

Curriculum and its implementation in the lens of Ted Aoki: Implications for Ghanaian mathematics education

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ABSTRACT

Curriculum as a blueprint for the development and delivery of education in a country has been viewed from varied perspectives. Aoki (2004) gave three perspectives to school, which are the “rational thinking”, “doing” and “being and becoming”. The first perspective connotes that teaching seeks to provide learners with the requisite knowledge and intellectual skills in their areas of specialisation. This consequently leads to the cognitive development of the learners. The second perspective posits that “doing” is to equip learners with practical skills needed in the world of work. The school equips learners with the functional skills needed to complement the knowledge in executing jobs in their chosen profession. The third perspective suggests that the school intends to develop the learner with the social competence to fit well into the society. Learners need collaborative and co-operative skill in order to study, work and live with others in the social world. In the view of Aoki (2004), the school curriculum ought to equip learners in the three domains to enable them to receive a holistic education. The three perspectives of the school curriculum have relevance on countries’ curricula such as that of Ghana. There are a lot that curriculum developers and educators of Ghana can learn from Aoki’s (2004) perspectives especially the third one which seems to have received minimal consideration for a very long time.

Keywords: Curriculum, implementation, experiential, transformation, technicianist.

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INTRODUCTION

In this paper, I present my reflections on Aoki’s views on curriculum and its implementation, as well as the teacher and the student’s role as subjects of the curriculum. I wrote this paper after a course in curriculum and as I began to reflect on what I learnt and read in this course in relation to what is happening in my country, Ghana, particularly in my own subject area of mathematics.

Aoki (2004a) gave three different perspectives on school. The first is a school of “rational thinking,” a school where the curriculum emphasizes intellectual skills. The curriculum in this school is a ‘thinking’ curriculum. Aoki sees this school as a school that understands a teacher or student as split into mind and body. Teaching is seen basically as mind building, accomplished by filling containers with factual and theoretical knowledge; being a student is absorbing knowledge, the more the better. Mathematics education in Ghana places so much

emphasis on this kind of curriculum. In mathematics classrooms, the cognitive development is stressed through drill and practice, strict adherence to procedures, emphasis on right answers, and emphasis on individual seat work.

The second perspective he described is a school oriented to ‘doing’, a school that stresses practical skills, a school that nurtures skills for productive purposes. This school is utilitarian oriented; the curriculum is guided by demands of the marketplace. A school is a preparation place for the marketplace, and students are moulded into marketable products. Now, this idea of preparing students for the workplace is an objective for Ghanaian mathematics education too. The main rationale for the core mathematics syllabus for Ghanaian high schools is “to enable all Ghanaian young persons to acquire the mathematical skills, insights, attitudes and values that

they will need to be successful in their chosen careers and daily lives" (MOE, 2010; p. ii). The good aspect of this rationale is the fact that it stresses not only skills but other values and attitudes, however, reading the entire syllabus one will notice that the emphasis is on skills than values and attitudes.

These two perspectives of school are similar to the 'technicist' education that Aoki (2004b) described in his paper titled '*The dialectic of mother language and second language*'. In which knowledge is acquired instrumentally. The technicist view of education is comparable to what Freire (1968) referred to as "banking concept" of education which he explains that, in this education, the teacher narrates the content whether values or empirical to students, hence the content becomes lifeless and scary. Freud, as cited in Britzman (2015) described it as "dogmatic pedagogy" where ideas are imposed on the students. Students do not examine and criticize knowledge presented to them by the teacher, it is just received and memorize for reproduction.

Magrini (2015) explains that curriculum in these perspectives is a commodity dispensed to teachers and consumed by students. The evaluation and assessment of 'good' or 'effective' teachers are based on how faithfully they implement and facilitate the efficient unfolding of the Curriculum. The teacher's prejudices in the process are insignificant, his/her imaginative, informed contributions and views hold little importance in the process of implementation of the curriculum in these two perspectives of school. Within this 'technicist' model of curriculum implementation, Aoki, as cited by Magrini (2015), says 'the others—teachers and students are only implied in words like implementation, instruction, and assessment', and then, only as 'objects' or present-at-hand resources, and these 'others' become secondary to the curriculum-as-plan. Magrini explains that in this curriculum, learning is primarily technical and psychological, concerned with changing the students' behaviour which is expressed in behavioural terms in the goals or aims of the curriculum.

Aoki (2003) uses the Japanese symbol 'ko-jin' to suggest that absolute transformation of a person is an impossibility, that change is always incomplete and partial, and he explains further that ongoing transformation always generates newness in life's move, and I perceive this understanding is what the 'technicist' perspective of education lacks or tends to ignore. Magrini (2015) is of the view that due to the indeterminacy of human existence itself, change is grounded in the temporal unfolding of the lived curriculum, which is structured ontologically around possibility over actuality.

The third perspective of a school given by Aoki (2004a) is a school given mainly to 'being and becoming', a school that emphasizes and nurtures the becoming of human beings. Such a school will neglect 'doing' but asserts the togetherness of 'doing' and 'being'. The teacher or student is seen as being simultaneously an

individual and a social being. This school emphasizes reflective reviewing of self and the world. Teaching is understood not only as a mode of doing but also a mode of being-with-others. Teaching is relating to students in concrete situations guided by the pedagogical good. Teaching is a tactful leading out-leading out into a world of possibilities, while at the same time being mindful of the students' finiteness as mortal beings. Smith (2000) hold the same sentiment by commenting that true knowledge develops if the curriculum is worked out in such a way that, the teacher's 'being' encounters the 'being' of the student. There are many other writers that share similar views that learning occurs only when the individual encounters the being of others and the object of learning through experiential learning (Jardine, 2008; Jardine et al., 2003; Clifford and Frieson, 1993).

According to Aoki (2004a), the first and second orientations of a school are grounded in a fragmented view of the person (body and mind), and the third orientation of a school sees its origin in an understanding of teachers and students as embodied beings of wholeness. This school restores the unity of body and mind, body and soul. This third orientation is Aoki's theme of 'inspired curriculum', which is based on the notion that students do not conform to the curriculum, as in the 'technicist' models, rather, they embody and direct the unfolding of the curriculum. This shows that Aoki is not against the curriculum-as-plan rather he is critical about how the curriculum is implemented. In his view, curriculum implementation should allow teachers and students to have autonomy and employ the curriculum-as-plan to their own experiences and situations. Clifford and Frieson (1993) also share the same view and describe how curriculum could be linked to the unique experiences of each person, why imaginative experiences should be considered in planning and the benefits that could be accrued when teachers connect school knowledge to real-life knowledge.

Aoki (2003) is of the view that the curriculum-as-plan, typically known as the mandated school subject, unfolds into curricula-as-live(d)- experiences of teachers and students - a multiplicity of curricula, as many as there are teachers and students. Aoki uses the phrase (yu-mu), yu -presence/mu - absence. Yu-mu as both "presence" and "absence" to explain the space of uncertainty amidst which humans dwell. As such, Yu-mu is non-essentialist, denying the privileging of either "presence" or "absence," he explains that yu-mu is used in his text to signify a site pregnant with possibilities. It implies we should not place so much significance on the mandated curriculum which is known (presence) in neglect of the unknown (absent) lived-curriculum. This calls on curriculum developers to have in mind when planning the curriculum that there are many and varied ways of knowing, understanding and relating to the world of education through the lived experiences of teachers and students.

Magrini (2015) says this final theme of Aoki indicates

that authentic education requires that teachers, in an attuned manner, listen for what is already foretold in the students' address. "Listening carefully allows us to become thoughtful of how we may have become beholden to the metaphor of the eye/l' in the curriculum" (Aoki as cited in Magrini, 2015: 277).

Curriculum implementation consistent with the instrumental view as in the first and second orientations described by Aoki takes little interest in the teacher and the students or their 'lived' educational experiences. Aoki (2004c) says that the curriculum developers ignore the skills of the teachers acquired through reflections on their daily experiences with the students. The problem with the mode of curriculum design, implementation and evaluation grounded exclusively in the 'technicist' orientation is that it provides a very limited view of the human being and the world.

For Aoki (2003), it is essential to be open to the view that learning, knowing and understanding occur in a multiplicity of ways. Being open to this understanding of multiple ways of knowing is what Apple (2008) refers to as "critical education". Aoki (2004c) suggests that the classroom teacher is always finding himself dwelling in between the curriculum-as-plan and the curriculum-as-lived-experience, and this creates some sort of tension for the teacher. Aoki (2003) suggests that the site between representational and nonrepresentational discourses is the site of living pedagogy, it is a site of ambiguity, indecision, and uncertainty, but simultaneously a site of general possibilities, of hope- a site challenging us to live well and this is the site between the planned and the lived curriculum, the site of tension. The curriculum must be attuned to this and subsequently be opened to developing along ontological lines through existential modes of understanding, which Aoki claims emerge from heuristic 'situational interpretive' that unfolds in the tension.

Magrini (2015) explains that Aoki's view of 'situational-praxis' in curriculum implementation embraces both teachers and students as human beings concerned with and beholden to their own 'being' and the 'being' of others as they venture out together in learning. Since it is possible for the human being to transform (make and remake) his/her world, the teacher in this model is always a 'person-who-acts' and thus is the creator of his/her historical reality, and in the process, interprets the curriculum from within his/her experiences in relation to the experiences of his/her students.

Magrini (2015) shows that within Aoki's view of the curriculum implementation students and educators are invited to engage in a process that affords opportunities to become their own unique persons. Learning is an open invitation to envision the unique potential for being, and, by enacting their autonomy in the processes of learning, students encounter the complexities of their existence and in turn transform themselves in the process. When in-dwelling within authentic situations of learning students

are conversing with others, inviting negotiation and transaction, internalizing the curriculum through dialogue within a community of learners, they are affecting others with whom they are engaged, and these different discourses offer students diverse ethical referents for structuring their own relationship to the wider society (Den Heyer, 2009; Miller, 2007; Giroux, 1996). Aoki (2003) illustrated this using the Japanese symbol 'hito' which means that it takes at least two to make a person, self and others together. Educators and teachers should encourage students to develop and foster communal responsibilities.

Aoki (2004a) explains that in understanding implementation, what becomes central for curriculum developers is to understand who teachers are and what teaching is. Curriculum planning should have, as its central interest, a way of contributing to the aliveness of the school life as lived by teachers and students. Hence, what authorizes the curriculum developer is not only the expertness in doing tasks of curriculum development but more so a deeply conscious sensitivity to what it means to have a developer's touch, a developer's attunement that acknowledges in some deep sense the uniqueness of every teaching situation (Magrini, 2015). Aoki argues that in this way, teaching can be 'attuned to the place of in-gathering and belonging, where the indwelling of teachers and students is made possible by the presence of care that each has for the other'. Noddings (2007) emphasised this by saying we should introduce themes of care into the curriculum, and that we will not achieve success in our educational efforts unless children believe that they are cared for and learn to care for others.

Magrini (2015) says that this orientation of curriculum calls students and educators to the vocation of learning or teaching, and so must be attuned to listening and responding to this call, and in doing so, they assume the responsibility of 'caring' for the preservation and development of their own subjectivity, as potential for being, in community with others, and come to understand that authentic education is a limitless undertaking or 'way of life,' a kind of dwelling or being-in-the-world.

IMPLICATIONS FOR MATHEMATICS EDUCATION

Aoki's view of education suggests that curriculum developers (in the Ghanaian context Curriculum Research Development Division, CRDD) and evaluators should recognise that teachers and students are free to make choices within the enacting of the curriculum, and each of them assumes responsibility for his/her choices and therefore, developers should not expect teachers and students to go strictly by what they establish in the curriculum-as-plan. Again, the curriculum planners should always have in mind those they are planning the curriculum for and take the interest and needs of those people into consideration as Apple (2008) mentioned, the

best way to appreciate what any set of institutions, policies, and practices does is to see it from the position of those who have the minimum power. How does CRDD consider the standpoint of teachers and students and incorporate them into the mathematics curriculum framework development? Have they in any way consulted classroom mathematics teachers for their views on the development of the syllabus and other curriculum materials? Does the mathematics curriculum framework reflect the experiences of the majority of Ghanaian students? The CRDD may need to become aware and consider this fact noted by Jardine (2008) that we can't just get a list of prodigious ideas and splay them out for students or hand over to student and teachers some dependable activities that just need to be done. Pinar, as cited by Smith (2000), says curriculum innovation that rarely considers the experiences and views of teachers makes teachers appear as servants who deliver other people's mails.

Aoki's 'situational-praxis,' which he explains develops along ontological lines through existential modes of understanding, reveals to me that the Ghanaian mathematics curriculum is not considering the situation of Ghana because everything expressed in the curriculum is Western. Our curriculum developers are just replicating the Western curriculum for us. If our developers and educators could explore a bit of the ontological grounds of reality (pertaining to the Ghanaian society), and place that before all forms of knowledge, they would have developed a more meaningful curriculum than what exists now. Carruthers, as cited in Jardine (2008), was of the view that thinking is not a disembodied "skill"; there is no thought without matters to think with, and people can only think with the contents of their memories, their experiences. And human memories are stored as images in patterns of places. How are the contents or topics of the mathematics curriculum related to the Ghanaian students and teachers local experiences? I remember, in a calculus book we were using at the undergraduate level, there was a question on building a roller coaster and I could not make any meaning of it and could not attempt to solve the question because I could not relate to the question in any way. I had not seen a roller coaster before in my life so how do you expect me to derive an equation for building a roller coaster? This is exactly what is happening to our students especially at the high school level where almost all topics and activities are empty of the Ghanaian experiences.

Aoki's view of the person is that no human being is an individual. Each person is made up of self and others, as such, educators, especially Ghanaian mathematics teachers need to recognise that human is a communal being shaped by social context, and so they need to shift the emphasis on individualized competitive learning to cooperative learning and collaborative work. The Ghanaian high school mathematics syllabus has as one of its general aims that student should be able to "work

cooperatively with other students in carrying out activities and projects in mathematics" (MOE, 2010, p. ii). Nevertheless, mathematics teachers hardly make use of the cooperative learning in the classroom due to the emphasis on individual mastery and drill and practice so as to be sure each student is well prepared for national examination. It is, however, important for mathematics teachers to recognise that there is more to life and learning than the academic proficiency established by test scores. (Noddings, 2007). Smith (2000) also noted that effective teaching and learning depends on human relationships, that there indeed is a connection between knowing and being.

Aoki's view that each one has a certain uniqueness that can be passed on the curriculum-as-plan implies that the idea of transforming the individual to conform to goals stated would have very little success, the individual does not slavishly conform to the curriculum. Students should be allowed freedom to enact their uniqueness on the curriculum. That is, Ghanaian mathematics teachers should allow students to make their own interpretation of the curriculum by allowing them to find their own ways of solving mathematical problems. As Aoki mentioned that within the authentic space of the curriculum students and teachers dwell and transform their reality guided by their unique potential-for-being. How can education make a more serious contribution to social justice and democracy (Apple, 2008) if these virtues are not practised in the classrooms?

The best way to practice this curriculum suggested by Aoki would be to be in school without any curriculum framework and assessment. However, it appears that this will not be possible because every institution need some form of guidelines to guide its activities and those agencies (in Ghana, it is the government or let me say politicians) sponsoring the education system always want their ideologies and beliefs enhanced through the school system, and also want to find out if their efforts are yielding expected results, hence, the need for curriculum framework and assessment. However, as Den Heyer (2009) noted, whatever its cause, purpose, or intent, the curriculum as a formal text might serve classroom learning if it were itself positioned as a historically curious artefact for student analysis. Therefore, educators should be open and allow students, through their lived experiences, to transform the curriculum-as-plan through a dialogue to suit their situations. Teachers and students must co-actively work to interpret and make sense of the curriculum to suit their lived-experiences.

It appears it is difficult to assess and evaluate Aoki's view of 'inspired' curriculum and 'living' pedagogy and hence it will be difficult to quantify its effectiveness. That is why most curriculum developers do not regard it as meaningful. However, I see it more beneficial than the 'technicist' curriculum and could be enhanced in schools if the assessment of schools could include elements of social well-being in it. Assessors of the Ghanaian

mathematics curriculum, for example, need to find ways of assessing how and the extent to which the objective that “students will be able to develop the values and personal qualities of diligence, perseverance, confidence, patriotism and tolerance through the study of mathematics” (MOE, 2010, p. ii), is being or has been achieved. Ghanaian mathematics teachers greatly emphasize what is in the assessed curriculum than what is in the intended curriculum, so if such aims could be incorporated in the assessed curriculum they would be greatly encouraged and enforced in mathematics classrooms.

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