Impact of Domestic Information Management (DIM) on Students' Achievement – Action Research in a Sri Lankan Community

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Abstract:

This paper explains how Domestic Information Management (DIM) impacts on the students' achievement level in school education. Amongst the twenty five districts of Sri Lanka, Monaragala is considered one of the poorest and most disadvantaged districts in the state. Therefore, the researchers decided to carry out a DIM program in the Monaragala district as a pilot project, in order to rectify this situation. The action research methodology was used in this study. Eight students from the grade ten class in the "Dodamgolla" senior school, and their parents, were chosen as a sample. Four PGTL students, six MTL students and one PhD student participated as a research team. The action research was launched as a two day workshop for the school in February 2015. On the first day, the research team introduced a domestic information skills program to the pupils. Parallel to this program, the researchers introduced a similar plan for the principal and teaching staff. In the evening, the proposed DIM agenda was discussed with selected parents and village officers. Next, two members from each research team visited two houses of the sample, and demonstrated how to gather and organize the family information needs for their personal, professional, and pedagogical life. After that, the family members followed the given instructions and advice. The research team monitored and evaluated the plan for one month. Data was collected using pre and post test marks, observing primary sources, conducting individual and group interviews. Comparing the pre and post test marks, it was observed that the students had obtained a substantial positive change. According to these results, it can be deduced that the student, teacher and parent triangulation in the child's achievement level could be developed using DIM programs.

Key words: Information management, Domestic information management, School Students' achievement

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Introduction

Reforms in the School Library program in Sri Lanka

Sri Lanka is an island divided into nine provinces and twenty-five districts. There are 9980, schools scattered throughout the nine provinces, which are administered by the Ministry of Education. The Ministry of Education (MoE), Sri Lanka, implemented several educational reforms in 1998, with the assistance of the World Bank. When implementing these reforms special attention was paid to the development of the school library sector, in order to enhance quality teaching and learning. Before the introduction of these reforms, there was no proper link between the school curriculum and the library programs, and the school library acted as a warehouse while the school librarians behaved as store keepers. As an initial step of the reforms the School Library Development Unit (SLDU) was established within the MoE as the hub for administrating school library programs island wide. A school library director was appointed for each province, for whom professional overseas training in school library was provided by the MoE, with world bank funding.

In 2002, the SLDU built 2000 new school libraries complete with books and other resources, while renovating and providing library books and other physical resources for 2000 existing school libraries. Parallel to this task, 4000 graduates were appointed as teacher librarians for these schools. But these graduates did not have professional qualifications in handling school libraries. Until then the school libraries were handled by teachers lacking professional qualifications related to the school library, who were appointed by the school principals. These librarians were named school librarians. In order to rectify the above situation The National Institute of Library and Information Sciences (NILIS) was established in 1999, under the University of Colombo, within the University premises to provide short-term training programs and Post Graduate Diploma in Teacher Librarianship (PGTL) and Masters in Teacher Librarianship (MTL) courses for teacher Librarians, school librarians, and library subject directors.

Postgraduate Teacher librarianship Courses

According to the PGTL and MTL syllabi, students are required to engage in community development programs as library practices. Therefore, during the past ten years, the students following the above courses have been coordinating selected reading camps, collection management programs, teaching information skills and conducting staff development programs for school teachers, as community development programs, in identified rural schools and educational divisions of the country. Nevertheless, the parents of the students of the above schools and divisions did not have an opportunity to involve themselves formally in these programs in order to obtain awareness about the enhancement of the students' achievement levels in education. However, in the Sri Lankan context, the quality of education is composed of the student, teacher, and parent triangle. Timkey reveals that "the significance of parent involvement and parent educational attitudes is important because it will inform the thinking of current and future teachers and educators about parent involvement and parent attitudes regarding education and the effects these views have on children's academic achievement" (Timkey, 2015). Reflecting on the community development programs conducted in the past by NILIS, it was realized that attention had not been paid to developing the influence of parental involvement towards the child's achievement level in school.

Problem statement

The Epstein's conceptual framework for family–school-community involvement emphasizes the six categories affecting students' school progress, such as parenting, communicating, volunteering, teaching at home, decision making and collaboration with the community. (Desforges & Abouchaar, 2003). In Sri Lanka, the above condition is similar to the student, teacher and parent triangulation for students' achievement level in education. To empower this triangulation, the school system has introduced several traditional activities such as parent meetings, and various co-curricular activities, involved with the parents. NILIS too had conducted several community development programs such as reading camps, and library collection development programs in rural villages, in which the parents were involved informally. Primarily the parents' reflections on the above programs provided the background information to initiate this action research. The main request of the parents was to facilitate a formal continuing awareness program regarding parental involvement in children's school progress, because although these rural villagers possess modern infrastructure facilities, they lack academic awareness about the following factors such as 'a) providing housing, health, nutrition, safety, b) parenting skills in parent-child interaction, c) home conditions support to study, d) information to help school formal education. However, the researchers hypothesized that introducing an awareness program about handling day to day information should be the initiation, because the parents stated that when handling day to day information to uplift their lifestyles they wasted their time, energy, and money searching for information. Thus, the net result would be that the parents' living conditions and students' achievement level will be poor.

Therefore, as staff members of the National Institute of Library and Information Sciences, the researchers decided to implement an action research based on the concept of domestic information management as a remedy for this issue, with the participation of PGTL and MTL Students in the 2014 /16 batch of NILIS. The research team consisted of two NILIS senior lecturers, the librarian, and four PGTL students, six MTL students one Ph.D. student.

Literature Review

The total population of Sri Lanka, twenty million, is categorized into three major groups according to the main cities and towns such as urban, semi-urban, and rural. The rural population is eighty one percent and they live in the rural areas of the island. (World Bank Indicators - Sri Lanka - DENSITY & URBANIZATION, 2015). Within the social structure levels, most of them belong to the lower middle class and the poor class.

Hine (2013) Explains action research as follows "Historically, the term 'action research' has been long associated with the work of Kurt Lewin, who viewed this research methodology as cyclical, dynamic, and collaborative in nature. Through repeated cycles of planning, observing, and reflecting, individuals and groups engaged in action research can implement changes required for social improvement"

The major occupation of the people in the rural areas is paddy and vegetable cultivation. The father is the breadwinner of the family and daily activities of the family members are linked to the breadwinner's occupation. These duties can be categorized as follows.

Figure 1 : Domestic Activities and responsibilities

Activities	Main responsibility
1. Paddy and vegetable cultivation	Father
2. Home gardening	All family members
3. Cooking	Mother
4. Kid protection	Mother
5. Baby feeding	Mother
6. Children education	Children
7. Religious	All family members
8. Recreational	Father and mother
9. First aids and health care	Mother and elder members
10. Daily financial management	Mother

Before commencing the action research, an orientation program was conducted for the research participants. The orientation program contained a component on needs analysis, for which the research participants had to individually write down the activities and needed information related to the day to day life of a family in a rural area, based on their first-hand experience. The reason for this being that eight research participants out of ten still teach in rural areas. The other two teach in urban areas, but they have had more than ten years teaching experience in rural villages in Sri Lanka. After the domestic activities were written down, they were ranked, and finally a common list was prepared and named as "the domestic activities and   information in a rural family".

Figure 2 : Domestic Activities and related information

Day to Day Activities	Information
1. Cooking	• 5s and Kaizen in kitchen • Importance of a balanced diet • Using organic vegetables • Avoiding artificial food items • Natural food preservation methods • Importance of traditional cooking methods • Utilizing modern kitchen equipment
2. Farming	• Importance and benefits of natural farming • Safeguard methods of using agro chemicals • Promoting indigenous pests and weed control methods
3. Watching TV and Listening to Radio	• Selecting relevant programs • Introducing a broadcasting time table for educational programs • Recording programs for future benefits
4. Studying	• Importance of a study area (niche) • Arranging a study area • 5s and Kaizen in the study area
5. First Aid	• Preparation and maintaining a first aid box • Basic First aid methods

6. Housekeeping	• 5s and Kaizen concepts
	• Preparing compost using kitchen and agricultural waste
	• Minimizing the value of the electricity bill
	• Preparing a monthly budget
7. Home-gardening	• Importance of a home-garden
	• Selecting plants for the home garden
	• Maintenance methods
8. Getting Telephone calls	• Ethics
	• Avoiding needless billing
	• Using emergency numbers
	• Using SMS
	• Installing important numbers

When considering the above common household activities in a rural house, the quality of the activities depend on 'accessing information efficiently and effectively, evaluating critically and competently, and using accurately and creatively'. (Rosenfeld, & Loertscher, 2007) This indicates that the family members need to behave as information literate family members, for their social development. However, reaching this situation is a long-term task, and the educators and policy makers in the country will have to join hands to achieve this goal. Therefore, the researchers arrived at a short term target for this issue, and finally focused their attention on the impact of collecting and organizing information for the above household activities, in order to improve the child's achievement level in school education. This model was named "Domestic Information Management", and introduced as the key concept for this action research.

Research Questions

- What is the meaning of the concept "domestic information management (DIM)" based on rural villages in Sri Lanka?
- Why do researchers need to introduce such a program for rural villages rather than for urban and semi-urban areas in Sri Lanka?
- What is the impact of the six-month domestic information management program on the grade ten students' achievement level, in their term test marks?
- How effective has this program been in improving the relationship between parents and teachers towards the improvement of the students' achievement level?

Research Objectives

- To Identify the major component of the domestic information management program for rural villages
- To analyze the students' previous term test marks to explore the present situation of their achievement level
- To design an action plan to enhance students' achievement level based on the DIM program
- To design and implement a one month DIM program for selected grade ten students and their parents, in the Dodamgolla rural village
- To evaluate the first cycle of this action research program

- To provide conclusions and suggestions

Methodology:

Eight students from the grade ten class in the government school of Dodamgolla, a rural village in Bibile, and their parents were identified as a purposive sample for this action research. Bibile is located 250 kilometres away from the capital city Colombo. To conduct this research, four PGTL students, six MTL students, and one Ph.D. student from NILIS were selected as the research team. The PhD student lives in this village and the home town of two other research participants is situated close to this rural village.

Figure 3 : Details of Research participants

Postgraduate student	Designation	Gender	Teaching experience	Province
1. PGTL 1	• Teacher	• Female	• 11	• Western
2. PGTL 2	• Teacher librarian	• Female	• 11	• Western
3. PGTL 3	• Teacher Librarian	• Female	• 11	• Western
4. PGTL 4	• Principal	• Female	• 25	• Sabaragamuwa
5. MTL 1	• Teacher	• Male	• 15	• Wayamba
6. MTL 2	• Teacher librarian	• Male	• 10	• Eastern
7. MTL 3	• Teacher Librarian	• Female	• 15	• Uva
8. MTL 4	• Teacher	• Female	• 20	• Uva
9. MTL 5	• Teacher	• Female	• 15	• Uva
10. MTL 6	• Teacher librarian	• Female	• 10	• Uva
11. PhD	• Provincial school library coordinator	• Male	• 05	• Uva
12. Assistant Director (School Library)	• Zonal Subject director	• Male	• 20	• Uva

The grade ten class consisted of 30 students and 16 of these students came from several villages far away from the Dodamgolla. After introducing the procedure of the program, the parents living in villages far away from this school hesitated to participate in the program. Six parents in the Dodamgolla village did not like to involve themselves in this program because of their low poverty level and family problems. They thought that if the research participants visited their homes, they would discover their poor living conditions and other problems which will affect the dignity of their children.

To begin with, the researchers conducted a one-month orientation program for the above research participants, based on how to introduce a domestic information management program for school students and their parents. Following is the basic outline of the orientation program.

1. Define domestic information management
2. Conduct a need analysis under domestic information management
3. Arrange a common activity list
4. Prepare an action plan

5. Collect needed information sources
6. Create an information package for each house
7. Conduct a rehearsal program

During the one-month period, the research participants collected relevant information sources such as leaflets, pamphlets, mini-book maps, posters, videos, audio cassettes, etc. visiting government institutions, private institutions and non-governmental organizations. Finally, they prepared an information package based on the instructional program for each house. Following are the items in each package. Leaflets, pamphlets, booklets, books, posters, videos, audio cassette, world map, map of Sri Lanka, small globe, two diaries, to monitor exercise books, six ball point pens, six pencils, stapler, puncture, two erasers, and two calendars. At the end of the orientation program, the researchers provided instructions on how to prepare a two-hour instructional program related to the domestic information management for each house. The scheduled timetable is given below.

- Welcome and introduction – (10 minutes)
- Go to the kitchen and discuss with the mother and demonstrate the prepared activities - (20 minutes)
- Come to the lobby and give instructions for watching TV and listening to radio to father, mother and children of the family. Demonstrated the prepared activities - (20 minutes)
- Observe the student's study area and provide instructions to arrange the area in a proper order/Observe the home garden and demonstrate a short video and provide the necessary instructions –(20 minutes)
- How to use land or mobile phone. Such as, telephone ethics, the manner of communication, avoiding needless telephone billing, recording important numbers, emergency numbers – (20 minutes)
- How to maintain a first aid box /how to prepare a small herbal garden - (20 minutes)
- Conclusion (10 minutes)

The PhD student and library subject director in the Bibila Education Zone were appointed as research coordinators of this program.

Next the main action program was conducted as a two-day workshop in February 2015 for the selected school. The population of the school is 360 students from grade 1 to 13. On the first day, classes from grade 6 to 13 were handed over to the twelve research participants. They conducted the domestic information skills program for the students from 8.30 am to 12.30 pm. Concurrently, the researchers conducted a workshop on the above topic for the principal and teaching staff as a staff development program, from 8.30 am to 12.30 pm. Between 12.30 and 1.30 p.m. the research participant team, the principal, and the school staff team met together and reflected on the common effect of the programs in which they participated. In the evening, (2.00pm to 4.00 pm) the prepared domestic information management agenda was discussed with selected parents and village officers, with the collaboration of the school principal and teachers.

On the next day each group, comprising two research participants and two school teachers, visited two houses of the sample and spent two hours in each house. Firstly, they provided the prepared information package for each house and displayed the prepared program to the student and his/her parents. The participants explained and demonstrated how to collect and organize the daily information for their personal, professional and pedagogical needs. After

completing the instructional program, the teams met together with the researchers and coordinators and discussed the progress and future planning of the program.

Parents and the children engaged in their daily routine based on the provided instructions. The research participants in the area visited each house weekly, to observe the progress and provided further instructions. Other research participants discussed and identified the progress and provided further instructions over the telephone. The grade ten class teachers observed and recorded the students' academic activities and daily classroom behaviors, and provided further instructions. The principal, PhD student and assistant director (school library) gathered the parents to the school during the middle and at the end of the program, to monitor and evaluate the program. The researchers provided the necessary instructions by telephone calls, emails, and Google docs. Finally the students' first term test marks, which were used as the post test of this action research, and the class teacher's recorded observations about the participating students, were utilized to identify the impact of this program. The students' grade nine (2014) final term test marks were applied as the pre- test.

Data gathering and analysis

Data was collected by means of observing the primary sources during home visits, and individual and group interviews with students, parents, and school teachers. During this period, other variables which influenced the achievement level of the students were controlled in a regular manner by discussing with the school principal, teachers, parents, and village officers. The researchers monitored and evaluated the program. After completing the program, each research participant team submitted its report as an assignment for evaluation of the course work of the research participants.

The students' Grade nine final term test marks were considered as the pre test marks and their grade ten first term test marks were considered as the post test marks. The following table demonstrates the difference between the pre and post test marks.

Figure 4 : Student ranking

Student	Rank (Out of 30)	Rank (Out of 30)
A	24	23
B	01	01
C	11	10
D	07	06
E	02	02
F	04	03
G	23	16
H	08	04

The achievement levels of student A and G were selected for the qualitative data analysis because "A" has obtained the lowest rank in the pre-test of this sample and "G" has demonstrated a significant difference between the achievement levels at the pre- and post-tests. In addition to that, the Classroom Teacher's, students', parent's, and research participants' reflections were narrated in detail. When considering the above reflections, it can be seen that the student and the family members obtained many benefits for their personal, professional, and pedagogical life as a result of this action research.

Conclusions:

The researchers completed one cycle (plan, act, observe and reflect) of this action research during the course of one month.   According to the quantitative analysis two students have obtained the same rank, first and second, for the pre- and post-test. The ranking position of four students has changed one unit towards the positive side, while two students have demonstrated a   significant positive change in their achievement levels. Various factors impinge on a student's achievement level, such as student's health condition, family background, teaching strategies, etc. At the commencement, therefore, the researchers informed the parents, principal, teachers, and the village officers to control these factors. On the other hand, a student's achievement level   can be measured not only by written examinations as a cognitive domain, but also by affective and psychomotor domains. The qualitative analysis, and the reflections of students, parents, classroom teacher and research participants, elaborated a positive development of the students' affective and psychomotor skills, related to the conducted domestic information management program.

Suggestions:

We have applied only one cycle and provided conclusions. However, if we introduce a revised action plan as the second cycle of this action research, we could obtain a better improvement than from the first cycle. Therefore, we have already informed our Ph.D. student to continue the second cycle with the assistance of the education officers of the Bibile education Zone. Apart from that, we have suggested to our ten research participants to conduct an action research in their villages in order to promote this concept, because they have obtained thorough knowledge about this field and we have informed the education officers to obtain their services as resource persons. Finally, we would like to suggest to the Education officers of the Uva Province and the policy makers to publish this effort as a book, and distribute it among all schools in the Uva province.

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