way the light changes during different parts of the day. He accumulates these impressions until he incorporates them into his medium. The writer, on the other hand will observe people, focusing on their mannerisms, voices, attitudes, all of which contribute to a mosaic of impressions out of which a novel or story is born. But, observing and exploring are not enough. **Creation requires technique**. To effect his ideas, the creator must develop particular skills, which means submitting to the discipline of his craft, and this is part and parcel of the preparatory phase.

In our Montessori classes children are encouraged to observe, explore, question, and investigate everything. Hand in hand with

these opportunities they are presented the techniques required for different creative domains: they involve themselves in the scientific process through experimentation; they learn color theory and are conversant with the elements of line and shape; pitch, rhythm, musical notation, provide a structure for grasping the elemental underpinnings of music. By presenting the children the elemental skills we give them the tools to manipulate ideas in their imaginations to devise original and unique, personal expressions.

It is during the second phase, the **period of incubation**, that the unconscious takes over after the conscious mind has done its work. It's as if the ideas secret themselves away buried deeply beneath the surface to churn and shuffle until unexpected permutations and combinations of ideas result. It is ensconced within the unconscious that those unexpected connections, the essence of creation, are made. This phase takes time. It may be long or short, a day, a month, a year, but without time, true creativity cannot manifest itself.

Creative ideas can not be forced. Because the children in a Montessori class are not bound by rigid schedules to produce something creative upon demand, and because they are left free to ponder and reflect when initially inspired, the period of incubation can proceed according to its natural timetable. The imagination can not be bound by schedules, but must be allowed to have its ideas spring into consciousness when fully formulated, at which time the child will be moved to self expression.

Following the period of incubation is the **illumination phase**. During this phase the pieces all come together to complete the whole puzzle, which to this point was still unformed, unattainable. But in this phase the creator has within his grasp the solution to his problem. The answers are revealed to him so he can complete the chain of ideas on which he has been working. For the creator this is his epiphany.

Typically in our classes the children in collaboration with others conceive of and design their personal and original projects. And because their work ethic is well developed, they work together incessantly developing and refining their plans until they correspond suitably to their original idea. Worthy of note is that creativity researchers recognize that group work gives the members opportunities for interactive, problem solving, which helps to solidify and illuminate the creative idea under construction. Group work is a bastion of the elementary classroom.

Now the creator has reached the point at which he must consciously finish the form. This is the phase of **verification**. Verification is the point where the intellect and judgment must complete the work that the imagination has begun. The raw material of creative achievement has been worked and reworked, and now it is time for the ideas to undergo a judicious and ruthless scrutiny. There must be analysis and revision. This is the time in which the Muses of inspiration are consciously elaborated, altered, and corrected. The creator himself, must determine whether his insight is valuable and worth pursuing.

In our Montessori environments there is the opportunity for spontaneous work without the presence of reward or punishment. Accordingly, children become **competent in assessing accurately their own work** without the need for external evaluation. Children know when their work is worthy and good. They know when it measures favorably against their inspirations, talents, efforts, values, and abilities. They learn to assess themselves and their ideas honestly.

HOW EDUCATION CAN PROMOTE CREATIVITY

Now that we have seen how the process of creativity is analogous with our Montessori strategies, let us examine how the advice offered by people who study creative research is also nothing new to us. Guidelines offered today by creative researchers who believe that the promotion of creativity can be effected through education and within the classroom, are well-known concepts to Montessori teachers. Indeed, the Montessori teacher, an integral part of the prepared environment, always has understood her role as one that assists the child's development in all domains rather than as teaching him subject matter to be memorized and then regurgitated. Consequently, the practice of a Montessori teacher is closely aligned with the very guidelines that these researchers propose as they offer ways to cultivate deliberately creativity within the classroom.

One such guideline proffered by George Kneller is merely that the educator first must recognize that creativity can, in fact, be fostered in an educational approach, and also that it is as natural to the average student as it is to the genius. This stance is exactly that of Dr. Montessori, and thus of Montessori teachers. She believed it was the role of education to assist in the creation and construction of the human being, making actual all potentialities, a notion that takes on far greater import than just fostering creativity in the artist or the scientist. A prime function of education is to bring the child to a knowledge of his own personality. From the beginning the child should understand that he is constructing a unique self and entering onto a unique destiny.

Another guideline suggested by creativity researchers is that teachers must realize that creativity is not an isolated process but a component of many kinds of activities. The child should learn to think creatively in a range of situations and on a variety of subjects. Montessori espoused these same sentiments. Her vision of an educational approach is one that doesn't offer knowledge per se, but one that allows the child to learn how to use his mind effectively, which ultimately grants him power that he can wield constructively and creatively. Montessori teachers give to the child by providing an environment in which he learns to observe, to discriminate, to analyze, to draw conclusions, to develop reasoning abilities and ultimately to decide. In other words, one in which he learns to think. The development of these characteristics - all of these are necessities for creative endeavors - is the gift of a Montessori classroom.

Creative psychologists advise against a teacher's imposing too many standards or personal expectations on the creative efforts of the child. If she does this, she seriously inhibits originality, which is a quality that should not only be welcomed, but encouraged in each student. Each child should be free to express himself as he will. Also, there is a danger that in a teacher's concern to transmit accepted knowledge of certain domains, she will too quickly cut the flow of the child's ideas. This happens when a teacher concentrates too much on correct thinking and too little on originality. The Montessori principle of offering freedom is the aphorism that guides the teacher and protects the child in the prepared environment in this regard. Once a child is engaged in an occupation, the teacher leaves him free to pursue his own designs, to create as he will. Intrinsic motivation flourishes when teachers believe that children should be relatively autonomous in the classroom. By allowing the child to produce original work, we also demonstrate a respect for the ideas and compositions he produces. This engenders in the child a faith in himself, a trust for his own experience of life. He comes to believe in the worth of his thoughts and perceptions because they are his. By word and example the Montessori teacher inspires her children to respond to life in all its aspects and to value their responses as their very own.

Montessori teachers and creative researchers are allied in other aspects as well in their work to foster creativity and inventiveness. They recognize the importance of cultivating in the child an appreciation of new ideas, examining them and judging them on their merits, rather than dismissing them because they are not the norm. These revelations are developed in the child when he discovers from his investigations in history that many of the things we take for granted today were once considered atypical, and sometimes fanciful. Consider, for example, the invention of the airplane. In fact, it is not uncommon on first appearance that most creative achievements seem revolutionary. However, the

willingness to consider unconventional ideas has provided one of the driving forces of scientific and aesthetic advancement. The child soon realizes that the more we discover, the more we realize how incomplete our knowledge is; that there is more, much more, to be invented or created, and he might be the agent who does it.

Also, another guideline to promote creativity is that the child needs exposure to the great minds of the past. In the search for his heroes, an occupation Dr. Montessori herself recommended, the elementary child can find a personage worthy of emulation and respect. One source to discover these people is the stories that the teachers tell about individuals who have made a difference through original thinking. The words and deeds of renowned artists, thinkers and leaders are among the most important catalysts of creative energy in others. Our stories put the child in contact with great poets, historians, statesmen and scientists from across the world and the centuries. Even as we do this we ensure that the child understands that the achievements of these great people didn't happen overnight, but required great perseverance, tenacity, and much hard work.

To awaken creativity, teachers must challenge students with provocative ideas. Rather than spoon-feeding the students with information, the teacher should place them in the position of having to seek out information and solve problems for themselves. Similarly, this is a technique recommended in our approach with the elementary child. In our lessons we give him just a little, only what he needs to know to understand the initial concept; just enough to make him curious; to whet his appetite and trigger interest; to leave him with unanswered questions. Then we let him alone to pursue and discover for himself all of the solutions to mysteries at hand merely for the plucking. This approach sustains the child's curiosity. Fascinated by the rich tumult of experience, the normal child explores the world as a matter of course. If we check this curiosity, we damage him as surely as if we take away his sense of security. On the other hand, these investigations and the fruits aroused by curiosity further provoke children to discover, solve, and create.

When these elements for eliciting creativity are recognized and are firmly in place within the educational setting, there is no need to resort to the misguided methods for encouraging creativity commonly employed in some schools such as rewards and punishment, competition, and pressure to conform. These methods are not only ineffective, but they are, in fact, injurious to the creative process, just as inhibiting exploration, regimenting and limiting time for artistic expression, and gratuitous evaluative comments are. Refraining from imposing standards at the beginning of an activity, allowing for a free flow of spontaneity, along with encouraging of children to examine their new ideas on the merits, and not dismissing them off hand because they don't correspond to "correct thinking," are what makes a Montessori classroom by its very design a natural environment conducive to the development of creativity. Again, we see that it is the freedom accorded the child in a Montessori class that ensures the opportunity for his creative growth.

CONCLUSION

Society as a whole has a stake in the creative manifestations of its members. As we all know, it is creative people who will continue to advance civilization through the prowess of their intellects and imaginations. For this reason educators must take care that the precious commodity of creativity is maximized, rather than squandered. As important as this aspect alone is there is another element of equal significance to understand. Art, music, literature, poetry, invention, medicine, and science, the products of creativity, are not mere addenda to our lives, to provide us with entertainment at day's end; rather they are a distillation of our lives and an intensification of life itself. And whether one is a creator in a particular field or not, one can still benefit from the fruits of the labors of others. Society is enhanced when its members feel dignity, fulfillment, and satisfaction, all corollaries of the creative process, thus enabling them to feel a sense of harmony and approach the world with renewed strength. Creating this existence for the children in our Montessori classrooms is our work, is our creative endeavor.

As we Montessori teachers are embraced by our Muse, responding to our own creative impulses, stirred by an inner spark, an ardor that moves us in our work with children, let us recognize that it is through our passion, talents, and abilities to implement the Montessori principles without compromise that the child will be allowed to create the individual residing within himself. And then, one day, through the expression of his creative bent he ultimately will be able to offer a contribution to humanity. When viewed in this way, our educational process reflects the process of creativity itself.

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