

**STE(A)M: The Deceit in The Sharing of Ancestral Property and The Role of a Woman
Standing on The Rungs of STEAM In Economy- Boosting as Well as Influencing
Teacher Education**

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Abstract

It is not really as easy as it looks. Though STEM and STEAM look eerily similar in appearance but changing of STEM to STEAM or adding “A” to it can be a demand for rights, request, remembrance or a rebellion. In fact, now we have awakened from sleep in the same way as Immanuel Kant was awakened when all the preparations were made to send the metaphysics (the life of Philosophy) from this world. The logical positivists had almost prepared the entire plan to make philosophy a slave of science by killing metaphysics. Empiricists were bent on killing the rationalists. Then Kant had said ———— “thanks to Hume (a staunch empiricist) that he has awoken me from long dogmatic slumber.” Although some rationalists were even more fanatical experimentalists than the empiricist ones themselves. It’s a very funny story that a rationalist philosopher once tied a rope in his neck and hanged himself from the roof hook. Fortunately, his philosopher friend arrived there and saved him. On asking about this, he confirmed that he was testing the taste of death.

The voice he (Kant) raised to save the metaphysics of philosophy is probably the same as the voice of adding “A” to STEM. Actually, the basis of STEM was that it seeks to provide future generations of employees with digital literacy and multidisciplinary knowledge for a career in the modern ever- evolving workforce. So, was Arts and contribution of Arts unknown to them? Did they not know, what is the scope of Arts and what is its importance? Didn’t they think the Art a discipline from among them? Whether the STEM was not a net to trap the Art

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out of the ground? Do Humanities students are unable to earn their living? It is a matter of concern, why academics had to advise later that “A” should be included. In fact, joining of “A” in STEM is like joining a heart in some minds. Now you (readers) decide what is the contribution of the “HEART”? There may be lacs of benefits of any new scheme or approach, but we must know that the experiment is done first and the theory of the plan is written later. For example, artist and designer Leah Heissrt (Associate professor, The Eva & Marc Besen International Research Chair, Department of Design, Victorian Heart Institute, Monash University, Clayton, Australia) worked with nanotechnologists in biomedical industries to develop jewelry to assist diabetics administer their insulin, not after reading the concept of STEM. She just did her work and now it is only a matter of chance that her work seems to make the concept of STE(A)M worthwhile. Then how could there have been a huge mistake of not adding “A” in STEM? Surprisingly, we have to tell that “A” should be added to promote Arts and Humanities as an important pillar of interdisciplinary education. The truth, however, is that all the disciplines of S.T.E.M were seen as a better option for a livelihood, invention or world- family and it was considered better to keep “A” away. Can anyone claim that “A” does not provide livelihood, it gave nothing to the world, there is no Nobel in it and it has no role in the economy? Say and think. Actually, it is only a matter of recognition —— —— the recognition of Art. Art was filtered out with net from interdisciplinary ground. Perhaps those who brought STEM to the global arena, did not consider “A” as their part. Then the question arises whether STEM and STEAM should be considered separate or STEAM is only the extension of STEM? Honestly, each member of S.T.E.M appear to be of the same group, whereas “A” is different but no one can deny that inclusion of “A” is bringing better color. Leaving aside the debate of STEM and STEAM and considering ahead

them as almost the same will be talk of some benefit. As STEM is acceptable in form of STEAM, a discussion on any particular aspect of it would be of great importance. In this specialization too, our focus is on the contribution of STEAM to strengthen the economy. But what role can a woman, who is the real link of this humanitarian chain, play on the basis of STEAM in boosting the economy? What influence “She” may shed on teacher education (being with STEAM background)? Is this question, aspect or theme justified and if yes, how? Taking up some such points, in our paper, we are making an honest attempt to throw light on the role played by women standing on the boat of STEAM in strengthening & promoting the economy and teacher education.

Keywords: STEAM, Philosophy, Teacher education, Integrated teacher education, Economy, Critical thinking, Gender stereotype

Our philosophy: Starting point (Authors’ view)

We want to start our talk with these words of Howard Gardner:

“Everyone deserves to learn about the arts and humanities just as much as they deserve to learn about math’s and sciences.”

Though today, STE(A)M may be a better approach just to make school education great and to enable children to face the future challenges; in the beginning it was only an artificial and clear-cut line between STEM and “A”. No one can deny this. Another thing, no one consciously works in collaboration. This is a kind of skill. Insight and creative thinking teach the skill of using something or achievement in one arena from other. Like, a creative is working in some area and suddenly he gets insight that he can put some stuff of another area here. This results in interdisciplinary approach. It means that the work (practice) is done first and the name (theory) is given later.

[Rorty, Amélie Oksenberg (ed.), 1998, *Philosophers on Education: New Historical*

Perspectives-New York: Routledge.]

Female teachers/teacher educators: Profit game

The importance of a female teacher increases even more when it comes to the education of girls. Girls feel comfortable to express their feelings, problems and difficulties before female teachers than male teachers. They may prove best advisors and role models. To prepare women teacher educators, first of all it is necessary that proper education of women should be arranged. Their role as educators is valuable. They can contribute to the process of girl education in specific and community in general. Affection and care is very important in making children mature and cognizant. Women's affection (which is their basic nature) and the talent of their domestic responsibility provide them with the ease that they can connect with children with love. It's a huge advantage. There is no denying that there is a shortage of female teacher educators everywhere but providing those ideal working conditions and recognizing economically, nation can gain best from them. Parents of the rural area consider it better to send their girl child in the school with female teachers. Women as teachers/teacher educators can uplift gender awareness. They can assist promote prime behavioral patterns in students.

[Hope Louisa Octavia (2010), *The Female Teacher*, Nabu Press: South Carolina.]

Discipline integrated teacher education and women: STE(A)M magic

“Education” is a term which without any discrimination implies that it is for everyone, whereas in the word “women education”, is hidden the demand for gender equity, that is to say that there is surely some gap which we have to fill. Interdisciplinary approach also has two perspectives. The first is to demonstrate the sum of the various disciplines on a topic by a knowledgeable teacher of collaboration skills. Second is to explain the same topic from the perspective of their own discipline by people who know different disciplines (individually).

For example: local river system. A teacher with collaboration skills will link it to Language & Arts, might teach students about the life system of the river and may teach local history of the people who used the river for food or transport. On the other hand, experts from individual discipline may shed light on river of their own disciplines accordingly.

We can easily see some shortcomings in women education but there are some loop holes which are not easily seen. For example, Science, Technology, Engineering, Arts and Mathematics (STEAM) education disparities are deep rooted, even in Europe and North America. Although some places have been amazing. The women also come from the STEAM background. Then, obviously they have a lot of talent in integration and they can be better to establish and teach collaboration, which is useful in education and future life. They are well aware of the method of combining affection and reason. In our view, teacher education can be defined in simple terms as———

“To be fully prepared before going to the classroom (so that we may be able to give children accurate and complete fixed content that we have to give them after entering the classroom) with the purpose of giving the right content.”

——— Khan M. & Goyal J. S.

The interesting fact is that a female (who is from STEAM background), whether receiving or giving teacher education, will perform better because discipline integration will have increased her receptive power. Integrated teaching is an art of connecting skills & knowledge from different/ multiple sources and experiences and applying it in various settings. Actually, it is bridging between theory and practical. Collaborative teachers encourage students use their knowledge and learning strategies in different settings.

Not 1/4 but 1/5: Kinship grew

Here, our illustration is based on personification. The first thing that happened is that science,

technology, engineering and mathematics considered themselves as the only areas or subjects where something can be improved. Secondly, when they assume that we are the only fields in which there is scope or chances of betterment, so why don't we should have a relationship (kinship) with each other. We (the authors) see this relationship (kinship) as an interdisciplinary approach (linkage) established by themselves [actually by the holders they (these disciplines) are in hands of]. Thirdly (on the basis of respect and prestige), it was decided that apart from the four of us, what worth maybe of art?

Thus, STE(A)M is the result of raised voice for the right of "A". Finally, it has been proved that there is self- interdisciplinary linkage in S.T.E.A.M.

Critical thinking: No one knows the sheep better

(Thinking out of box)

One thing about creativity should be made very specific. We parents are either suppressing the creativity of children or making them insolent. In fact, when we are scolding them on something, we are suppressing them by criticizing their art of thinking. When we avoid or smile whilst they perform mischief to a relative whom we don't like, then we are actually making them nonsense.

Creativity is when we allow children try and error, not suppressing their questions, let them fly in the sky of imagination and let them think and understand on their own. Art and Critical Thinking will be born from here.

In a primary school class, a teacher was teaching mathematics. Then the investigating officer arrived there. He urged the teacher to let him check his children's math ability. The teacher immediately agreed. The investigating officer asked the children if 10 sheep were standing on a bridge and 5 of them jumped down, how many of the crowd left on bridge?

The answer of all the children was 5, but on the contrary, a child stood up and replied—
 —— “Sir, it’s zero.” At this the investigating officer looked at him with surprise and said—
 —— “you do not understand the mathematics, Child.” At this, the child blinked his eyes in
 innocence and replied—— “and you do not understand the sheep, dear Sir.”

Flop insurrection

It was considered that future generations were lacking critical skills needed to lead in future economy, whereas STEM backgrounds teach innovation, creativity, critical thinking, problem solving and collaboration among other skills. Though art was not verbally boycotted but intention was the same. Thanks to the Rhode Island School of Design (RISD), one of the early champions of adding the arts to the original STEM and this was what I think like adding a heart to the four minds.

4 minds + 1 heart = STE(A)M

Edward Lytton seems right when he remarks——

“A good heart is better than all the heads in the world.”

[Edward Bulwer- Lytton- Zanoni, Horse’s Mouth, 2017.]

“A” doesn’t strengthen STEM but challenges in the court of linkage- discipline. It is a claim to its right. The mathematics degree is undoubtedly brilliant and valuable, but the inclusion of art in it will give a sympathy that will create better design.

“Study the science of art. Study the art of science.”

—— Leonardo Da Vinci

[Bülent Atalay, Math and the Monalisa: The Art and Science of Leonardo Da Vinci, HarpPeren, 2006.]

Both are the characteristics or colors of each other. So, it is very interesting and necessary to know the colors of both. Aesthetic vision fills new life in materials. Even if we go to the real life of Nobel laureates, we will find it filled with the colors of art. To know the art of art will prove much interesting and astonishing. It would be surprising to know that most of the better things have been given to the world by less educated people. Wright Brothers, Thomas Edison, James Watt, Alexander Graham Bell and there are many more names to count. It is another thing that these inventions enrich the knowledge reservoir of science. But it's not necessary that an inventor is surely a scientist.

Creative economy

Art- economy will be effective all time. The only condition is fullness of pocket. Art's economic contributions are not easily quantified. Art galleries, museums, movies, TV, radios, video games, fashion, tourism, cultural heritage, real estate & buildings, craft, publishing, newspapers, advertising, visual arts, magazines, flowers, decorating shops, music instruments, photography and many other enhance our economy. Cultural and creative industry produces jobs. Painters, potters, local goods producers etc. are also serving for the economy somehow. A replica of Taj Mahal can be made but not the Taj Mahal. Likewise, the Mona Lisa painting (a half- length portrait painting by Italian artist Leonardo Da Vinci, considered an archetypal masterpiece of the Italian Renaissance) can also be copied but it cannot be the original one.

Steam of STE(A)M: Women's role

(From village pond to scientific lab)

According to the US Department of Commerce's Economics & Statistics Administration, women who work in STEAM, make 35% more than women in non- STEAM occupations. The woman, who handles society from kitchen to office, takes care from children to husband

and in-laws; surely knows the art of management. Hardly anyone be with such knowledge of management like her. If she is being strengthened on the STEAM background, the result might be glorious. Verily, woman standing on STEAM stair can help a lot in the economic growth of the world. But in all the developed or developing countries of the world, the gender gap is still much in technological subjects.

Time has two aspects. The first is that we have 24 hours and there is a lot we can do. The second is that we only have 24 hours and there is a lot to do. Symbolizing these aspects with women's education, we can see both aspects positively and we really have a lot to do in this area. It would be better and practical to say that a woman can participate in economic growth or will prove a boosting agent than to say that she is a participant because there is really a gap in the society. There is difference in “what is” and “what ought to be”. This difference is the reason of crisis. Economy is social science and obviously it will come in its productive form only when every part of society will participate in it. Almost a third of women's empowerment globally is in agriculture industry, including forestry and fishing. Women are the big share of gig economy. Economy boosting means not just productivity but also consumption. They control \$20 trillion in annual consumer spending. She is both producer and consumer at the same time. Fashion, makeup, decoration, flights, jewelry market, fitness, healthcare, kitchen, office, industry, cinema, field, game each represents her face.

If you want to see the role of women in economy, go in the women's compartment of the local train in Mumbai (you can take the risk of not being beaten by them with folded hands). From the business class, office to the women selling fish in the baskets will be seen. Women have progressed well in the field of writing. Local dance performers (women) can't be ignored.

Women's opportunity in women's place: Women Robe

This term (Women Robe) is being introduced by Moinuddin Khan (one of the author of present paper). Everything has a basic nature. Anything in “space” contrary to it will create a mess in it or “space” will suffer a mess produced by it. Taking full care of the design of Almighty God and his laws, the woman should be given full and fair chance. Social

protection is utmost important and necessary. A place of their own should be decided. An example is presented by Bihar School Examination Board in Intermediate and High School Examinations, 2021. Four ideal centers have been set up (decided) in each district of the state where all persons (from the examinee, invigilators, center superintendent to the guards) will be women. Actually, this is a type of shield they can use according to their psychology.

Doll of girls: Gender stereotypes

Though it's a tough topic of debate to fix it good or bad, but stereotypes with gender can affect children's future. Women's economic equality is good for business. The Ladies Cycle and Scooty were made keeping in mind the woman. Isn't it a big sector of economy boosting today? Is Scooty run by women only? There are still many makeable questions those may be considered here.

Conclusion

The essence of the paper presented can be stated with four points. First of all, STEM may have been a fantastic approach, but not including art in the beginning in it wasn't a mistake but an open trick or thought and later its inclusion (STEAM) can be seen as a claim for right. Second, art has given a lot to the world and its collaboration or inclusion in the science adds light to products. Thirdly, there is no doubt that woman has interfered in every area of the world. She is the link of humanity and her share is everywhere. She has an impact on the economy in every respect, and especially the woman of STEAM background is able to do better collaboration and creative thinking and has a positive impact on the economy. Fourth, women teacher educators (especially with STEAM background) may prove a milestone in girls' education and filling the gender gap.

References

- Bülent, A. (2006). *Math and the Mona Lisa: The Art and Science of Leonardo Da Vinci*. HarpPeren.
- Edward, B. (2017). *Lytton- Zononi. Horse's Mouth*.
- Hope, L. O. (2010). *The Female Teacher*. Nabu Press: South Carolina.
- Rorty, A. O. (1998). *Philosophers on Education: New Historical Perspectives*. New York: Routledge.