

CHALLENGES IN THE IMPLEMENTATION OF CORRELATION AND INTEGRATION OF KNOWLEDGE IN SECONDARY SCHOOLS IN A DEVELOPING COUNTRY

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Abstract

This study examined the challenges faced in the implementation of correlation and integration of knowledge as well as the role of correlation and integration of knowledge in curriculum planning in four secondary schools in Chivi District, Zimbabwe. Booker T. Washington's Philosophy of the 'Grand Trinity' in Education and the Marxist-Leninist philosophy informed this study. The research employed a qualitative research paradigm in which the descriptive survey design was used. A purposive sample of four heads of schools, sixteen teachers as well as a stratified random sample of fifty students participated in this study. Data were collected through questionnaires, face-to-face interviews, documentary analysis and sites visits. The study revealed a lack of correlation and integration of knowledge in curriculum planning and implementation due to failure by schools to marry theory and practice for the maximum benefit of students. The study also revealed a lack of orientation of staff through school-based in-service programmes. It is recommended that in-service training for both teachers and heads be held in schools on the implementation of correlation and integration of knowledge. The development of a common philosophy and common objectives should be employed after educators at all levels participate in joint discussions of school programmes.

Key words: Implementation, correlation, integration, knowledge, theory, practice.

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1. INTRODUCTION AND BACKGROUND TO THE STUDY

During the colonial era, education in Zimbabwe experienced a crisis (Nhundu & Peresuh, 1999; Carnoy & Samoff, 1990). The crisis was characterized by; major inequalities, high school drop-out and high failure rates, failure to marry theory with practice, poorly qualified teachers, an examination-oriented curriculum with a major emphasis on rote learning and unimaginative teaching methods (Zvobgo, 1996; 1999). Education for Africans was very

poor without clear objectives in terms of acquiring appropriate entrepreneurship and survival skills which would enable them to perform all social, technical, civil or moral duties (Carnoy, 1978; Raftopoulos & Mlambo, 2009). As a consequence, the education system instilled and reinforced in learners a negative attitude of despising manual labour (Gwarinda, 1985).

When Zimbabwe gained its independence in 1980, attempts were made to

reform education in ways that took seriously the aspirations of the majority and the new political realities (Barker, 1996). Education with Production (EWP) is an innovation which was planned for and implemented within the framework of the government's ideology of Scientific Socialism based on Marxist-Leninist principles (Dzvimbo, 1991). The objective was to establish an egalitarian, democratic society and thus redress the injustices of the colonial past.

One of the fundamental principles that characterized the philosophy of Education with Production was that of combining theory and practice (Zvobgo, 1996). Marrying theory with practice helps to produce learners who are broad minded, have entrepreneurship and survival skills which help them to lead self-supporting and purposeful lives (Siyakwazi, 2014). This was in support of the recognition of the importance of correlation and integration of knowledge as noted by regional and international studies. For instance, West (2006) found that the creative and regenerative power of work will mean that every learner is no longer alienated from the main source of his 'humanization' and will ensure that there are sufficient materials for all to enjoy a healthy and self-fulfilling existence. The major emphasis was the development of positive attitudes towards the dignity of manual labour which is greatly cherished by Booker T. Washington (Siyakwazi, 1999). Every person from the earliest years of life was called upon to value both education and labour and to see them as having an intimate and inseparable connection. Manual labour became an integral part of school life and he or she who

despised manual work was said to despise his own stomach (Zvobgo, 1996).

In the Zimbabwean education system today, integration of theory and practice has not yet been achieved (Siyakwazi, 2014). This is because in the implementation of Education with Production, the Ministry of Education, Arts, Sport and Culture realized there were problems as evidenced by its evaluation. Results of that evaluation found that there was wide support for Education with Production as a philosophy which informed educational practice in Zimbabwe, but levels of understanding of the philosophy and its implications were highly varied (Gwarinda, 1985). During the initial years of the implementation of Education with Production (EWP) a number of problems were encountered, namely, lack of resources and above all the philosophy was misinterpreted, misunderstood and confused, just to mention a few. As a result, one of its major objectives of marrying theory and practice has been a failure (Barker, 1996). Gwarinda (1985) elaborates that there was a failure by educators and researchers to understand the philosophy of Education with Production. In publications, such as journals and textbooks, very little has been written by researchers on Education with Production.

The Presidential Commission of Inquiry into Education and Training (1999) noted that the linking of theory with practice in education is compromised. The Commission found that, among other shortages, there is a lack of syllabus documents in schools, insufficient textbooks in schools and a lack of teaching material support from the Curriculum Development Unit. The major problem was that the

contemporary education system falls short in equipping learners with the requisite survival and entrepreneurship skills which are indispensable in life. This points to challenges in the implementation of correlation and integration of knowledge in education.

It is against this background that this study focused on the challenges faced in the implementation of correlation and integration of knowledge in four secondary schools in the Chivi District. Students are the future of the country and equipping them with survival and entrepreneurship skills ensures that they lead functional, purposeful and self-supporting lives.

2. STATEMENT OF THE PROBLEM

The Presidential Commission of Inquiry into Education and Training (1999) expressed a concern that the linking of theory and practice in education is still compromised. The Commission found that the contemporary education system falls short in equipping learners with the requisite survival and entrepreneurship skills which are indispensable in life due to failure by schools to link theory and practice (through the implementation of correlation and integration of knowledge). The central issue here is that in this philosophy of marrying theory with practice, not much has been done in its implementation which suggests that there are challenges faced by teachers and students. The researchers were interested in examining what had really gone wrong since theory without practice is meaningless and practice without theory is blind.

3. RESEARCH QUESTIONS

Against the backdrop of the above statement of the problem, the study sought to answer the following research questions:

- What are the challenging experiences faced by teachers in the implementation of correlation and integration of knowledge in schools?
- What are the challenging experiences faced by learners in the implementation of correlation and integration of knowledge in schools?
- What is the role of correlation and integration of knowledge in curriculum planning and implementation?

4. OBJECTIVES OF THE STUDY

The following objectives of this research were easily reached:

- To investigate the challenging experiences faced by teachers in the implementation of correlation and integration of knowledge in schools.
- To investigate the challenging experiences faced by learners in the implementation of correlation and integration of knowledge in schools.
- To gain insight into the role of correlation and integration of knowledge in curriculum planning and implementation.

5. DELIMITATIONS OF THE STUDY

The study was undertaken in Masvingo Province in Chivi District where four rural secondary schools were selected. Conceptually, the study was confined to an examination of the challenges faced in the implementation of correlation and integration

of knowledge in four secondary schools in the above physical delimitation.

6. THEORETICAL FRAMEWORK

Booker Washington's Philosophy of the 'Grand Trinity' in Education and the Marxist-Leninist philosophy provided a theoretical framework for the study.

6.1. Booker Washington's Philosophy of the 'Grand Trinity' in Education

Correlation and integration of knowledge is a concept which has its roots in Washington's Philosophy of the Grand Trinity in Education. This is a philosophy of the three 'Hs' that is the head, heart and hand working in unity for self- support [Siyakwazi (1999; 2014)]. Washington elucidates that the most complete and thorough education is that the head, heart and hand should become of service to each and every individual. According to Washington, correlation and integration simply means that a student would be given work in various academic-related subjects that have relevance to the work he might be learning in a particular subject (Generals, 2000). Correlation shows the reciprocal relationship between concepts and various subjects of the curriculum for making the knowledge concrete and permanent (Saxena, 2011). The rationale for the process of dovetailing literary and academic work is that in this way, educationists are able to breathe a new life and interest into what was dry bones of Mathematics, grammar, composition, Chemistry and other traditional curricula (Washington, 1904 in Siyakwazi, 1999). The

success of the implementation of the 'Grand Trinity' lay in what Washington called 'correlation', or sometimes 'dovetailing', which was the essence of his educational philosophy noted by Harlan, the distinguished American historian (Siyakwazi, 1999; 2014). As Washington elucidates, the concept of correlation and integration to trustees, dovetailing related to dovetail joints in carpentry, blotting out differences between the literary departments and the individual department. The idea was that students would practise Mathematics in the Carpentry shop and write essays on cultivating fields in the English class (Harlan, 1983; 1999).

The principle of correlation or integration of studies is implied in the notion that great stress should be laid on the points of resemblance between cognate subjects, and all things that are naturally connected ought to be taught in combination (Harlan, 1988). Teachers teaching various subjects should make conscious efforts to show similarities or the dependence of one subject on another (Generals, 2000). This is because no subject is ever well understood and no art is intelligently practiced if the light, which the other studies are able to throw upon it, is deliberately shut out. It is quite clear from the above statement that Booker T. Washington's methods of instruction aimed at correlating and combining academic studies and practical work was a key element of the philosophy of the 'Grand Trinity' (Siyakwazi, 1999). The central issue here is that theory must never be divorced from practice. Theory without practice is meaningless and practice without theory is

blind. When theory and practice are married, learning becomes functional and purposeful.

In the Aristotelian view, education should enable learners to live the good life, one in which their potentiality is brought to its fullest fruition (Lawhead, 2007). Correlation and integration of knowledge is at the heart of Booker T. Washington's scheme of education since it emphasises the centrality of integrating theory and practice, education and training, academic and practical work (West, 2006). The study borrowed ideas from the school of thought above to carry out an evaluation on the implementation of correlation and integration of knowledge in the chosen secondary schools.

6.2. The Marxist-Leninist Theory

Correlation and integration of knowledge is also rooted in the Marxist-Leninist idea of combining theory and practice. The Marxist-Leninist school of thought recognizes the gulf between theory and practice. This is the much criticized divorce between theory and practice in education and, more broadly, between education and life (Dzvimbo, 1991). Literature shows educators' awareness of the dangers inherent in the fragmentation of knowledge. Shumba (1993; 1994; 1999) urges the eradication of this fatal disconnection of subjects which kills the vitality of the modern curriculum. This suggests the need to systematically combine intellectual study with physical work. Marrying theory with practice is a key that unlocks many doors to the uniting of what has been artificially separated in the past. Correlation seeks to integrate theory and

practice, mental and manual labour, academic and practical work.

According to Makarenko the great Soviet educator, the Marxist-Leninist philosophy seeks to make a correct educational application through a process whereby every person from the earliest years of life comes to value both education and labour, is able to see the intimate and inseparable connection between them and that a good society will emerge only in the degree to which this achievement is made by everyone (Bowen & Hobson, 1974). Correlation of a subject with daily life creates interest and makes the subject relevant instead of being theory with no practical applications.

Along similar lines, Castro (1971) stresses the importance of marrying theory and practice as evidenced by the following statement;

This school is consistent with our pedagogical concepts, it corresponds with reality; it meets true needs. It is based on most profound Marxist-Leninist thought, which conceives of education and training of the individuals as closely related to productive and creative work... This kind of school provides a real opportunity for... combining education, study and work... This is a school in which students begin to carry out productive activities, create things with their own hands, and engage in productive manual work in addition to intellectual work. In other words, they begin to learn the techniques for producing the material goods needed by men, and to acquire

the habit of working as the most natural and elementary duty of every citizen, together with the habit of studying.

Therefore, this study was informed by the above schools of philosophical thought to carry out an evaluation on the implementation of correlation and integration of knowledge as a way of improving the linking of theory and practice in education so as to produce functional and self-supporting individuals who will be able to lead purposeful lives in future.

7. RESEARCH PARADIGM AND DESIGN

This research used the qualitative research paradigm which employed the descriptive survey design in studying challenges faced in the implementation of correlation and integration of knowledge in secondary schools. Gray (2009:58) defines a survey as 'an investigation into one or more variables in an organized attempt to analyze, interpret and report the present status of social institutions, groups or areas'. Cohen, Manion and Morrison (2010:256) add that 'surveys gather data at a particular point in time with the intention of describing the nature of existing conditions, or identifying standards against which existing conditions can be compared or determining the relationships that exist between specific events'.

The descriptive survey research design was advantageous in that it enabled the researchers to gather information from a representative sample with relative ease over a wide geographical area. It was the best

method available to collect original data for describing a population too large to be observed directly, as was the case in this study.

7.1. Population

A population is any group of individuals that have one or more characteristics that are of interest to the researcher (Haralambos & Holborn, 2014). School teachers, Heads and students of four secondary schools in Chivi District provided the population for this study. The four schools had a population of four Heads, a teaching staff of sixty-three and four hundred and thirty-seven students.

7.2. Sampling Procedure

A sample entails a relatively small number of individuals drawn from a population for inclusion in a study (Bordeus & Abbott, 2008: G8). The participants were drawn from Heads, teachers and students. The researchers used purposive sampling to select a total of four school Heads and sixteen teachers who supplied information on the challenges in the implementation of correlation and integration of knowledge by responding to the interview questions. When using the purposive sampling technique, the researcher has to pick up only such a sample which is relevant to the study and leave out all others so that the purpose of the study is not defeated (Sidhu, 2001:265). The school Heads and teachers participated as critical sources of information with regards to the implementation of correlation and integration of knowledge at their respective schools. Stratified random sampling was used to select a total of fifty Ordinary Level students

who participated in the study by responding to questionnaires. It is a sampling technique which ensures that the number of items in each stratum would be in proportion to their frequency in the population (Muchengetwa, 2005:43).

7.3. Research Instruments

This study employed a closed and open-ended questionnaire for students who were many in number and vast data could be gathered in a short period of time. The open ended questionnaire helped students to elaborate on their responses. Semi-structured interviews were administered to teachers and Heads because they were fewer since they required more time to administer. Site visits and the study of documents (schemes of work, plans of work, and minutes of staff meetings, staff supervision reports and students' exercise books in all subjects) were useful for corroborating and augmenting evidence from questionnaires and interviews.

7.4. Data Analysis Procedure

The researchers applied Miles & Huberman (1994)'s qualitative data analysis technique in this study. Analysis of data was done at two levels. Data were analyzed continuously to determine the main themes that emerged from them. This gave the researchers an opportunity to verify with the respondents if the analysis was indeed portraying their responses during the interview, or whether it was a correct interpretation of what had been observed, while still on the sites. In a way, this satisfied the need for member-checking which is described by Lincoln & Guba (2005) "as the most crucial technique for establishing

credibility". The analysis of data during its collection assisted the researchers to develop follow-up questions for clarification of respondents' views and the observational experiences of the researchers.

8. RESULTS AND DISCUSSION OF FINDINGS

This section discusses the findings of the study in line with the major themes derived from the research questions.

8.1. Challenging experiences faced by teachers in the implementation of correlation and integration of knowledge in schools.

Evidence obtained from this study showed that resources for use by teachers and learners were totally inadequate. Shortages of textbooks, library facilities, teaching materials, course guidelines and outlines plus teaching equipment were considered very critical problems. Below are some sample responses from teachers:

Respondent 1: *There is a critical shortage of textbooks. At least three students share a textbook in most subjects at this school.*

Respondent 2: *There is no library at this school and there are no plans to have one in the near future.*

Respondent 3: *Teachers teaching different but related subjects rarely share common resources and information so as to allow for integration of knowledge. I think there is need for staff development and in-service training for teachers on this important aspect.*

Respondent 4: *Most teachers specialized in one or two subjects to teach at secondary school level in Zimbabwe. This makes it difficult for them to relate what they teach to other subjects in the curriculum because they lack a sound knowledge base of other subjects or how to integrate them.*

The study revealed that the lack of resources militates against integration of subjects and the teaching and mastery of psychomotor skills as there would be no information that backs up the topic that the teacher is facilitating. In support of the above idea, Beeby (1996) asserts that some teachers find it difficult to implement correlation and integration of knowledge due to non - availability of resources and poor classroom conditions that are not conducive for the teaching and learning of psychomotor skills. This study, however, went on to establish that in addition to Beeby's (1996) findings, proper procedures are not being employed by teachers to help secure effective continuity in schools. There is little or no collaboration among teachers teaching various forms and subjects. Teachers rarely adequately confer with one another to collate their educational programmes.

The study came up with the conclusion that there is minimal or no development of instructional plans which ensure that teachers work together in the production of schemes of work and lesson guides. Schools, for example, could not bring together all teachers of the total school system in joint studies and discussions of the school programmes. The study highlighted that exchange of visits by teachers of different schools is compromised due to a lack of funds to finance such programmes. It

also concluded that there is little or no orientation of staff through school-based in-service programmes in order to improve their understanding of correlation and integration of knowledge. It was also noted that school Heads use staff meetings mainly to deal with administrative matters and little attention is given to curricular and instructional activities directed at improving the quality of educational experience in schools. Nothing was being done to get input from staff on how to provide solutions to problems in the schools, to involve staff in the development of schemes of work in various subjects, to provide in-service training and involve staff in the selection of learning materials other than textbooks.

The study found that school teachers are inadequately supervised. Teachers who lack supervision tend to emphasize whatever they desire and this does not facilitate mastery of concepts and skills by learners. The study revealed that some teachers find it difficult to promote horizontal articulation of subjects due to lack of a sound broad base of knowledge which hinders them from referring to a wide range of subjects during teaching and learning. In addition, the study concluded that some teachers are unimaginative since they fail to relate concepts and subjects during teaching and learning. The study found that most teachers did not specialize in many subjects at college and this limited their ability to link concepts in various subject areas.

8.2. Challenging experiences faced by learners in the implementation of correlation and integration of knowledge in schools.

Like their teachers and administrators, students also revealed that they experienced challenges in learning as shown in sample verbatim responses from open-ended questionnaires below:

Student 1: *Our school wants us to improve the pass rate which has been too low for some time, therefore we have to read, memorize and revise regularly so that we pass examinations.*

Student 2: *We have the problem of a shortage of textbooks, library facility and other equipment for our learning in different subjects. The school has no electricity too for computer studies.*

Student 3: *Teachers from other subjects are rarely invited to assist in our learning.*

Student 4: *I can't remember us having a field trip. Most of our learning has been done in the classroom.*

The study revealed that the current curriculum places more importance on academic subjects rather than practical subjects. The major preparation of students is driven by academic examinations. More emphasis is placed on marks rather than skills and concepts acquired by learners. The study concluded that teachers who put more emphasis on examinations do not widen and deepen concepts and this militates against the mastery of concepts and transfer of learning.

In the implementation of correlation and integration of knowledge, some teachers do not relate new tasks to what the learners have already experienced or are experiencing as noted in earlier studies by Lawhead (2007). Teachers do not analyze the skills and concepts in terms of the learners' abilities and

developmental level. It was also noted that some teachers do not use learning aids which help to concretize learning and facilitate mastery of concepts and skills by learners. In addition, some teachers do not expose learners to the environment through the use of field trips to facilitate learning. This is condemned by Dewey who advocates for interaction between the learner and the environment (Shumba; 1999).

The study concluded that teachers provide learners with inappropriate opportunities and little time for practice of psychomotor skills. It was revealed that providing learners with adequate time for practice facilitates the learning of psychomotor skills through eliminating errors and strengthening and refining correct responses and form.

The study found that teachers use unimaginative teaching methods such as the lecture method which hinders the mastery of concepts and psychomotor skills by learners since such methods stifle creativity and limit learners' involvement in the teaching and learning process. There is limited use of progressive teaching methods which emphasize 'hands-on' learning and active participation of learners through field trips, group work and the project method which are central in facilitating mastery of skills and concepts. Related to the findings above, Siyakwazi and Siyakwazi (1999) established that traditional teaching methods regard learners as passive recipients of wisdom from the teacher. Students neither contribute to the class through discussion nor engage in critical thinking or problem-solving.

The researchers further established through studied documents (see section on

research instruments) that learners were given inadequate written work and little homework which was unchallenging. This showed that there was little or no evidence of psychomotor activity in most lessons. The marking was irregular and learners were given negative comments which do not motivate them to learn.

The study indicated that some schools do not make use of resource persons such as subject specialists from within and outside the school during teaching and learning. This does not expose learners to other sources of knowledge other than their teachers. This is unfortunate as resource persons can provide a wealth of knowledge and skills which facilitate learning.

8.3. The role of correlation and integration of knowledge in curriculum planning and implementation

The study revealed a lack of correlation and integration of knowledge in curriculum planning and implementation. Evidence obtained in this study showed that in many of the larger schools, where more than one teacher instructs the subjects at the same level, there is little or no articulation between the teachers. Similar findings were also reported by Saxena (2011) and Siyakhazi (2014). The researchers further noted that a lack of continuity does not facilitate mastery of concepts and psychomotor skills by learners. The study also highlighted that horizontal articulation is compromised since teachers teaching various subjects do not plan and implement the curriculum jointly.

The study revealed that some of the strengths of correlation and integration of

knowledge in curriculum planning and implementation are that it: -

- Encourages unity and cooperation among teachers both in curriculum planning and implementation;
- Develops mental abilities like imaginative power, logical thinking and analytical thinking of learners because they can easily correlate one acquired knowledge with the other;
- Broadens and widens the learners' knowledge by reference to many other subjects;
- Promotes creative thinking on the part of the teacher since he refers to several subjects in his teaching; and
- Helps to achieve unity of knowledge and develops worthy interest and attitudes in learners for acquiring knowledge because it provides the practical and life-related learning to students.

9. CONCLUSIONS

This study concluded that secondary teachers are not well equipped in their training and in-service programmes to implement correlation and integration of knowledge. Those who teach different but related subjects rarely share knowledge and the limited resources in their schools. The learners are rarely exposed to pragmatic learning, that is, in the form of field trips to help concretize learning and facilitate mastery of concepts. As a result, learners learn by rote for the purpose of passing the examinations. The study revealed that correlation and integration of knowledge has the challenge that it demands a great deal of time from teachers and learners, especially in

planning and practice of psychomotor skills. There is little or no articulation between teachers who teach different subjects since they do not plan and implement the curriculum jointly. The above discrepancies were found to militate against the implementation of correlation and integration of knowledge thereby greatly disadvantaging students who may have great potential in their learning.

10. RECOMMENDATIONS FOR THIS STUDY

In the light of evidence obtained through this study, the researchers would like to make the following recommendations in an effort to improve the implementation of correlation and integration of knowledge in schools:

- Corrective measures, which must improve the meagre financial resources of schools, should be immediately instituted in order to reduce the severe shortage of books, equipment, teaching and learning material in schools.
- In-service training for both school Heads and teachers should be held on the implementation of correlation and integration of knowledge in schools. Only through such in-service efforts can the capacity of the schools increase so that critical issues in the domains of curriculum planning and instruction be dealt with.
- Development of a common philosophy and common objectives through the participation of teachers at all levels in joint studies and discussions of the school programmes is of paramount importance.
- Joint primary and secondary school conferences and workshops bringing together all teachers of the total school system should be instituted in schools.
- Exchange of visits by teachers of different levels and transmission of comprehensive cumulative records from each level of the school system to the next higher level should be encouraged in schools.
- Comprehensive programmes for the orientation of learners as they progress to higher divisions of the school system should be developed.
- Organization of general curriculum committees serving the entire system with sub-committees set up on a vertical basis should take centre stage so that teachers from each level serve on a special area committee dealing with such matters as communication, health, moral and spiritual values and social living.
- The major preparation of students should not be driven by academic examinations as is presently the case. More emphasis should also be placed on skills and concepts acquired by learners, rather than marks.
- Learners should be exposed to the environment through the use of progressive teaching methods which promote active participation, such as, field trips to facilitate mastery of concepts.
- The learning structure of most diplomas and degrees of prospective teachers should be changed radically. The prospective student teachers should be encouraged to take a wide range of

subjects such as Geography, Mathematics, Religion, Chemistry, Economics, Shona and other subjects. This is likely to help teachers have a sound and broad base of knowledge which helps them to refer to a wide variety of subjects during teaching and learning.

- Instructional plans which ensure that teachers work together in the production of schemes of work and lesson guides should be developed.
- Library facilities should be equipped with more textbooks with updated information.
- Course guidelines and outlines, which theoretically could greatly improve the articulation within courses, should be made available to teachers.
- The Head's supervision in teacher effectiveness is crucial. Heads, therefore, should increase the number of supervision visits they pay to teachers.
- Teachers should improve continuity by planning lessons that take into account what the student has studied before and what he will study in future. They should also review a certain amount of information that learners would have learned before so as to enhance mastery of skills and concepts.
- Teachers should provide appropriate opportunities for practice of skills by learners.
- Learner-centred teaching methods which emphasize 'hands-on' learning, such as the project method and guided discovery, should be promoted in the

teaching and learning of concepts and psychomotor activities.

- Schools should make use of resource persons, such as subject specialists in teaching and learning, since they provide a wealthy of knowledge and skills which facilitate learning of concepts and skills.

11. RECOMMENDATIONS FOR FURTHER STUDIES

- Researchers should carry out further investigations into policies on the implementation of correlation and integration of knowledge and various strategies which can be instituted in the education system to reshape the current curriculum which places more emphasis on examinations.
- Other researchers should carry out comparative studies to find out if there are any differences and similarities in the implementation of correlation and integration of knowledge between urban and rural schools. This is likely to provide educators and policy makers with more evidence which might have been overlooked in this study.

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