PROPOSING A MODEL FOR INTEGRATION OF SOCIAL ISSUES IN SCHOOL CURRICULUM

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ABSTRACT

This paper reviews various types of curriculum integration models in general as well as in science and mathematics education. In light of these models a new five points model of integration called transitional model of integration is presented with examples. This model is designed for science education more specifically for mathematics education. However it is not confined to these areas and can also be utilized for other subjects in the school curriculum. The model focuses on the integration of social issues in school curriculum without addition of other subjects and changing the time schedule of the school. In this model the knowledge about social issues can be imparted to the children through teaching different subjects using subservient and thematic approach of integration.

Key words: Curriculum integration, Integration models, science, social issues

1. INTRODUCTION

Tutoring children about social issues would lay a strong foundation for building a sound society. There are numerous social issues in the society but over population and health related issues are discussed globally. So children’s awareness about population education and health related information is unavoidable factor for a welfare and healthy society. For imparting health and population education to the children, unarguably schools would be the ideal places where they can be exposed to such ideas because schools are the places where children can be deliberately educated. When population and health related issues or not addressed in schools, they miss an opportunity to positively affect students’ education, quality of life and relationships, and ultimately the economy and productivity of nations (1). A simple way to put forth these ideas is to include them in school curriculum. But such an approach seems either impractical or very difficult to adopt as it will increase the workload on students. Because with the passage of time more and more knowledge is created and emerged in the society due to which the traditional subjects are already in abundance while the time schedule of schooling is the same from the very beginning until now. Current situation demands for exploring other and new ways to educate students about the emerging social issues including health and population education without increasing their school subjects. Imparting knowledge regarding social issues to the students with out interrupting the number of school subjects can be fulfilled through the concept of integrated curriculum and it seems to be the need of the hour.

Integrated curriculum is an educational approach that prepares children for lifelong learning (2) and is rooted in John Dewey School in Chicago in 1898. It is believed that experiences of the child and social issues are of great importance in curriculum organization (3). Curriculum integration is organized around real life problems and addresses issues that are equally important for both young people and adults. Curriculum integration focuses on reflections relevance of curriculum to real world, it enhances higher level thinking skills and support teachers to teach more (4) in a relatively short time. Although from ancient to contemporary scholars and policy makers support the usefulness of curriculum integration (5)(6)(7) even then there is no specific and agreed single definition of curriculum integration (8).

The most common definition of integration is tended to be connecting the teaching to real life (9) and it connects similar or disparate knowledge and skills based on knowledge application which prepare students for lifelong learning (2). This is the integrated curriculum, which creates situation for students in which they can understand the important concepts through application in different settings (10). It improves students’ engagement in active learning, drives the students’ attention towards the relevance of the materials they are studying, also curriculum integration is a source of in depth teaching learning process (11). Scholars have elaborated curriculum integration in different forms, for instance level of integration, approaches of integration, designs and models of integration.

2. LEVELS OF INTEGRATION

In the context of arts education Breseler highlighted four levels of integration, which are in the use of daily routine of ordinary school curriculum (12). All these have their own specific teaching methodology, particular goals, unique role in the school curriculum and content. These levels are;

Co-equal Integration

When two disciplines are equally integrated with each other and both have equal share in the integration process is co-equal integration. In this integration one subject for example arts is an equal partner with other subjects. Knowledge of specific discipline is the requirement for this level of integration.
Subservient Integration:
In this style, one subject is used in service to other academic subjects. Examples and themes from other areas or subjects are supplemented for enhancing expertise in a particular subject. Bresler has given the example of the song fifty nifty United States. In this case the song is used to provide service to the children for memorizing the names of the fifty states.

Social Integration:
In this level of integration academic subjects are used for the social function of schooling. For example the academic subject arts is used scheduling students performance to provide entertainment or to increase attendance at meeting of parent teacher association these are the social function of schools which can supported through arts.

Affective Integration:
In this type of integration a subject is used for dual purposes. Some times the subject is used to motivate students for learning and sometimes the subject work for students' relaxation. The example given by Breseler is the subject of music. Music can be used for relaxing children and also the recorded music can be played for the improvement of students' dance.

3. INTEGRATED CURRICULUM DESIGNS

Jacobs has presented various designs for an integrated curriculum options (13). These designs provide explanations about the range of choices for planning an integrated curriculum program. Continuums of options are presented for content design. Before selecting any option of curriculum design there are some essential elements for worth consideration. These elements include flexibility in schedule, staff support and the nature of curriculum requirement.

Discipline Based Content Design:
This design emphasizes separate subjects of the discipline. It requires separate time blocks during the school day for each subject. In this design no integration happen rather it is avoided and it is the most common format in practice.. In this design teachers are forced to plan activities according to the allotted time for a particular subject. Student needs are generally avoided in this type of curriculum design.

Parallel Discipline Designs:
In this design, teachers of different subjects from different disciplines sequence their lessons to each other in their respective disciplines. In this way the students will be able to find an implicit linkage, while teachers are not supposed to connect their subjects across fields of knowledge. In this type of curriculum design only the time for offering the discipline is changed. There are no opportunities for in depth integration in this type of curriculum design.

Complementary Discipline Units or Courses:
In this design a proposal is put forth to bring together certain related disciplines under a single format unit or course for integrating a common theme or issue. It is brought through a lesson planning. The change in instructional schedule and revenue for staff training could provide some resistance to implementation of this design.

Interdisciplinary Units/Courses:
It is a curriculum design in which some units or courses are brought together for a specific duration. It may last for a few days, few weeks, or for the entire semester. In this design various disciplines support each other. It is generally easy to set up interdisciplinary units and courses than a complete school program, as it is stimulating and motivating for both the teachers and the students. Such integrated curriculum design requires efforts and occasional changes and it entails time for planning and energy.

Integrated Day Model:
The integrated curriculum of this model focuses on pupils’ interests. It de-emphasizes the content determined by the school. This approach studies the areas directly linked to the child’s life and increase students’ motivation in learning.. This design does not assure fulfillment of core curriculum requests, particularly for elder children.

Complete Program:
It is an extreme form of integrated curriculum design. Students in the school create the curriculum out of their day-to-day lives. This is an absolute integrated program and the school focuses on students’ life. It requires a sincere commitment from families and school personal for this program to be successful.

4. APPROACHES OF INTEGRATION:

About the integrated curriculum, Banks has discussed four approaches for curriculum integration (14). These four approaches are; the contribution, additive, transformation and social action approach of integration.
The Contributions Approach:
This is the most commonly used and the easiest approach of curriculum integration among the ones listed below. It is easy in adapting to particular needs of the instructor and the students. In this approach information is added to the existing curriculum.

The Additive Approach:
In this type of curriculum integration approach content, cultural concepts and perspectives are added to the already existing curriculum, without changing its overall goals and objectives.

The Transformation Approach:
The transformation approach of curriculum integration changes the way in which curriculum is presented studied and examined. Students are able to view concepts, issues, and subject themes from several different points of view.

The Social Action Approach:
The social action approach includes all the elements of the transformational approach in addition to curriculum components, which enable students to respond to issues or problems presented in the core curriculum.

5. MODELS OF CURRICULUM INTEGRATION:

Over the past decade, several models of curriculum integration have evolved but integrated curriculum most likely occurs at the lower level that is an elementary level of education, at the upper level integrated curricula are more likely to be based around problems of daily life (15). Loepp has presented some of the integrated curriculum models in its generic format.

Interdisciplinary Model:
In this model of curriculum integration, subjects are grouped in blocks of time, and students are assigned in groups to team teachers. This model is frequently used at middle school level. Teachers have the luxury of adjusting teaching time due to limited number of students assigned to them. Traditional curriculum can also be adjusted in this model.

The drawback of this model is that, teachers will be responsible for developing integrated curriculum, which will consume major percentage of their time. As it will be implemented for limited time in the allotted school year, spending large amount of time and energy on developing integrated curriculum does not seem to be worth it.

The Problem-based Model
Various problems in different disciplines are addressed in this type of curriculum integration models. For example ‘the turning of wastes produced by the community into an asset’ is a problem. Social study can contribute to this problem by determining the role of local government in the collection and disposition of wastes. Whereas various disciplines such as, science can be used for exploring how these materials can be reduced to their basic elements, mathematics can be used for measuring volume and area etc., while studying the use of various technologies will be the part of technology education.

This model is useful in identifying relevant day-to-day problems. A major disadvantage in this model, is the difficulty of its consistency with the national standards in a given grade level.

Theme-based Education
This model of integrated curriculum selects a theme for discussion. It is relatively easy for teachers, as they can identify themes within the assigned discipline. In this model, consolidation of curriculum with the national standard is easy because concerned teacher can easily select a theme consistent to the national standard of curriculum. This model facilitates students in making links from the objectives of various disciplines. However, this model requires that the selected theme or key concept should not be inclined towards a specific discipline to avoid teachers, from leaving students into irrelevant or shallow learning situations.

6. FORMS OF INTEGRATION

Fogarty (1991) has described ten models of integrated curriculum (16), which have been distributed into three different forms, i.e within and across learners form, across the disciplines form, and a single discipline form of integration.

Within and Across Learners
In this form Fogarty has discussed a) Immersed and b) Networked models of integrations.

In the immersed model any kind of outside influence or interruption is not entertained and students themselves make efforts for integrating various parts of knowledge. It engages students in the areas, which interest them the most or the one they are most drawn of their subject matter. In this model students’ enhance their own learning skills while discovering interlinks between the curricula and their chosen subject matter.

In the networked form of representation student sort out all knowledge through the expert's eye and makes inner links that show the way to external set of connections of skilled persons in associated fields.

Across the Disciplines Form
In this structure, Forgarty (1991) has talked about five integrated models. These are; a) Integrated, b) Shared, c) Threaded, d) Sequenced, e) Webbed.

(a). In this integrated model the topics and concepts of multiple disciplines are matched for overlapping. For this purpose teachers of various disciplines are supposed to have joint efforts for teaching. Team teaching is considered as an important tool in such model of integration.

(b). In this model, different disciplines are brought together either for single purpose or for joint purpose. Teaching is organized through combined efforts for the ideas or concepts that are common for both the disciplines.
The purpose of this approach is to link various types of skill sets together, for instance, technology, social skills, study skills, and thinking skills etc by using different disciplines.

In this approach generally different disciplines are treated separately. However only for the purpose to coincide the topics of various disciplines with one another are rearranged. The teacher is responsible for the arrangement of lesson plans so as to coincide topics with other classes in particular time of the school year.

The sequence model of integration utilizes a thematic approach for integrating contents of various disciplines. Teachers try to connect the content of their respective disciplines to the theme presented.

Within a Single Discipline

This form of integration unites three different integrated approaches; a) Connected, b) fragmented, and c) nested.

(a) In the connected model of integration, concepts with similar concepts and topics with similar topics across the disciplines are connected with each other, also work from previous year is linked with next year or current year work.

(b) Fragmented model is the traditional model form, in which distinct disciplines are treated separately, where each area is confined to its own course of study.

(c) In the nested model the teacher bears the responsibility of utilizing different skills like thinking skills, social skills, and content specific skills with in each subject.

7. ROSS AND OSLEN MODELS OF INTEGRATION

Ross and Oslen (1993) presented five integrated curriculum models (17), which are described next;

Integrated Core Model.

In a core integrated curriculum solitary teacher handles the class for a particular time in a school day. In the allotted time teacher connects different subjects through instructions, however the focus of the instruction is always on a general area.

Self Contained Core Model.

In this approach, single teacher is solely responsible for engaging his or her class for the whole school day. The same teacher teaches all the contents and skills that are required for students. The teacher is not supposed to share his or her lesson plans with other teachers.

Single Subject Integration.

This approach has one subject option. Instructional methodology is oriented on a single subject. The instructor determines about the relation of materials to the learners’ life.

Integrated Double Core Model

In this model of integration, teachers use two integrated cores for instruction by two teachers. The group of students is same for both the teachers, while they use two different integrated cores for instructions.

Coordinated Model of Integration.

Different teachers teach their respective subject matter during separate time intervals. The materials of different teachers for presentation complement each other. The group of students is same for all teachers.

8. CONTINUM MODEL OF INTEGRATION

Brown & Wall (1976) described continuum model of integration in the context of integrating mathematics and science through instruction (18). They are of the view that certain mathematics and science concepts can be taught independently in a better way in contrast to teaching them in an integrated way whereas, some of mathematics and science topics can be taught more effectively through integration of science and mathematics topics. They call it the continuum model (Fig.1). In this model there is a back forth motion between the two ends of the continuum.

9. BERLIN-WHITE INTEGRATED SCIENCE AND MATHEMATICS (BWISM) MODEL

In this integrated model Berline & White (1994) have explored six aspects of teaching learning process (19). These six aspects are 1) ways of knowing, 2) ways of learning, 3) process and thinking skills, 4) attitudes and perceptions, 5) content knowledge and 6) teaching strategies.

1. Ways of knowing is the aspects of children own efforts. Integration can be used through using and emphasis on trial and error technique of getting knowledge.

2. In ways of learning students can make integration by the utilization of their experiences, thoughts about science and mathematics. In this model learning can gained from children familiar surrounding and social discourse.
3. Process and thinking skills is the aspect where the ways of collecting and using of information through investigation can be used for integrating mathematics and science.

4. Attitudes and perceptions are the children beliefs about science and mathematics. Integration depends upon students’ confidence in doing science and mathematics and their desire for accepting the change in science and mathematics nature.

5. Content knowledge of science and mathematics is required for integration of science and mathematics. In integration the common content of mathematics and science can be used.

6. Teaching strategies can be used for the integration of science and mathematics. By using different teaching strategies mathematical and scientific knowledge can be imparted to the students at the same time through integration.

**10. DISCUSSION**

All the models, approaches and levels of integration discussed above are limited in one way or other and every integration model is deficient in many ways. In some cases there is a need to devote the whole day for integration in this case the sequence and the time of different school subjects will not be properly utilized while in some cases there is no integration at all. In some of the integration models there is a need of other teachers to collaborate and need team teaching so the integration will not happen if any among the team of teachers is not willing to participate. Also in some of the integration models a single teacher is supposed to teach all the subjects in the entire school day and it will be very difficult to assign equal time to each subject with concentration and devotion using applied situation activities in teaching. So by blending all models together if curriculum integration is an instructional approach (7) then a new model of integration can be emerged for the students’ awareness and precaution about social issues in the existing school curricula. Such model can be workable which on one side will improve students’ interest in the relevant subject and on the other side it will not interrupt the sequence of subjects and time schedule of the school.

It is not necessary to mention any other specific subject for integration. But from time to time different social issues can be used for integration with a particular subject for instruction. The social issues will be used as a subservient, on one side it will work for the improvement of learning the concerned subject on the other side learners will be informed about the current social issues and its remedies.

When the instructional activities are arranged about specific content of the school subject around a theme, which will be about the current social issue. The activities should be in applied situation based on the theme. When the core concept through activities is introduced to the students. Then there will be transition to teach the pure concept if activities are not feasible for the entire contents. So this model of integration will be called “transitional model of integration”. This model will constitute five steps and will continuously change the activities for the intended content to be taught. Unlike continuum model, in this model there will be transition for finding new issues and activities for the next concept that the teacher will teach. However in all the process themes about social issues will be used as subservient integration. The examples of such models are presented in Appendix A &B.

**11. TRANSITIONAL MODEL OF INTEGRATION**

When implementing this model, changes in the time schedule of the subjects is not required and also the number of school subjects will remain the same. Rather there will be the responsibility of the subject teacher to collect all relevant information about the existing social issues in the society. Then these social issues will be connected with his/her subject through activities oriented teaching in applied situation. Since all the time and in all the subjects integration cannot be fully accomplished. So by introducing the concept of the required subject through activities based on the current social issues the next step is to transit from the integration to the teaching of core contents of the subject and this process will be recycle every time for introducing the new concept (Figure 2).
Examples for the use of Transitional Model of Integrated Activity Based Curriculum:

Appendix A: Theme: Visit to a hospital
Smoking is the social issue that causes multiple diseases. So, there is a need to make aware students about its drastic side effects. For this purpose, a trip to the nearest hospital can be organized and check the Cardiac and Lungs related diseases patients. Take their history about smoking. Make the graphs of smoker and nonsmoker patients. Then compare the number of patients who smoked with the number of nonsmoker patients through graph. Students will know the concept of graph application and also the students will become aware that how smoking affect person’s health and teacher can also tell them how to abstain from smoking. When the students see these situations then apply such activities in teaching graph to the students. After understanding the concept of graph, teachers need to transit for teaching various types of graph as an independent mathematics concept.

Appendix B: Theme: Over Population
Today over population is a social issue and is globally realized. Students need to be aware from the dire consequences of increasing population. For this purpose teacher will need to make some activities. These activities, on one side should convey the knowledge about over population and on the other side in these activities there should be the application of any intended mathematical concept.

12. ACTIVITY
Divide the class of thirty students in five groups. In each group six students will be like family. So to each group give a dozen of bananas to equally divide in the students. In this way they will give two bananas to each student in a group. Teacher will tell the students that they should assume students in the groups as population and banana as the resources.
Teacher will write the ratio between banana given to student and the population of the group.
Mathematically
\[ \frac{6 \text{ students} \text{ (Population)}}{2 \text{ Bananas to each student}} \]
Now the teacher will add 3 more students in each group but the same one dozen bananas will be given to divide in each group. The new population of the group will be 9 while resources will be the same. When they will divide the resources this time the ratio will be in such a way.
\[ \frac{9 \text{ students} \text{ (Population)}}{1 \frac{1}{2} \text{ bananas to each students}} \]
Teacher will tell the students that you observe that with the increase of one (population) the other (resources) decreased. With the increase of one element, if other decreases then this is called inverse proportion.
Mathematically represented by
\[ \chi \propto \frac{1}{Y} \]
So with the increase of population our resources will decrease and society will become the victim of poverty. As a result people life standard will decline diseases will be spread up. There is a need to take measures for controlling population.

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