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EVALUATION OF COMMUNITY ATTACHMENT PROGRAM; A MULTIDISCIPLINARY COMMUNITY BASED MEDICAL EDUCATION TRAINING PROGRAM FOR MEDICAL UNDERGRADUATES IN UNIVERSITY OF RUHUNA, SRI LANKA

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Abstract: Community attachment program (CAP), is a multidisciplinary community-based medical education training program designed for medical undergraduates at Faculty of Medicine, University of Ruhuna, Sri Lanka. This program aimed at improving skills on identification determinants of health, making community diagnosis and managing health and health related problems in the community. Present study was conducted to get students' and community view on the program. A descriptive cross-sectional study was conducted on 107 fourth year medical students and 151 community participants in the CAP 2013-2014. Two different Self-administered questionnaires were used to assess student’s and community view on the program. Most of community participants (94%) were on the opinion that the multidisciplinary nature of the CAP assisted them to enhance their health. The CAP has empowered them to take correct decisions on their health issues and on their environment problems. Nearly 75% of students agreed that CAP helped them to improve their knowledge and skills on identifying and solving problems in the community. However, students’ performances were not satisfactory. The CAP has been perceived as a productive population health program by both students and the community participants but all objectives of CAP were not achieved by the students as expected. Hence, we recommended that the CAP should be improved to address health, environment and social aspects of population with equal importance.

Keywords: Public health, Medical education, Community Attachment Program, Evaluation

Introduction

Medicine is mainly categorized into two; Curative medicine and preventive medicine. Curative medicine is concerned with diagnosing illness, treating disease and relieving pain and distress in individual patients. Preventive medicine is concerned with promoting public health and reducing inequalities in health in populations.

Public health is commonly defined as “the science and art of preventing disease, prolonging life and promoting health through the organized efforts of society” (England 1988). Public health goals can be identified in three main domains; improving services, health protection and health improvement (Chappel D, Maudsley G, Bhopal R, n.d.). Improving services is concerned with the organizing and
delivery of safe, high quality services for prevention, treatment and care. Health protection is concerned with measures to control infectious disease risks and environmental hazards (such as chemicals, poisons, and radiation), including public health emergencies. Health improvement is concerned with societal interventions (e.g. in housing, education, employment, family/community life, and lifestyle) that are not primarily delivered through health services.

Effective medical practitioners must be concerned with contributing to each set of goals. Hence medical undergraduates should be trained to act as public health professionals in the future who try to prevent problems from happening or re-occurring through implementing education programs, developing policies, administering services, regulating health systems and conducting research.

To achieve those objectives and goals, medical schools from each country have their own public health programs for their medical undergraduates. Some medical schools in Sri Lanka have introduced this component into their medical undergraduate curriculum under the name “Community Attachment Program (CAP)” while others have introduced it as “Family Attachment Program (FAP)”. Although objectives, goals and content of the program is similar across those medical schools, time duration of the program varies from one medical school to another according to depth of their own subject content (Colombo 2016), (Peradeniya 2016), (Kelaniya 2016), (Jaffna 2016), (Estern 2016), (SriJayawardene pura 2016).

Department of Community Medicine, Faculty of Medicine, University of Ruhuna holds the responsibility of promoting public health and preventive medicine in the undergraduate medical curriculum (Ruhuna 2016). CAP as a community based learning program covers the teaching and learning activities of medical undergraduates in Faculty of Medicine (Ruhuna 2016). After completing their second year (2nd MBBS) examination, students must undergo a community training program which introduced them the CAP (Ruhuna 2016).

The community Attachment Program aimed, to provide students with an opportunity to get to know the community and their health needs including community diagnosis, power structure, culture specific health beliefs, health care demands, limitations in health care services and alternative health care systems etc. It helps to medical undergraduates to learn social determinants of health, to learn competencies that are not easily taught in the tertiary hospital such as primary care, preventive care, management of mid-level providers and health services research etc. This program teaches students a variety of different competencies required for physicians such as team work, management and organizational skills, communication skills, empathetic understanding etc. Also, program is aimed to provide a curriculum that engages the community and improve their utilization of the health services.

During the CAP the students are divided in to small groups and a cluster of families are assigned to them for two years follow up for holistic care. During the 1st week of field visit the students are expected to do a demographic health survey on assigned families to find their health, social, behavioral, nutritional and environmental problems and workout the plan of action for next two years. In here, students detect individuals with problems (physical, mental, social, environmental, nutritional & behavioral) in their communities & refer them to appropriate health personnel relevant authorities. Improvement of health conditions in the community, health education & organizing other health related activities (Shramadana campaign, children & elderly societies etc.) are other main
activities done by students. Co-operation of the community is essential to make the students’ task successful.

The evaluation of the community attachment program is being done in every semester by presentations of the students and assessment by field visits of the academic staff. The final evaluation carries three different components; one is the final report where students are expected to submit a complete comprehensive report which includes demographic data, problems identified and the actions taken to overcome the problems identified, second the filed assessment and finally the viva voce examination. This assessment process carries 10% of the final marks of the fourth year (3rd MBBS) examination.

The community attachment always leads the students to develop multi-disciplinary approach to the problems and to develop inter sectorial collaboration in solving them (Ruhuna 2016). However, students’ awareness of behavioral and socio environmental underpinnings of ill health conditions that are prevailing in the community was not satisfactory (Perera B 2010).

CAP is the only field training program in the curriculum of community medicine where the students get hands on experience in preventive medicine. Even though this program is never being properly evaluated and improved, students overview has been evaluated twice (Perera B 2010), (Darshana ILAN 2014) but not the stakeholder’s overview. This CAP has been conducted now for more than 30 years and therefore it was a felt need to improve this program to meet the objectives of the program. Hence this study was carried out to obtain the community stakeholder’s overview and the student evaluation on the program to improve the program with the new concepts of educational methods.

Methodology

During the CAP the students were assigned to Meepawala PHM area in the Bope Poddala MOH area. A descriptive cross-sectional study was done on the students in 2014. Further community participants that were allocated for the students were also evaluated.

The medical students were given a self-administered questionnaire with 34 questions, assessed by a four-point Likert scale. Knowledge & skills gained during the CAP and student’s views regarding assessment of CAP were evaluated using the questionnaire. Student’s perception on knowledge, skills and competency gained in carrying out a community survey, identifying problems and formulating strategies on health, socio-economic, environmental and behavioral problems in the community were measured using those questions. The community participants were given another self-administered questionnaire with 20 questions that assessed benefits & attitudes towards the CAP. The community participants were categorized into three income groups according to monthly income; low (< 10000 Rupees), middle (10000 – 20000 Rupees) and high (> 20000 Rupees).

The study was carried out after obtaining ethical clearance from the Ethical Review Committee, Faculty of Medicine, Galle.

Data were coded and entered into a database created using the Statistical Package of Science (SPSS) software. Level of probability was considered as 0.05.
Results

A total of 107 fourth year medical students (48% males) and 151 individuals in the community participated in the survey. The community sample consisted of Muslims (66%) and Sinhalese (34%), mean family size was 5.32 (SD±1.97) and majority of the stakeholders belonged to middle income group.

Most of community participants (94%) were on the opinion that the multidisciplinary nature of the CAP assisted to enhance their health, by empowering them to take correct decisions on their health issues and on their environmental problems. All most all students (98.3%) had good interaction with their allocated families and on average undergraduates had made 5 visits per household for two years period.

Majority of students had organized health promotion activities and programs (72%) in the given community. About 65% of those participants involved in health promotion activities and expressed their willingness to continue such community development work even after the conclusion of CAP. Families in the low-income category had the highest mean satisfaction score compared to the families in the middle and upper income categories (ANOVA; F (2,112) =7.59912, p<.01). Number of visits by undergraduates was positively correlated with satisfaction score of community (r=0.2, p<.05).

At the end of the CAP, students have said that they obtained satisfactory knowledge and skills on how to carry out a demographic survey in the community (80.4%), how to analyze, interpret and present data (80.4%) and how to arrive at a community diagnosis, through the assessment of health status in the community (72.5%). (Table 1)

Students reported that they could gain knowledge to identify health (86.9%), environmental (86.9%), socio-economic (86.0%), nutritional (76.6%) and behavioral problems (57%) in the community. Community participants' opinion on their problem identification was like the students' view (99.3%, 85%, 67.9%, 84.9% and 65% respectively).

Table 1: Students evaluation regarding their achievements at the end of the CAP

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<tr>
<th></th>
<th>Strongly agree (%)</th>
<th>Agree (%)</th>
<th>Disagree (%)</th>
<th>Strongly disagree (%)</th>
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<tbody>
<tr>
<td>Knowledge and skills on developing a community programs</td>
<td>1.9</td>
<td>69.2</td>
<td>17.8</td>
<td>11.2</td>
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<td>Knowledge and skills on providing health education for the individual and family</td>
<td>8.4</td>
<td>73.8</td>
<td>7.5</td>
<td>10.3</td>
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<tr>
<td>Knowledge and skills on organizing and, implementing a health education program for the community</td>
<td>4.7</td>
<td>64.5</td>
<td>26.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Ability to work as a team to promote health and wellbeing of the community</td>
<td>4.7</td>
<td>72.9</td>
<td>15.0</td>
<td>7.5</td>
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Knowledge and skill on seeking assistance from external agencies in addressing certain identified problems

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<th>1.9</th>
<th>61.3</th>
<th>29.2</th>
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Skills and experience in referring patients to higher institutes

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<th>6.5</th>
<th>73.8</th>
<th>15.0</th>
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Developed the attitudes of concern for individuals and community

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<th>4.7</th>
<th>62.6</th>
<th>25.2</th>
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Skills on how to prepare a comprehensive report

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<th>2.8</th>
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<th>27.1</th>
<th>8.4</th>
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At the end of the CAP, students were able to solve a considered health (79.5%), environment (74.8%), socio-economic (60.7%), nutritional (70.1%) and behavioral (53.3%) problems in the community. (Figure 1) There is a difference in between identifying and solving some health and health related problems especially socio-economic and behavioral problems.

Figure 1: Students perception regarding identification and solving problems in the community

After identifying health problems 56% of the students had referred the patients for further management. Among them majority were medical (47%) and surgical (30%) referrals. But 24% of the referred patients did not attend for relevant health institutions due to personal matters.

Regarding the assessment process of CAP, most students (>70%) agreed that field visit by the academic staff was good and excellent (62.6% and 9.3% respectively) and almost all of them (98%) have scored more than the average in the field assessment (Mean 62.8%, SD 10.5). Even though half of the students (47%) were not happy with the portfolio assessment and with the viva voce examination, most of the students (92%) were able to score more than the average in both assessment methods (Mean 62.5%, SD 7.56 and Mean 53.1%, SD 13.4 respectively). From the overall CAP assessments, 76% of the students got through the examination. (Mean 54.7%, SD 5.9) in marks range of 34.3-69.3.

Nearly 75% of students have commented that current CAP helped them to improve their knowledge and skills on identifying and solving problems in the community. However, nearly half of students had no good impression (58%) regarding current CAP and they believed that it is ineffective program (55%).
Discussion

The community attachment program provides an opportunity for undergraduate medical students to interact with the community to promote public health. It gives them the opportunity to interact with different families in the community, community leaders, community based organizations, government officials, health and non-health field workers and other stake holders in the area.

The CAP has been perceived as a productive population health program by both participants, but expected objectives of CAP was not achieved as expected. Apart from that, study results showed that there is a difference in between identifying and solving some health and health related problems especially socio-economic and behavioral problems. Undergraduates’ knowledge, attitudes and skills in addressing social and behavioral health issues in the community were not satisfactory according to their perception. To avoid it, study suggests that need of proper technical guidance by academic staff to help medical undergraduates in their difficulties while interact with community and community problems. It is necessary to take actions to improve those aspects. Hence, study recommended that the current CAP should be improved to address all factors impacting on health with equal importance.

A study conducted in 2009 (Perera B 2010) found that students awareness of behavioral and socio environmental underpinnings of ill health conditions that are prevailing in the community was not satisfactory. However, CAP was not modified so far to overcome those identified weaknesses although it was worthwhile so far.

According to our study results, active involvement of medical undergraduates in CAP is not satisfactory although community is satisfactory about the service that they got from them. Majority of medical undergraduates made around 5 home visits per household for two years period and it will minimize the opportunity to identify community problems unless relevant communities contact medical undergraduates. Further one fourth of the referred patients from the community by students did not attend for relevant health institutions for further management due to personal matters. Hence there is a need of regular follow up process with close monitoring of medical undergraduates’ active participation in CAP with help of department academic members.

A qualitative study done in 2014 (Darshana ILAN 2014) found that students suggested to reduce the time duration of the program to one year (26%) and majority (61%) requested to conduct the CAP assessments before the fourth year examination (3rd MBBS). Some students indicated that CAP has caused them an additional stress (24%).

When we compared the CAP in Faculty of Medicine, university of Ruhuna with CAP/ FAP in other medical schools, there is a significant difference in time duration of the program. Nearly half of students did not have a good impression about CAP and they believed that it is an ineffective program. They felt that there is a need to modify it. We suggest modifying the time duration of the program for better results.

In the assessment of CAP, students’ performances were satisfactory in the field assessment and portfolio assessment but not in viva voice examination. Total mark for CAP is also unsatisfactory and it was directly affected by marks of viva voice examination. This entire assessment process accounts for 10% of the final marks of Community Medicine subject at 3rd MBBS examination and hence final
marks of Community Medicine subject is also directly affect by CAP assessment marks. As study results showed that students are not satisfactory with current assessment process and their performances were also unsatisfactory, study recommended that the need of further modification of assessment process specially targeting for viva voice examination and portfolio in view of improving students’ performances as well as efficacy of the CAP.

Few limitations of the study were identified. Although the study was planned to review all students and community participants, only 75% students and 52% community participants were participated in the study. Further there was no literature available from other medical schools in Sri Lanka regarding the effectiveness of CAP/FAP. Although we have an assessment method to evaluate the CAP, it was not sure whether the assessment tool is effective in assess knowledge and skills that gained through the CAP. Hence there is a need of a better assessment tool to measure students’ real knowledge that they have gained through the CAP. Our study also did not measure students’ real knowledge and skills that they have gained through the CAP and study measured only student’s perception regarding knowledge and skills. We suggest that need of an evaluation to assess students’ real knowledge and skills that they have gained through the CAP.

**Conclusion and Recommendation**

The expected objectives of CAP were not achieved as expected. There is a need to modify the current CAP by giving special attention to expected outcomes, content of the program, time duration and assessment tool of the CAP. It will minimize differences in their knowledge, skills and attitudes in preventive medicine and will help them to create, advocate for, and use opportunities to implement effective solutions to population health issues.

**Acknowledgements**

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http://fhcs.esn.ac.lk/phc.html >.


SOCIAL STUDIES: HIGHER EDUCATION CURRICULA AND THEIR IMPLEMENTATIONS IN INDONESIA AND JAPAN

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Abstract: This paper discusses on social studies, their curriculum and implementation at higher education in Indonesia and Japan. This study is a comparative study between Social Studies in Education Department of Sriwijaya University-Indonesia and Faculty of Education in Kochi University-Japan. The population was lecturers and students of social studies education in both universities. The data were collected using documentation, observation and questionnaires; and were analyzed using descriptive qualitative for qualitative data, i.e. data reduction and data presentation. Furthermore, data from questionnaire were analyzed using proportion and mode. The results show that there are similarities and differences. In curricula, the similarity is that both include history and economy, while the differences were history (divided into three: Japanese, Oriental and Western), Geography and Topography, Jurisprudence and Politics, Sociology, Economic and Political Economy, and Philosophy. Besides, in Faculty of Education, Kochi University, all students have to study social studies of primary, secondary, and high school curricula. In implementation, the similarities are media of learning, using power point, and number of lectures, 14 times. the differences are that every student must have text books and that they have to learn by reading the book while the lecturer is giving lecture.

Keywords: Social Studies, Higher Education Curricula, Sriwijaya University-Indonesia, Kochi University-Japan

Introduction

Social Studies are field of studies which discuss the social life in a community. They examine various issues related to human life as social beings taken from social lifes using social science concepts, which are used for the benefit of learning in schools. Given the conditions and social development of society, and changing along with the times, it will certainly affect the SS. Dynamics that occur in various areas of social life should be properly addressed and taken into consideration by the social studies curriculum developers, as well as educational institutions in generating social studies curriculum. The curriculum serves as a guide for teachers in implementing the learning process.

As a field of social science taught at the college level, Social Studies refers to the organization of curriculum and lesson materials that aim to develop students’ skills through social and cultural knowledge. In this case, the main focus is the Social Studies which address human relationships in society and the environment. The curriculum aims to educate students to develop the ability to think,
to develop attitudes, and values for themselves as individuals, as well as social and cultural beings. "The major goal of the social studies is to prepare citizens who can make-reflective decision and participate successfully in the civic life of their communities, nation, and the world. There are four categories contributing to the major goal: knowledge, skills, attitudes, and citizen action (Banks, 1985).

The concept of social studies is interpreted differently. Banks (1985) states that: the Social Studies are the part of the elementary and high school curricula having the primary responsibility for helping students to develop the knowledge, skills, attitudes, and values needed to participate in the civic life of their local communities, the nation, and the world. Meanwhile, The National Council for the Social Studies (NCSS) (1994) states that Social studies are the integrated study of the social sciences and humanities promoting civic competence. Within the school program, social studies provide coordinated, systematic study description upon disciplines such as anthropology, archeology, economics, geography, history, law, philosophy, political science, psychology, religion, and sociology, as well as appropriate contents from the humanities, mathematics and natural sciences.

Social studies is most commonly recognized as the name of a course or set of courses taught in primary and secondary schools or elementary, middle, and secondary schools, but may also refer to the study of aspects of human society at certain post-secondary and tertiary schools around the globe. Many such courses are interdisciplinary and draw upon various fields, including sociology, political science, history, economics, religious studies, geography, psychology, anthropology, and Civics. At Harvard University, social studies are offered as an undergraduate major. At the elementary school level, social studies generally focus first on the local community and family. In middle and high school, the social studies curriculum becomes more discipline-based and content-specific. Social studies as a subject vary greatly between countries and the curricula is not synonymous with the name of the sciences, whereas others are created independently for schools. This subject appears in different countries' syllabus with a similar content, but in different names. An example is the subject of Liberal Studies, or the former Integrated Humanities in Hongkong.

There are a variety of dimensions of education in Indonesia. Social Studies called Ilmu Pengetahuan Sosial (IPS) are usually developed in the academic curriculum or curriculum discipline. Such a curriculum would be labelled as disciplines, programs or subjects. The objective is closely related to the purpose of disciplines and is usually applied to secondary and higher education (Kamarga, 1994; Sanusi, 1971). Based on such understanding of Social Studies as Social Sciences Education, it can be a field of study that examines the reality and human behavior problems or problems of human relationships. In other words, the term Social Science Education in Indonesia is similar to the "Social Sciences" and "Social Science Education". (Sanusi, 1998; Hasan, 1996). To the level of basic education (Primary School/Islamic Elementary or and Junior High School), social studies curriculum in the form of integrated curriculum is a combination of several subjects which are economics, history, geography. As for the secondary education level, social studies curriculum is "separated curriculum" consisting of history, geography, economics, and sociology. Thus, the term Social Sciences Education covers a broader sense, is not limited to schooling curriculum but include social studies education programs in the community. In high school curriculum 1975 to the curriculum in 1994, the term IPS is used as a name that distinguishes IPS majors with majors Natural Sciences (IPA) and the Department of Languages. The diversity of the terms used is closely related to that of educational programs to the level and type of educational institution that has a specific institutional
objectives for each level and type of education (Suwarma, 2001). Social Studies Education (SSE) or Ilmu Pengetahuan Sosial (IPS) term is used by the developers at universities as proposed by Somantri (2001), that in college IPS is similar to the term "Social Studies" in the tradition of American education. In addition, PIPS is used as the name of the course, department name, or the name of the faculty at the Institute of Education in the form of the Institute of Teacher Training and Education (or the College of Teacher Training and Education, or

Faculty of Teacher Training and Education. PIS terms set forth in order to develop the curriculum in colleges and programs in the Graduate IPS.

In the Faculty of Teacher Training and Education (FTTE) Sriwijaya University (SU), PIPS department was established in 1983/1984. It is in charge of three study programs namely Economics Studies, History and Pancasila and Civic Education. Its vision is to be superior and competitive Education Department of Social in human resource development, research, technology and information”.

Relationship between nations of the world cannot be separated from one another, such as negotiating with various nations for the sake of their own national interests. Similarly, the relationship between Indonesia and Japan, both as a nation and as a relationship among the people. Historically, the relationship of both nations has existed since the 13th century. Indonesia as part of Southeast Asia has also become an important part of the objectives of the Japanese people seeking a new life. Their position here equated with other foreign nation East Asia by the Dutch, this gives them a great chance to develop themselves, especially in the field of trade.

Kochi university is one of universities in Japan that has a good cooperative relationship in the field of education with Sriwijaya University, and has a faculty of education that one of subject in curriculum development. One of its field is Social Studies Education (SSE). SSE consisting of History, Geography, Economics, Philosophy, and Law. Therefore, SSE Department FTTE, Sriwijaya University did collaborative research with KU with the following research questions: 1) What are the concepts of implementing a social studies curriculum at the FTTE, Sriwijaya University in Indonesia and FE, Kochi University in Japan? b). how do the two Faculties reviews their social studies curricula? c). what are the students' perceptions about the implementations of social studies curricula at both universities?

**Literature Review**

**A. Curriculum Concepts and Components**

There are different curriculum definitions according to the experts, including by Caswell and Campbell: 1935, Tyler, 1949, Beauchamp, Ronald C. Doll: 1974, Mauritz Johnson: 1967, Mac Donald: 1963). From the various definitions, it appears that the notion of curriculum is very diverse, from the simplest to the most complex. All of it is due to the different backgrounds, in accordance with the flow or educational theory espoused. However, any sense of the curriculum, in essence, concerns ideas, documents, processes and results. In other words, the curriculum can be seen as an idea, as a written plan, as an activity (process) and as a result of an idea (Hamid Hasan, 2008).
The curriculum as an idea generated through curriculum theory as an idea, through the theories and research, particularly in the areas of curriculum and education. Furthermore, the curriculum as a written plan, as the realization of the curriculum as an idea includes the goals, materials, activities, tools, and time. The curriculum as an activity is an implementation of a written plan; in the form of instructional practice. Another is the curriculum as a result is a consequence of the curriculum as an activity, in the form of achievement of the curriculum objectives, namely the achievement of behavior/abilities of the learners.

Zais (1976) suggested that a curriculum usually consists of anatomical components or elements, namely: (1) aims, goals and objectives; (2) the subject matter or content; (3) learning activities; and (4) evaluation. In other words, curriculum contains four basic components, namely the objectives, content, process and evaluation.

B. Social Studies Concepts

Social Studies Education (SSE) in Indonesia is conceptually not separated from an understanding of Social Studies raised by Bruce Edgar Wesley in 1937, that "... The Social Studies are the social sciences simplified for pedagogical purposes". The notion evolved into "The Social Studies comprised of Reviews those aspects of history, economics, political science, sociology, anthropology, psychology, geography, and philosophy roomates in practice are selected for instructional purposes in schools and collages" (Barr, Brath, and Shermis, 1978). Thus, the Social studies is a discipline derived from the social sciences, which was developed to meet the objectives of education/learning, both levels of schooling and higher education. In addition, in accordance with its objectives, it is necessary for the selection of the various aspects of each discipline of the social sciences. Social Studies objectives are: Social Studies programs have a responsibility to prepare young people to identify, understand, and work to solve problems that face our nation and interdependence increasingly diversified world. Over the past Several Decades, the professional consensus has been that such programs ought to include goals in the broad areas of knowledge, democratic values, and skills. Programs that combine the acquisition of knowledge and skills with the application of democratic values to life through social participation present an ideal balance in social studies. It is essential that major Reviews These goals Be Viewed as equally important. The relationship Among the knowledge, values, and skills is one of mutual support (NCSS,1983).

The purpose of Social Studies for the 21st century is still putting the process of civic education, the development of "civic responsibility and active civic participation" as one of its substance. The other aspect is the development of social skills with regard to the vision of his life experiences, critical understanding of the social sciences, human understanding in the context of unity in difference, and critical analysis of the state of human life. What educational purposes IPS in Indonesia? It turns out that it is also related to the sense and purpose of the social studies.

SSE purposes in Indonesia include aspects of knowledge and understanding, values and attitudes, and skills aspects. IPS education aims to develop students' skills through social and cultural knowledge. Its main focus is to learn about human relationships in society and the environment. Automatically, the curriculum goal is to educate students develop the ability to think, attitudes, and values for themselves as individuals and as social and cultural beings. Meanwhile, the notion of education as a social studies sciences has implications for the name subjects or subjects. In secondary education and
higher education, the reality points to include the subjects such as history, economics, geography, anthropology, sociology, and statecraft.

Based on the above, the learning of social studies education in primary and secondary education, and higher education aims to make students able to: be a good citizen, behave in accordance with the values and norms that exist in society, have a good self-concept, helps introduction and appreciation of the global community and multi-cultural composition, the socialization process of social, economic, political, understand the past and present as a basis for making / taking a decision, have the basic ability to think logically and critically, curiosity, inquiry, problem solving, and skills in social life, have the commitment and awareness of social values and humanity, to participate actively in community life so that students are proud of being Indonesian, and has the ability to communicate, collaborate and compete in a pluralistic society, at the local, national, and global (Banks and Clegg, 1985; Skeel, 1995; Mone, 2002; and Annex Candy Diknas No. 22 of 2006).

There are two concepts in the education system in Indonesia. First, IPS Education aimed at the world of schooling. Secondly, Education Discipline Social Sciences for college. In the first part, is the effort of selecting and organizing scientific and psycho-pedagogical of social sciences, humanities, and other disciplines that are relevant for the purpose of professional education social studies teacher. Meanwhile, the SSE for the college, known as Workforce Education Institutions, social studies teacher is a strategic effort to build human in welcoming the era of globalization. For that, it needs painstaking efforts to instill character high discipline, perseverance, solid, responsible, and sincerity in devotion (Winataputra, 2007).

SSE for learning in school is divided into two versions or traditions, namely, first, in the tradition of citizenship education, IPS transmission, which consists of subjects Pancasila and Civics Education, and History of Indonesia; second, education in the tradition of social science IPS with Integrated Social Science subjects for elementary school and Islamic Elementary School, SS for Junior High School and Islamic Junior High School, and SS-separated for Schools and Islamic Senior High School, also vocational. Both of these concepts are in an effort to achieve the vision of Indonesian human development, and Law No. 20 Year 2003 on National Education System. It is stated that education is a process of learning and empowerment in a democratic and fair, multi-meaning education, and education by example, where builders will develop creativity.

Ministry of Education (2002) formulated the subjects of Social Sciences as an integrated study material which is simplification, adaptation, selection and modification of concepts and disciplines of skills of History, Geography, Sociology, Anthropology, Economy and scientifically organized and psychologically for the purpose of learning. Social Sciences subjects studied social, spiritual, emotional, and intellectual aspects of man. Thus, social science subjects is an approach to the behavior of human life, society, and environment. The objectives to be achieved from these subjects are learners able to develop the knowledge, values, attitudes, and good social skills, able to develop an understanding of the development of Indonesian society from the past, present, and future. In the end what makes learners proud as a nation of Indonesia (Somantri, 1995).
Method

This research was conducted by SSE departemen, FTTE, Sriwijaya University, Indonesia and FE Kochi University, Kochi-Japan. The population of this study was all of lecturers and students at 3th, 5th, 7th, 9th semester (total 928 students) SU, Indonesia and 5 lecturers and 24 students of FE, KU, Japan. The data collected using documentation, observation and questionnaires. The data were analyzed using descriptive qualitative data analysis techniques for qualitative data in the form of data presentation, while the questionnaire data will be analyzed using quantitative data in the form of proportion and mode.

Results and Discussion

Due to the components of curriculum, this part will be discussed on the basis of purposes, content or subject matters, learning activities, and evaluation.

The purpose of social studies curricula in FTTE, Sriwijaya University, is to become one of the most excellent and competitive SSE Department in human resource development, research, technology and information”. Its missions are 1) implementing a quality education to produce the professional social sciences teachers (who master technology and information, and can compete globally, 2) developing research in the field of social sciences education and which result in the information technology and social science education reform, 3) implementing the improvement of the quality of education social sciences in accordance with the development and needs of the community.

Content of SSE Department, FTTE, SU in accordance with (Regulation of National Education Minister 232/U/2000); shown in the structure of curriculum 2014, Regulation of National Education Minister 045/U/2002. Furthermore, considering that Social Studies Department is divided into three study programs, then the vision, mission and majors above are also divided into objectives, vision and mission in each study program. The mission was developed and predicted to the needs of graduate users over the next five years, namely 2025, in accordance with the vision of economic education study program, history education study program and civics education study program. Then, the vision of study program; the following vision study programs written in accordance with the department's vision, the faculty vision and the university vision in the academic handbook of FTTE 2015/2016.

In curriculum also describes the vision, mission, products or the main services, the purpose of study program, the competency of graduates, the target of study program illustrated, graduate profile, the map of the graduates’ competence (both professional competence, pedagogical, personality and social competence, all of which illustrate the ability of developing school programs and cooperation between schools/institutions either as individuals or groups associated with economic education, history and civics.

In FTTE Sriwijaya University, actually Social Studies is a major in social studies curriculum does not mention individually but stated in each study program, a program of study economy, history and Civics Education. However, when examined from a third study program is exactly the same only 3 subjects, while the rest there are some who have in common is 14 subjects, whereas another 5 subjects
are compulsory subjects related to education. Next, the curriculum elaborates on the need for the curriculum development that should be adapted to the development: technology; science; social, cultural, economic, political, religious, and ecology related to learning courses of study program (understand widely and deeply the concepts, materials and methods of learning on the subjects of economics, history and civics) and (understand the concept and theories of economics and the field cognate studies).

FE Kochi University aims to produce outstanding teachers who can nurture the infinite potentials of human beings. It also aims to send forth graduates equipped with high degrees of specialized knowledge of their subjects and teaching skills based on extensive knowledge of their specialized fields. Social studies curriculum divided into six groups: first, History (total 20 credit semester), consisting of Introduction (2 credit semester) of four fields introduction of History (2 credit semester), Japanese History (Japanese History I, Japanese History II, Japanese History III (6 credit semester), Oriental History (Oriental History I, Oriental History II Oriental History III (6 sks), and Western History I, Western History II, Western History III (6 credit semester). Second is Geography (total 14 credit semester), consisting of: Introduction of Geography and Topography (2 credit semester), i.e Geography I, II, III (6 credit semester), Topography I, II, III (6 credit semester). Third is Jurisprudence consisting of Introduction of Jurisprudence (2 credit semester), and Jurisprudence I, II, III (6 credit semester). Fourth is Political Science, consisting of Introduction of Political Science (2 credit semester), Political Science I, II, III (6 credit semester), Fifth is Sociology, consisting of Introduction of Sociology (2 credit semester) and Sociology I, II, III (6 credit semester). Sixth is Economics (8 credit semester) consisting of Introduction of Economic and Political Economics (2 credit semester), and Economic Political Economy I, II, III (6 credit semester), and seventh is Philosophy (10 credit semester), consisting of Introduction of Philosophy (2 sks), Philosophy I, II, III (6 sks) and Ethics (2 sks). Students need to take more than 20 credit including 7 subjects of required for taking Teaching Profession Licence (Geography and History), ad students need to take more than 20 credit including 3 subjects of required for taking Teaching Profession License.

SSE Department, as well as the purpose of the assessment conducted by Sriwijaya University and FTTE Sriwijaya University in general, which is to measure the achievement of the objectives that have been formulated in the curriculum. Assessment is done objectively to obtain a correct judgment through an assessment process during the lecture, the task giving (adjusted to the subject, such as practical work in the laboratory and into the field, or the same), written and oral quizzes, midterm and the final semester examination. After having assessed, the written examination papers should be returned to the students and the values of exam results announced openly to them.

Assessment systems are quizzes, test, assignment, and practice assessment of the lecture, practice in laboratorium, quizzes, midterms and final exams are given in the form of numeric values in a scale of 0 until 100. The final value determined by lecturer of the course, depending on the distribution of material provided. In general, the distribution was: 20% - 35% of the value of lectures, assignments, laboratorium practice, quizzes; 20% - 40% of the value of midterms; 30% - 45% of the value of final exams and lab; determination of final score. Determination of the final value of an academic activity carried out in order to evaluate the success of a student's study objectively based on the approach of Reference Benchmark Assessment. Under certain conditions, the determination of the final value may use Benchmark Reference Rate approach which combined with the approach of normal reference
Assessment. Final Score is grouped into the categories of excellent, good, fair, less, and failed, and it is expressed in the form of grade letters A, B, C, D, and E.

Based on the triangulation results of the documentation results and interviews with lecturer, both in SSE Department at FTTE Sriwijaya University as well as with lecturer and also served as dean of FE at Kochi University. The result showed that there are similarities and also differences in the curricula concept. The similarities are in terms of objectives, process and the assessment, while in terms of content, especially in the review of the structure of the curricula there is a difference.

In the case of social studies curriculum in Indonesia, there is little difference between social studies curriculum in primary education up to university regulated in Japan. In Indonesia, the social studies curriculum in basic education, especially in primary schools is learned integrative in the form of thematic, whereas in Japan studied from grade 3 to grade 6. Social studies learning in junior high school in Indonesia have in common in Indonesia with social studies learned from grade VII until IX, in the form of integrated curricula. At the high school level, there are also similarities, which are separated studied subjects such as geography, history and civics. The difference in Indonesia, social studies specifically studied more deeply in specialization in which is Social Studies Department.

Although it has a little difference, but it seems that there are similarities in terms of the purpose of social studies, as proposed by Banks (1985) that: the Social Studies is the part of the elementary and high school curricula the which has the primary responsibility for helping students to develop the knowledge, skills, attitudes, and values needed to Participate in the civic life of reviews their local communities, the nation, and the world.

When the implementations of social studies curricula in Indonesia and in Japan are generally analyzed, then there are similarities; especially in junior and senior high school, in junior high school, social studies are taught in an integrative way while in high school, taught separately by the core of geography, economics, history and civics. While in elementary level, there is a little difference, meaning that in Indonesia (especially if associated with the implementation of curriculum 2013), social studies in Indonesia taught thematically, while in Japan the social studies concept started from grade 3 to grade 6 of elementary school.

Next, in terms of its objectives, Social studies of FTTE at Sriwijaya University is to produce teachers of social sciences (Economics, History, Civics Education) who are professional, master technology and information, and can compete globally, to develop research in the field of Social science education (Economics, History, Civics Education) and social sciences which resulted the information technology and the reformation of social sciences education, as well as carry out the devotion oriented to improving the quality of education social sciences (Economics, History, Civics Education) in accordance with the development and needs of the community. If we examine these three objectives of Social Studies above, including Tri Dharma Perguruan Tinggi (education and teaching, research and community service) because social studies education department still serves as a third shade of the subject. Meanwhile, particularly in Japan, social studies are not taught, except in FE at Kochi University, Social studies in university, there are no Social Studies for university students. But especially for Social studies students of FE Kochi University, Social studies’ purposes are making good Social Studies teachers, who have knowledge, abilities, attitude and skills as defined in Diploma Policy of Faculty of Education.
In terms of the content, social studies in SSE Department of FTTE Sriwijaya University, Indonesia with FE Kochi University, Japan, it can be said that it is specifically for a university degree. Social studies prevailing in SSE Department in FTTE Sriwijaya University, the curricula are designed in each of study program which are in Economics Education, History and Civics Study Program. From the three study programs, from each of a total of 144 credits, there are only 20 subjects which are similar and implemented in three courses (at SSE Department with the total number of 40 credits), however, of those subjects, from three study programs there are only nine subjects with the total of 25 credits. From those nine subjects, only four subjects that are the part of Social Studies subjects, as a social studies concept, theory, namely The Fundamentals of Geography, Social Education, Sociology and Civics

Meanwhile in FE, Kochi University, from 149 credits contained in the curricula, if classified, it generally consists of four major groups of subjects of history. These courses consist of namely Japanese, Oriental History, and Western History, with total credits of 20 credits. Furthermore, the second group is the subject of Geography and Topography of six credits, the third group that are Jurisprudence, Political Philosophy and Ethics, with a total of 32 credits. If they are grouped, they become the part of a clump of Civic Education subjects. Next is a group Sociology of subjects consisting of 8 credits, and 8 credits of Economics subject.

Next, in the terms of social studies learning process, social studies are done by using variety of learning methods and multi-way, including lectures, discussion method, question and answer method, project method, method of travel works, role playing and demonstration methods. To support some of the above method, the learning model is used including a model of cooperative learning, inquiry learning model, VCT (Value Clarification Technique) learning models, STS approach (Science-Technology-Society) Role Play and learning model. While in Faculty of Education, Kochi University, Social Science learning is done in one directional.

In the planning, lecturer has prepared well on the syllabus, lesson plans, instructional media, and student worksheets. It was identified from documentation syllabus, lesson plans, instructional media, and student worksheets that were made/ prepared by lecturers. Each student was required to have, read, understand handbook that has been recommended by lecturers for the course. At the first time of the process of learning in classroom, lecturer entered the classroom after students were already in classrooms although there were still some students who were a little late for class. Lecturer went straight to the front of the class and prepared handouts and worksheets for student learning by putting the handout on the table in front of the class. Without orders, the students took handouts and worksheets in turn and went back into the seat.

At this stage of core activities after student got handout and worksheets directly, lecturer delivered the learning material. Lecturer began to explain the learning material from slide to slide, students were sitting in their seat orderly. In general, students were serious and directly involved mentally active (thinking) about the material that being discussed. Lecturer implemented based on the plan that already in accordance with the competence to be achieved. The learning is holistic, learning material is always associated with the context of everyday life. However, the learning process seemed lecturer dominated (teacher centered). Student activity just listening, listened to what was being said by the lecturer, they responded by writing the lecturer’s explanation in handout, opening-reading the source of reading books without any attempts to ask questions or give comment on the material being
discussed. Instructional media used was power point-slide with black or white, and red color for very important concept. Slide variation is limited to text, without any graphic or image on learning materials. Learning resources used is a reference book/handout for lecturers and students. The book has been recommended by lecturer in which includes user manuals, lecture material, as well as the details of the tasks that should be done by the students during the lecture (one semester). The learning process was carried out according to the planned time allocation, i.e 2 x 45 minutes and the learning ended at 15.00.

The process of learning of social studies subjects in FE Kochi University in Japan was conducted as many as 16 sessions in one semester. Each meeting was done within 90 minutes. Thus the schedule and the time allocation to each meeting has been agreed according to applicable regulations. Information obtained relating to the agreement classroom discipline, which was present on time, the tasks performed, and the clothing for students is basically no provisions that are allowed as long as it is comfortable to wear. Results of observation of the learning process, it is known that the lecturer at the beginning, the core, and the end of the lesson is always be in front of the class, while students still sits in his seat each. Parallel arrangement of the seating rows was from front to back. Lecturer and students during the learning were always faced. It was possible to carry out learning activities in classroom. Instructional media of computers and LCD projectors were already available in the classroom, so that the lecturer was ready to use them. Structuring of the learning environment was identified and held in the classroom, but, if there are tasks that must be done by the students outside the classroom context, it can be done.

At the beginning of the learning activities and during the learning process in the classroom, the assessment process of cognitive, affective, and psychomotor aspects were not identified. At the end of the learning activity, students were given questions to be answered and the answers were directly collected, but still the students were not given the opportunity to ask questions to lecturer. Students answered the questions on the worksheet that they have acquired at the beginning of learning based on their understanding of each as a result of the learning process. If there was a statement in the learning process/ problems faced by the students, then the question on an individual basis in consultation with the lecturer would be discussed at a specified time in accordance with the agreements approved by the lecturer and students. From the observation result, it was known that the assessment process was done after the process of learning in the classroom through the results of individual and group tasks, group presentations, and exam results.

Based on triangulation among the results of observation with interviews and documentation used at the time of the study, it was indeed that at the lecturer began to give the lecture, while at the next time, the lecturer will ask the students to make a lesson plan associated with the first lecture. If it is associated with the notion that learning activities are the "heart" of the curriculum, it is because they influence the formation of students' learning experiences and educational outcomes. Taba (1962) states that "learning experiences and not the content as such, are the means for achieving all objectives besides reviews, those of knowledge and understanding". In a functional curriculum, content and learning activities have a relationship and a unity, as stated by Zais (1976) that "when students engage in studying, learning, constructing, analyzing, feeling, thinking, etc, they must utilize some contents: i.e they study something, learn something, think something, and so on, furthermore, it is said that the
The main standard in selecting and determining the activities to learn is how various learning activities can contribute to the achievement of the objectives of the curriculum outcomes, the aims, goals and objectives.

In terms of evaluation, which is applicable in SSE Department of FTTE Sriwijaya University, in evaluating social studies learning is done by looking at three aspects, namely the cognitive aspects related to the knowledge of learners, affective aspects associated with the attitude of learners, and psychomotor aspects related to skills of learners. To support these three aspects classroom-based assessment can be used, by using a variety of assessment techniques, including: performance assessment, project assessment, product assessment, assessment of written tests, portfolio assessment, attitude assessment and self-assessment. Seven assessment techniques can be adapted to the needs assessment of three aspects mentioned above. In the implementation, assessment is carried out at least three times that comes from assignments, midterms and final exams. For the assessment of duties, usually in the form of a portfolio, such as making paper, document analysis, observation, test instruments and others according to the course of teaching.

While in FE Kochi University, the assessment was almost synonymous which is also made into three aspects of cognitive, affective and psychomotor. In other words, the evaluation is likely to lead to the evaluation of learning outcomes, as indicated by Taba (1962) that the evaluation of the curriculum is often viewed simply as an evaluation of student achievement (product achievement) associated with "figures", which is to determine whether the goals have been achieved, as stated by Taba (1962) that: the focus of evaluation is principally on "the degree to which pupils attain ... objectives.

Regarding the implementation of social studies curriculum in Indonesia and Japan, it can be seen from the observation, which indicates that the implementations of social studies learning in Indonesia and Japan are not much different, it means that the implementation is classical and the learning process is done by using LCD as a medium and power point as the slide. The initial implementation of the lecture is mostly done by the lecturer by providing expository material in a way, starting with the initial explanation, showing the power point and ending with the provision of the question in the form of handouts. Then the administration tasks are performed after the learning process in the classroom through the results of individual and group tasks, group presentations, and results exam

Based on triangulation between the results of observation with interviews and documentation used at the time of the study, it was observed that the lecture at the first meeting (inaugural lecture) was conducted by lecturer. Thus, lecturer implemented more the instructional that provides information (expository). At the next time, lecturer will ask the student to make a lesson plan related to the inaugural lecture. If it is associated with the notion that learning activities are the "heart" of the curriculum, because they influence the formation of students' learning experiences and educational outcomes. Taba (1962) states that "learning experiences, and not the content as such, are the means for achieving all objectives besides reviews those of knowledge and understanding". In a functional curriculum, content and learning activities have a relationship and a unity, as stated by Zais (1976) that "when students engage in studying, learning, constructing, analyzing, feeling, thinking, etc, they must utilize some content: i.e they study something, learn something, think something, and so on, furthermore, it is said that the main standard in selecting and determining the activities to learn is how various learning activities can contribute to the achievement of the objectives of the curricula outcomes, the aims, goals and objectives.
Related to the perception of social studies students against curriculum, social studies learning and social studies lesson in junior high school. Furthermore, the perception of Indonesian students in Japan on Social Studies subjects can be described as follows:

Based on the opinion of 51% Indonesian student respondents stated strongly agree, while 50% of Japanese students agreed that social study course aims to make pertinent as a good citizen. Based on the opinion of 54% Indonesian student respondents stated strongly agree and 50% said the Japanese students strongly agreed that the course was very useful for a future social studies teacher. Based on the opinion of 48% Indonesian student respondents stated strongly disagree, while the Japanese students 33% did not agree that not all students have to study social studies subjects. Next, 50% Indonesian student respondents stated strongly agree, while the Japanese students 45.8% disagree with the statement that social studies subjects is necessary for all students in all majors. Based on the opinion of 62% Indonesian student respondents stated strongly agree, while 45.8% of Japanese students agreed that the social subjects should be fun. Next, 52% Indonesian student respondents stated strongly disagree, while 54.2% of Japanese students stated disagree that social studies course are sufficiently mastered by memorizing. Based on the opinion of 59% respondents of Indonesian students stated strongly agree, while 45.8% of Japanese students were hesitated that they were pleased to learn the subject because they really enjoy social studies. Based on the opinion of 34% Indonesian students stated strongly disagree, while 50% of Japanese students expressed doubt that the portion/number of social studies subjects are lacking for supporting their profession as teacher (Economics /Civics/ History). Based on the opinion of 38% respondents of Indonesian students stated strongly agree, while 54.2% of Japanese students disagree that the number of credits social studies subjects should be greater than the number of credits now. Based on the opinion of 61% Indonesian student respondents stated strongly agree, while 41.7% of Japanese students expressed doubt that they were quite confident with the provision of social studies lectures that they received during the lecture.

Regarding the students’ perceptions from social studies education at FTTE Sriwijaya University with students of FE in Kochi University Japan on learning social studies, as follows:

Based on the opinion of 61% Indonesian students stated strongly agree, while 50% of Japanese students agreed that the lecture of social studies subject was fun. Furthermore, in the opinion of 53% Indonesian students of respondents stated strongly disagree, while 45% of Japanese students disagree that social studies lecture was boring. Based on the opinion of 28% Indonesian students stated strongly disagree, while 50% of Japanese students expressed doubt that social studies subjects should be made easier. Based on the opinion of 52% Indonesian students stated strongly agree and 50% of Japanese students agreed that social studies lecture would be fun if it was implemented by way of a direct visit to the real conditions in the field. Moreover, 52% Indonesian students of respondents stated strongly agree and 58.3% of Japanese students agreed that social studies lecture was fun if lecturer did the interactive learning methods. Based on the opinion of 48% Indonesian student respondents stated strongly agree and 41.7% of Japanese students agreed that social studies lecture was fun when learning was centered on the student (student centered learning). Based on the opinion of 59% Indonesian student respondents stated strongly agree, while 45.8% of Japanese students expressed doubt that social studies course encourage them to think critically.
Based on the opinion of 60% of Indonesian student respondents stated strongly agreed, while 58.3% of Japanese students expressed hesitated when the social studies material delivered by lecturer were easily understood. Based on the opinion of 62% Indonesian students of respondents stated strongly agree and 37.5% of Japanese students expressed doubt that social studies was fun, as lecturer presented it in an interesting way. Based on the opinion of 51% Indonesian student respondents stated strongly agree, while 58.3% of Japanese students expressed doubt that social studies subjects was easier to understand than the other subjects. Next, 66% Indonesian student respondents stated strongly agree and 54.2% of Japanese students agreed that the lecturer of social studies subject was able to manage a class. Based on the opinion of 31% Indonesian student respondents stated strongly agree, while 41.7% of Japanese students agreed that it was better if the class management of social studies classes was done by arranging the sitting position. Based on the opinion of 46% Indonesian student respondents stated strongly agree, while 54.2% of Japanese students agreed that social studies lecture was fun if using the appropriate learning media. Based on the opinion of 32% Indonesian student respondents stated strongly agree, while 45.8% of Japanese students expressed doubt that social studies subject was boring because it only used power point.

Based on the opinion of 54% Indonesian student respondents stated strongly agree, while 41.7% of Japanese students expressed doubt that social studies subject was fun because the lecturer used varied instructional media. Based on the opinion of 52% Indonesian student respondents stated strongly disagree and 37.5% of Japanese students study subjects agreed that social studies was simply learnt by reading social studies books only. Based on the opinion of 47% Indonesian student respondents stated strongly agree, while 45.8% of Japanese students agreed that the assessment of social studies learning must be comprehensive (affective, cognitive and psychomotor). Based on the opinion of 40% Indonesian student respondents stated strongly disagree, while 50% of Japanese students disagree that the assessment of social studies subject was not only from the results of assessment. Next, 46% Indonesian student respondents stated strongly agree, while 58.3% of Japanese students expressed doubt that social studies subject had transparent assessment. Based on the opinion of 55% Indonesian student respondents stated strongly agree and 41.7% of Japanese students agreed that the assessment of social studies subject was accountable.

Furthermore, the students' perceptions of social studies lesson at schools from students majoring in SSE of FTTE and FE Kochi University as follows:

Based on the opinion of 57% Indonesian student respondents stated strongly agree and 50% of Japanese students agreed that social studies lesson in junior high school was the blend of field study of geography, sociology, economics and history. Based on the opinion of 52% Indonesian student respondents stated strongly agree, 41.7% while the Japanese students expressed doubt that social studies lesson aims to make students become good social citizens. Based on the opinion of 54% Indonesian student respondents stated strongly agree, while 37.5% of Japanese students expressed doubt that junior high school social studies lesson required students to think critically. Next, 35% Indonesian student respondents stated strongly disagree, while 37.5% of Japanese students expressed doubt that the students who successfully learn social studies can memorize the social studies material. Based on the opinion of 66% Indonesian student respondents stated strongly agree, while 45.8% expressed doubt that the form of social studies learning had the umbrella theme of four studies examined namely geography, sociology, economics and history.
Based on the opinion of 62% Indonesian student respondents stated strongly agree, while 54.2% of students expressed doubt that social studies lesson in junior high social was formulated on the basis of reality and social phenomenon that embodies the interdisciplinary approach of aspects and branches of social sciences. Based on the opinion of 55% Indonesian student respondents stated strongly agree, while 50% of Japanese students expressed doubt that social studies lesson in Indonesia emphasis on the knowledge of the people, the spirit of nationalism, socialism, as well as community activities in the economic field in space or space The Unitary State of the Republic of Indonesia **).

Based on the opinion of 47% Indonesian student respondents stated strongly agree and 58.3% of Japanese students agreed that social studies was developed as an integrative social studies subjects, not as educational disciplines. Based on the opinion of 64% Indonesian student respondents stated strongly agree, while 62.5% of Japanese students expressed doubt that the social studies lesson related to various social problems that are formulated with an interdisciplinary and multidisciplinary approach. Based on the opinion of 56% Indonesian student respondents stated strongly agree, while 58.3% of Japanese students expressed doubt that the assessment of social studies in junior high school should be comprehensively test the ability of cognitive, affective and psychomotor.

Based on the opinions of respondents of lecturer of Japan, it can be seen that the most obstacles when teaching the social studies subject namely: a) knowledge of the students varied, b) deviation between subjects and curriculum, and c) adjusting student learning and development. The means used to overcome obstacles when teaching social studies subject by lecturers in Japan, namely: a) describes the return of material to students whose knowledge is lacking, b) increasing the activity of students in participating in the learning process, and c) the ability of lecturers needs to be improved to provide learning materials to conform to the curriculum will be achieved. Moreover it can be known social studies which is being or has been done has been good, in terms of curriculum, instructional media, educators, facilities and infrastructure. The suggestions given by Japanese lecturer against the social studies subjects given by lecturers, namely: a) it is better if the learning methods used according to the characteristics of students (elementary, junior high, high school and university), and b) should have the experience and knowledge of the student and curriculum needs to be enhanced.

The obstacles experienced by students in learning social studies that are:: a) the material is too much and too broad, b) the material is considered difficult, c) the lack of field practice, d) the number of terms used, e) lack of facilities, f) learning activities focused on power point) the teacher explains the material too fast, h) and a noisy classroom atmosphere. While from Japanese students, it can be known that the most experienced obstacles when following social studies lecture were as many as 18 people (75%). Obstacles experienced are: a) lack of concentration, activity and learning motivation of students while attending the learning process, b) social studies so much that nothing is taken simultaneously, c) learning materials IPS difficult to understand because it does not demonstrate concretely, d) students have difficulty in answering questions during the test (test), e) lack of ability of teachers to do a variety of teaching such as teaching methods that tend to use the lecture method.

The ways used to overcome the obstacles when having social studies lecture by Indonesian university students, namely: a) self-learning through a variety of sources, b) resume material, c) field visits, d) teachers teaching with a variety of methods, e) and the current focus of learning activities, while the ways used to overcome obstacles while following social studies lecture by Japanese students are: a) for students to understand social studies in addition to classroom learning, students should learn
independently and exchanged ideas in group discussion activities, b) to address social studies subjects that is too much, it needs to regulate the subjects taken in each semester, and c) the ability of teachers also needs to be improved in delivering learning materials.

While, according to Indonesian student respondents, it can be known that there is already a good thing in learning social studies which are being pursued, namely: a) curriculum, b) the ability of teachers in presenting the material, c) the methods used during the learning process, and d) the ability to manage the class. Things that are not good enough is about learning social studies that are being pursued, namely: a) room facilities (ac, fan, narrow place), b) facilities that support learning activities (LCD, internet) c) and lecturers who teach in a monotonous way. Next, according to Japanese student respondents, it is known that social studies learning which is being pursued are quite good in terms of the curriculum, and evaluation processes, and facilities. Students who have a good opinion about social studies learning on the part of the curriculum which is the evaluation (test) still does not show the progress of from participating the social education subject from the middle to the top because not all the subject matters can be submitted through the exam.

The suggestions given by Indonesian students on social studies, are: a) improving the facilities and infrastructure in the learning activities, b) using methods and instructional media were varied and not monotonous, c) conducting site visits to the field in order to understand more the learning, d) creating a pleasant atmosphere during the learning process, e) and performing the learning activities in groups. While the suggestions given by the Japanese students on social studies, are: a) in following social studies , the group formed by diverse characteristics of students so that all students can work in groups, and b) in learning process, students are not only taught about the theory, but also the practice in social studies,i.e performing simulations.

How to overcome these problems, namely: a) for students to understand social studies in addition to classroom learning, they should learn independently and exchanged ideas in group discussion activities, b) to overcome social studies subject which are too much, the regulation of the subjects that should be taken in each semester is needed, and c) the ability of teachers also needs to be improved in delivering learning materials.

**Conclusion and Recommendation**

There are some similarities between the concept of the curriculum in Indonesia and in Japan especially in middle and high school level (in Japan their subjects are geography, history and civics), while at the primary level, if in Indonesia starting from the first class, while in Japan starting in grade 3. The goal of SSE Department of FTTE US is to produce social sciences educators (Economics, History, Civics). The three subjects of economics, history and civics are still partial because social studies education is majoring those three study programs. Meanwhile, in Japan, especially in university, social studies are not taught, except in FE at Kochi University. Social studies purposes are making good Social Studies teachers, who have knowledge, abilities, attitude and skills as defined in Diploma Policy of FE. In terms of content designed in the curriculum of each study program (Economic Education, History and Civics), the total of credits is 144 credits, of which only nine subjects are the same, and in accordance with the concept of Social Studies theory, only course of Fundamentals of Geography, Social Education, Sociology and Civics. In FE, University Kochi there are 149 credits, which are grouped into four major groups of history, Geography-Topography
Writing jurisprudence, Politics, Philosophy and Ethics subjects. Next is a group of Sociology and Economics subjects.

In terms of process, FTTE Sriwijaya University use a variety of learning methods and multi-ways, while at FE, Kochi University, Social Science learned more unidirectional. Implementations of learning in both faculties are classical. The learning process is done by LCD media and power point. At the beginning of the lecture, the lecturers are dominant, give expository material by watching a power point, and end with the provision of the question in the form of handouts, students do some individual assignments, group presentations, etc. Moreover, they agree if not all students have to study SS subjects. They enjoy learning social studies, and would be happy if the lecture is fun by using a variety of methods, as well as the appropriate media. The students also agree if the lecturers who proponent the social studies subject can manage the class well. Thus, almost half of them agree if the social studies learning have student centered learning, so they also agree if the assessment should be comprehensive and accountable. The results showed that there are some students of Japan who answer hesitantly, while Sriwijaya University students agree to the statement that social studies subjects can make students thinks critically, material presented by lecturer is easily understood, social studies are fun, and assessment social studies subject is tangible, even Kochi students agree if social studies learned only from books, while Sriwijaya University students clearly state strongly disagree with the statement. Kochi students also generally answer that they are doubt on the assertion that the purpose of social studies is to make students become good citizens, capable of making critical students, social studies in junior high school are formulated on interdisciplinary phenomenon, these subjects are about national and social, the assessment is also comprehensive.

The obstacles of Sriwijaya University lecturers, are classroom atmosphere is unfavorable due to inadequate classroom seen from a comparison of broad classes with many students, the lack of teaching facilities such as air-conditioning, projector, fan and others. There is a density of material so that the lecturer has difficulty in sorting out the course material. Students’ obstacles, among others, the material is too much and wide, while the lecturer explains it too fast by using one method only (lecture), supported also by less conducive atmosphere so students are lack of concentration. There is also a lack of field practice. The way to overcome them is that they generally do self-learning through a variety of sources, and discussion among students. Another way is to conduct field visits.

Obstacles that Japanese lecturers have when teaching social studies subject are the variety levels of knowledge of students, the deviation between the subject and curriculum. Ways in which to overcome is the lecturer re-explains the material which is not yet understood by the student, and also to increase the activity of students in following the learning process. In addition, lecturer also needs to improve the ability to provide learning materials to fit the curriculum that will be achieved. The obstacles of students in learning social studies is their evaluation does not show the progress of the subject that has been followed since the evaluation does not represent all of the subject matters that has been studied.

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PEDAGOGY OF INCLUSIVE EDUCATION

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Abstract: A historic moment for the Disability Rights Movement in India was created when the Act on Rights of persons with disabilities (RPWD) was passed in December 2016. This breakthrough legislation will directly affect at least 26.8 million differently-abled persons in the country (2011 census). One of the salient features of this Act is that every child with benchmark disability between the age group of 6 and 18 years shall have the right to free education. Government funded educational institutions as well as the government recognized institutions will have to provide inclusive education to the children with disabilities. Inclusive education is now no longer a matter of choice. It’s now a matter of right. There are innumerable challenges in the process of inclusive education. The access of children with disabilities to mainstream educational institutes has improved but equity and engagement of these children is far from achieved. All schools meet the needs of all the children may be an unsurmountable goal in Indian scenario with huge number of students in a class and fewer qualified teachers available. This conceptual paper points out to a growing body of literature on inclusion in order to reflect upon enquiries into practice of inclusive education in India. The various models of inclusive education are discussed. This paper focuses on pedagogy which can make inclusion of children with special needs possible. Differentiated instruction and cooperative learning can address the diverse needs of children in a classroom. What can be differentiated and how it can be differentiated is explained in the paper. Mainstream class teachers can reflect upon the strategies emphasized in the paper for effective teaching and creating an inclusive classroom environment.

Keywords: RPWD Act, Inclusive Education, Children With Special Needs, Differentiated Instruction

Introduction

When India became free of the British colonizers in 1947 a partitioned and badly scarred nation needed to begin social reconstruction. The major achievement was the launch of the ICDS program also in 1974, The Integrated Child Development Program, (ICDS) as a part of India’s Fifth five-year plan. The District Primary Education Program (DPEP), which followed focus on integration in the areas of teacher training, removing architectural barriers and in providing appropriate aids and did fare well but was unable to include a vast majority of children with disabilities in mainstream education (Pandey and Advani, 1995).

It was recognized by the government that people with disabilities have the same right to education as other citizens but the needs of a nation grappling with a myriad problems, poverty and sheer survival needs of its people made it difficult to sustain focus on the development of services for disabilities.
In 1974, a major shift in education for the child with disability was achieved with the launch of the comprehensive Integrated Education for the Disabled Child (IEDC). The Government launched Project Integrated Education Development (PIED), which provided teacher training, methodology for identification of children and school facilities as support services. It was only in 1986 when the Parliament of India adopted the National Policy on Education (NPE). Equality of opportunity was formally stated as a goal of education and the phrase “education for the handicapped” was used.

Children in general became the special focus of the government only when The Ministry of Education set up by the British was later divided into the Ministry of Social Justice and Empowerment and the Ministry of Human Resource Development. Children with disability were recognized as needing specialized care and disability was specifically put under the jurisdiction of the Ministry of Social Justice and Empowerment. The 93rd amendment to the Indian Constitution passed in December 2001, affirmed the Government’s commitment to Education for All (EFA) including children with disabilities. Right to Education (RTE) Act was passed in 2009. This Act was in line with the United National Convention on the Rights of Persons with Disabilities (UNCRPD), to which India became a signatory in 2007. This was to fulfill the obligations on the part of India in terms of UNCRPD. Sarva Shiksha Abhiyaan, a flagship programme under RTE started in 2012 with aim to implementation of Universalization of Elementary Education (UEE) and working to improve quality education of all children in the age group 6–14. While the Government of India is making policies for inclusion at pre-primary level, the Scheme of Inclusive Education for Disabled at Secondary Stage (IEDSS) has also been launched from the year 2009-10. This Scheme provides assistance for the inclusive education of children with disabilities in classes IX-XII. The objective is to enable all students with disabilities, after completing eight years of elementary schooling, to pursue further four years of secondary schooling in an inclusive and enabling environment.

The most historic moment was when the Lok Sabha passed “The Rights of Persons with Disabilities Bill - 2016”, now called the RWPD Act. In the new Act the types of disabilities have been increased from existing 7 to 21. Every child with benchmark disability between the age group of 6 and 18 years shall have the right to free education. Government funded educational institutions as well as the government recognized institutions will have to provide inclusive education to the children with disabilities.

**Inclusive Education**

Inclusion is a way of thinking and a philosophy. Inclusive education means reducing barriers to learning and participation for all students, not only those with impairments or those who are categorized as ‘having special educational needs’, but any child who is marginalized due to gender, economic background, cultural ethnicity or may be caste etc. Inclusive education is based on the premise that all students have a right to education in the schools in their locality. Schools need to respond to the diversity of students in the classrooms. More deeply, it is about being recognized, accepted and valued for oneself. Regular schools with inclusive orientations are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all.

In India where there is too much of diversity, there are many barriers to inclusive education. First and foremost, there are attitudinal barriers which are reflected in the community. People believe
disabilities are because of past karma or sins committed in previous births. Parents hide the disability of their child. The school administrators and teachers have a discriminatory attitude towards any child who cannot learn in a conventional method. They believe children with special needs cannot learn in mainstream schools and should be segregated.

Facilitating inclusive school environments requires ensuring physical access, the opportunity for optimal learning and social experiences, and providing a nurturing climate. Today when India has a mandate for inclusive education, it’s not a matter of choice but a matter of right. The Central Board of Secondary Education (CBSE) has sent an advisory to all schools titled ‘Inclusive Practices in CBSE schools’ (Circular 45, dated 29th October 2008). Some of the guidelines in this document include, to ensure that no child with special needs is denied admission in Mainstream Education; to revisit classroom organization required for the education of Children with Special Needs; to ensure regular in-service training of teachers in inclusive education at the elementary and secondary level. Following these guidelines is a challenge for any mainstream school. Apart from creating admission policies and hiring qualified people, the question of how to provide amenities to special children, arises. Therefore, training of general education teachers to modify or implement teaching methods to be inclusive is needed. Teachers need to ensure that they have the knowledge and skills to adapt their teaching to include all children and the willingness to learn about the experiences of children with disabilities. Yes, with the huge numbers of students in our classrooms, lack of trained teachers, lack of infrastructure, limited resources, full inclusion may be an unsurmountable goal. One can look at various models of inclusion and pedagogy which can benefit more and more children with diverse needs in a mainstream class.

Models of Inclusive Teaching

In response to the call for full inclusion, several alternative service delivery models have been developed and implemented. Each model has its own unique quality, yet there are several common elements among them.

- **Resource room model**

  One key element, for the success of inclusion, is the collaboration between general and special education teachers. In a regular school, there is a resource room wherein the special educator provides support to the child with special needs directly or supports the class teacher in addressing the needs of the child with special needs. The resource room teacher, usually a special educator, provides remedial, compensatory and developmental instruction, in small groups. Depending on the philosophy and attitudes that guide each school’s special education programme, the resource room teacher may provide specialized assistance to promote and support inclusive experiences. Or, by providing all instruction in a segregated class, the resource room teacher may create a barrier to inclusion.

- **Team teaching**

  Another model of inclusion that has shown success is team teaching. In this model, the general education and special education teachers join together and teach all students in one class as partners. The concept of team teaching needs to be carefully thought out and collaboratively pre-planned. Effective co-teaching occurs when the teachers are equal partners. They must both contribute to every
phase of the class work, including planning and evaluation. Successful team teaching needs to be effectively planned and supported with needed resource materials. Successful team-teachers must honestly look at their personal willingness to collaborate. Sharing a job that traditionally belongs to one person takes a great deal of cooperation and highly skilled communication. Administrative support and leadership, capable and willing participants, staff development, balanced classrooms, scheduled co-planning time, and teacher commitment are necessary for this inclusionary model to succeed. The teachers also benefit from team teaching by having increased job satisfaction and more professional growth.

- **Cooperative learning**

Exponential increases within the school curriculum and spectacular changes in student demographic characteristics, make it extremely difficult for even the most responsive teachers to provide a high-quality education for all students. These challenges become more formidable when teachers attempt to meet the needs of students with mild disabilities in a general education classroom. Traditional teacher centred models are replaced by alternative models of instruction which are learner centred, constructivist and collaborative. Cooperative learning and peer tutoring assist classroom teachers in meeting such instructional challenges.

Cooperative learning is the instructional use of small groups in an inclusive classroom so that students of differing abilities work together to maximize their own and each other’s learning. It is based on the principles and techniques for helping students work together more effectively (Jacobs, Power, & Loh, 2002). Cooperative learning involves more than just asking students to work together in groups. Instead, conscious thought goes in to helping students make the experience as successful as possible. Cooperative learning, according to the research (Johnson, Johnson, & Stanne, 2000), offers many potential benefits that include increased self-esteem, greater liking for school, enhanced inter-ethnic ties, and improved complex thinking.

- **Peer tutoring**

Peer mediated instruction is used as a strategy by an inclusive class teacher when a special child is integrated fully in his peer group of typical children. A special child learns better when taught by a peer. It also helps the peer buddies in their own learning. It has been observed that children with disabilities interact with other children more frequently in inclusive settings than in segregated settings. However, in the absence of adult intervention, typical preschoolers in inclusive settings are more likely to select other typical preschoolers as playmates rather than those with disabilities. Peer-mediated intervention has been one of the strategies used successfully to increase social interaction between children with and without disabilities in inclusive settings. It supports academic learning of atypical children. Teacher has to act as a facilitator and monitor the progress of both typical and children with special needs.

- **Differentiated instruction**

All students should develop their potential as independent and strategic learners across learning, social, motivational, and executive domains.
In any class, it is highly improbable that all children will be working at the same level. The teacher who teaches everything at one level in the expectation that all the children will learn is unlikely to succeed. In any class, it is unlikely that all the children learn in the same way. Differentiating the teaching to address a range of levels is more likely to benefit the whole class. Students may require learning outcomes which are different from those of their peers. The range of learning styles and outcome needs requires teachers to be flexible and adaptable in their approaches. Differentiation consists of the efforts of teachers to respond to variance among learners in the classroom. Whenever a teacher reaches out to an individual or small group to vary his or her teaching in order to create the best learning experience possible, that teacher is differentiating instruction (Tomlinson, 2001).

The children with disabilities have varied academic requirements which are generally not met in a regular classroom. Teachers must design the academic and social environment of the classrooms so that students develop the skills and attitudes required to interact across perceived differences and disabilities.

Tomlinson (2010), defines differentiated instruction as a philosophy of teaching that is based on the premise that students learn best when their teachers accommodate the differences in their readiness levels, interests and learning profiles. Thakur (2014) in her study focuses on the four areas by which the teachers can differentiate viz. i. through content: the information that must be learned, ii. process: The combination of activities and input from the teacher that engage the learner in the content, iii. product: The outcomes of student learning that demonstrate understanding or mastery, and iv. learning environment: that refers to how the classroom is designed to meet the needs of the students.

According to Rose (2007) differentiation can be done in the following ways:

- Differentiation of content
  
  Students in a group all work towards a single aim, but use several different reading schemes to get there.

- Differentiation of structure
  
  Some students work on a step by step (task analysed curriculum) whilst others work on “chunks”.

- Differentiation of curricular sequence
  
  Students enter the curriculum at different points or take part in the curriculum in a different order from that of their peers.

- Differentiation of outcome
  
  Teacher may ask one student to write a story, another draws a picture to tell the story and another records the story on audio tape.

- Differentiation of level
  
  All students work through a similar sequence, in maths for example, but at a variety of levels.
Differentiation of teaching style

Teacher plans for some students who may require individual instruction whilst others can work in small groups or pairs.

- **Differentiation by interest**

  Teacher plans activities based on the students’ interests. For example, all students are producing graphs, but their graphs represent different data according to their personal interest.

- **Differentiation by grouping**

  The teacher groups particular students together for specific activities. Students act as supporters, or work with peers with whom they are comfortable or confident.

- **Differentiation of access**

  Teacher plans materials or methods of working different for individual students. For example, whilst one student writes with a pencil another uses a computer and another produces pictorial work.

- **Differentiation of Pace**

  All students may work at the same task, or with the same materials, but the teacher has different expectations of the time required for completion.

- **Differentiation of teacher time**

  The teacher gives more time to some students during specific tasks in order to ensure access.

**Conclusion**

There are common threads that run through the various methods of teaching disabled learners: accurate and thorough evaluations, involved and committed instructional staff, parent-professional partnerships, and an understanding that every child, regardless of ability, is an individual. These elements provide the foundation of inclusive education. Teachers must be philosophically committed to meeting the needs of all students in the general education classroom. Teachers must plan and think about the needs of diverse learners and provide differentiated instruction. Teaching practices that meet the needs of all students must be incorporated into the instructional program. General education teachers must collaborate with special education teachers to assess, teach, and monitor student progress. Inclusive education would lead to all children growing into empathetic, supportive, and caring individuals which are much needed in the society today.
References


PEACE EDUCATION: A TRANSFORMATIVE RESPONSE TO SOCIETAL CHANGE

C. S. Vazalwar & Ragini Dubey

Abstract: Education as defined by Mahatma Gandhi is an all-round drawing out the best in child and man, body, mind and spirit completely supports the statement of Daniel Webster that the purpose of education goes beyond the propagation of knowledge. It indicates that knowledge does not comprise all that is contained in the larger term of education. Education means the feelings are to be disciplined, the passions are to be restrained, true and worthy motives are to be inspired, and pure morality is to be inculcated in all circumstances. But the situation today is totally different, even more people are educated but still violent conflict is increasing everywhere and unavoidable, thus in the process by which we can address conflict and minimize violence called peace education. It seeks to reduce violence and promote peace with the help of education. In an educational set up it helps to establish child-friendly learning environment that are rights-based, gender-sensitive, healthy and safe for children, protective of them and successful in helping them to learn. It has a place in all societies not only in countries undergoing armed conflict or emergencies because the lasting behaviour change in children and adults only occurs over time, effective peace education is necessarily a long-term process, not a short-term intervention. The UNICEF vision of quality basic education considered it as an integral part that can promote the culture of peace and inspire being an integral part this issue is not as much addressed as it should be. Therefore, the paper is an attempt to discuss the related components in details to make the implementation easy. Components in this paper include: concept of peace and peace education, levels of peace (peacekeeping, peacemaking, and peace building), objectives of peace education, strategies, evaluation of programmes and importance of peace education to bring about constructive changes, both locally and globally.

Keywords: Peace, Peace Education, Peacekeeping, Peacemaking, and Peace building

Overview

Education as defined by Mahatma Gandhi is an all-round drawing out the best in child and man, body, mind and spirit completely supports the statement that the purpose of education goes beyond the propagation of knowledge. Similarly, as indicated by Daniel Webster, “Knowledge does not comprise all that is contained in the larger term of education. Education means the feelings are to be disciplined, the passions are to be restrained, true and worthy motives are to be inspired, and pure morality is to be inculcated in all circumstances.” But the situation today is totally different, even more people are educated but still violent conflict is increasing everywhere and becoming unavoidable, various developmental changes have failed to bring equity, peace and harmony in the society, rather is has resulted in serious social, political and economic imbalances, problems and value
crises. It is paradoxical that on one hand the human being has grown as the most developed and intelligent species ever existed on the earth but on the other hand became extremely self-centered, individualistic, intolerant and even self-destructive (Pandey, 2004). Thus the emerging world society calls for a transformation from narrow nationalism to universalism, ethnic and cultural prejudice to tolerance and from technologically divided world to a united one. A desperate need is being felt by educationists, philosophers, and political leaders to rejuvenate the human values and the process by which we can address such conflicts and minimize violence called peace education. It seeks to reduce violence and promote the peace with the help of education. Peace education as defined by the UNICEF (1999) refers to “the process of promoting the knowledge, skills, attitudes and values needed to bring about behaviour changes that will enable children, youth and adults to prevent conflict and violence, both overt and structural; to resolve conflict peacefully; and to create the conditions conducive to peace, whether at an intrapersonal, interpersonal, intergroup, national or international level.”

**Objectives**

The UNICEF vision of quality basic education considered it as an integral part that can promote the culture of peace and inspire being an integral part this issue is not as much addressed as it should be. Therefore, the paper is an attempt to discuss the related components in details to make the implementation easy. Components in this paper include:

- Concept of Peace and peace education;
- Levels of peace (peacekeeping, peacemaking, and peace building);
- Objectives of peace education;
- Strategies for peace education;
- Evaluation of programmes;

Importance of peace education to bring about constructive changes, both locally and globally.

**Concept of Peace**

The idea of peace is difficult to define as it is an elusive concept which has many interpretations ranging from as simple as absence of war and violence to as complex as the ability to cope with conflict or war. Peace has also been associated with peace of mind or inner peace as Lord Buddha propounded this concept and said that mind is the forerunner of all the things. Similarly the preamble of UNESCO’s constitution also mentions that since war begins in the minds of men, it is in the mind of men where the defense of peace must be constructed. Several incidents around us clearly indicate that peace is not just the absence of war and violence. For example, the cold war between the US and the Soviet Union was one of the times which certainly were not peaceful.

The leading figures in peace studies give us insight into what it means to actually make peace. Mahatma Gandhi has given a much broader explanation of violence to clarify the concept of peace. He envisaged a non-violent society which would be free from exploitation of any kind and believed that it can be achieved through the instrument of education. He emphasized Satyagraha and chose self-suffering as substitute for violence to others because he firmly believes that to punish or destroy the oppressor is to initiate the cycle of violence and hatred. So the defining aspect of violence is that it takes two parties to perpetuate it. Violence is a tactic and oftentimes, it is also the counter-tactic to violence. For instance, if we think about a bully in school: their violence allows them to get
things they want from others without giving anything back. For those bullied, the way to deal with bullies seems to be either to give in or fight back. Here to fight back will initiate the cycle of violence and it will come under counter tactic to violence.

**Peace Education**

Historically, moral instruction and value education were the precursors of peace education. They share much in common. Religion, according to the National Curriculum Framework for School Education (NCFSE) 2000, is a source of value generation. Values and attitudes are the building blocks of the culture of peace. Then, why a new perspective is been added to increase the burden of teacher and students? Actually peace education is not an increase in curriculum load but it calls for a significant reduction in conflict, war, violence, tension, and exploitation. Peace embodies the joy of living, the essence of life. In today’s world, hurry and worry sour the joy of learning and challenged the harmony of life. This is the stark reality to which the increasing incidence of suicide among students draws our attention. We live in an age of unprecedented violence: locally, nationally, and globally. It is a serious matter that schools, which are meant to be the nurseries of peace, become transmission points for violence. To take a recent example, the alumnus of a well-known college in Delhi, was found to be running a kidnapping racket in Patna. The words children use are violent. Their tastes and games are violent. Their relationships are violent. But they cannot be blamed as they come from violent homes.

Student violence is not new today, young age of the students is in the news for bringing weapons to elementary and middle schools (The Press of Atlantic City); incidents of theft and violence including student violence against teachers are on the rise in America's schools (federal report). A group of students accused of violence at Ramjas College and a 20 year girl told that she was being threatened with rape after her social media posts (NDTV); hundreds of students, clashed with the security forces in Kashmir during protests against police action in a college (April 17, 2017). What are the causes of this outbreak, and what the educators are doing about it? There are many cases where we heard about teachers’ violence towards students. Teacher molests eight year old student (Hindustan Times, 4 December 2004); Teacher blinds a class III student with pen (punished for being inattentive in class) (Hindustan Times, 20 January 2005); Teacher pulls out five year old’s hair, keeps her standing (the child was punished for not bringing a plastic bag to carry some art assignments) (Hindustan Times, 17 March 2005).

For students, teachers are role-models who play a role, unintentionally, in propagating violence if they are not oriented to peace. Children close their ears to advice and open their eyes to example. This is especially true in the Indian context where teachers are respected as the source of knowledge and wisdom. Students will learn peace values only if these are modelled by their teachers and elders.

**Levels of peace**

Today, violent conflict is everywhere and although it is unavoidable, various types of strategies are there for achieving peace which can be summed up under three basic categories: peacekeeping, peacemaking, and peace-building. Peacekeeping generally involves like police or military action and strives to achieve peace through strength and force. Peacemaking is a varied approach to resolve conflicts, ending injustice, and preventing violence. It involves communication skills like conflict resolution and mediation strategies for learning to interact non-violently with others. Both of these categories are reactive approaches that kick in after a violence-inciting incident has occurred. On the other hand, Peace-building is a more proactive approach that uses peace education as a means of creating a more stable and peaceful culture to prevent violent incidents from occurring. Peace
education is critical to creating a culture that reduces the need for peacemaking and peacekeeping by developing a comprehensive programme that teaches people how to interact with others and avoid unnecessary aggression.

**Objectives of peace education**

Equipping individuals with the values, skills, and attitudes they need to be wholesome persons who live in harmony with others and as responsible citizens is the goal of peace education. It seeks to reduce violence and promote peace with the help of teaching learning process. Objectives of peace education are as follows:

**Appreciate the concept of peace:** Literature such as novels and religious text, films and documentaries; fine art such as paintings and photography; and even performance art such as theater and music all provide a rich environment for understanding the concept of peace and appreciating the art.

**Address fear:** Dismantling the deeply rooted fear is one of the goals of peace education. Peace educators are prepared to allay the fears among their students about major world conflict and war, as well as their own interpersonal conflicts.

**Provide information about security:** Peace education students need to understand the way national security systems work so they can begin to conceptualize alternatives to war for keeping the nation safer in the future.

**Develop intercultural understanding:** War is often a direct result of ‘otherness’ and so for developing a deep understanding and respect of other cultures is critical to promoting peace.

**Future orientation:** It is important for students to see the potential for a future without violence. Peace educators create a hypothetical future that takes a long range view of possible choices we make today. This approach promotes a hopeful optimism to show students that it is possible to make changes to the future based on today.

**Teach the process of peace:** Peace education is not entirely theoretical; students need to learn practical skills and actionable steps they can take to bring about peace. Teaching this process helps students feel comfortable addressing conflict peacefully in their own lives and get involved on a societal level.

**Strategies of peace education**

Teaching students to make peace among themselves, as well as in communities and in the world, is an important task. It includes all those efforts can be done to help the students be independent, respectful, and responsible citizens and ultimately make the world a better place. One approach to all of these issues is to think in terms of peacemaking. However peacemaking is not something that can be taught in one lecture or through one simple lesson. Instead, needed to inculcate it as a habit and a way of life, and this takes time and practice. Strategies of peace education are as follows:

**Conflict resolution training:** Students in conflict resolution training learn coping skills, anger management, taking responsibility, seeking compromise, improving communication and listening skills, articulating needs, and differentiating fact from emotion. As the focus is on an individual's experiences and means of managing conflict, this strategy is more about interpersonal concerns, rather than global addressed by the other types of peace education below. These micro social issues may include interactions such as one's relationships with friends and family, authority figures like teachers or employers, or other people they encounter in their daily routine like customer service workers.
Democracy education: Democracy education tends to emphasize on the political process of conflict and operates on the assumption that increasing democratic opportunities can reduce conflict in non-democratic societies that typically resort to war and violence. It can be provided by training students in debate, building coalitions, critical thinking and by promoting individuality, tolerance, and freedom of speech. Students are trained to hold their government accountable through the democratic process and engage in the adversarial system of a multi-party democracy with mutual respect of the opinions of others.

Human rights education: Human rights education emphasizes on a more global, universal approach based on fundamental principles of human rights to be treated with dignity and protected from oppression or violence. It is focused on teaching students about the United Nations declarations on peace education as well as how to recognize when a person or group is being treated in such a way that violates the Universal Declaration of Human Rights. In areas where conflict is embedded in the community, human rights education can become difficult and actually lead to greater conflict. When severely oppressed groups learn that they have universal fundamental human rights that have been denied to them, they may lash out with violence. Situations like this warrant a practical approach, perhaps first by introducing democracy education and training and passive resistance and nonviolent action.

Besides all these a great way to help students become peacemakers is to involve them in such activities that encourage them to take responsibility for their own growth and learning. The activities are as follows:

Quilt of Peace: This activity will appeal to the artists and visual learners in the class. In this activity students are given a square of fabric to draw or write about a situation conflicted to them. Then, each student swaps the square with another student and instructed to draw a scenario that represents peace getting made in their partner's conflict. Finally, students work to glue the conflict and peace squares into a large quilt. As they work, they will have to collaborate thoughtfully to construct a quilt that makes visual sense.

Improvisation Role Plays: This activity is great for kinesthetic learners as well as those with a dramatic flair. In this activity students are instructed to portray a conflict scenario from school, home or recess. When the students complete the act, teacher makes them freeze and choose volunteers to offer suggestions for how to make peace in that situation. In this way actors play out different possible scenarios, and get a chance to talk about the different outcomes, advantages and disadvantages.

Co-curricular Activities: Students can be motivated to learn and develop skills for peacemaking by including peace issues in debates, seminars, audio visual shows, dramas, composing peace poems, peace songs etc.

Day’s celebration: Participation in various days observed internationally, such as, Human Rights Day, Childrens’ Day, Day for the Disabled, Girl Child Day, Environment Day, etc. will develop a sense of sensitivity towards others. Religious festivals and national days could be celebrated in the school and in the neighbourhood.

Evaluation of programmes

Ideally, planning for evaluation should be included in the initial process of planning and designing the programme. To carry out an evaluation of such programmes, steps are as follows:

1. Development of clear statement of aims for the peace education programme.
2. For each aim, desired outcomes will be decided which should be written in behavioural terms.
3. For each outcome, several indicators will be decided which should also be expressed in behavioural terms.
4. Prior to the intervention baseline data will be collected on the group to be studied and on control group for each indicator. Data may be collected through the use of focus groups, surveys, questionnaires, rating scales, interviews, observations, and reviews of school records. The significance of any results of research and evaluation depends on the collection of baseline data.
5. After the implementation data will be collected again related to each indicator.
6. Result will be drawn comparing both of the data before and after intervention.
7. To know whether the outcomes of the programme have been sustained or not data will be collected again relative to the indicators.

**Importance of Peace Education**

In an educational set up it helps to establish child-friendly learning environment that are rights-based, gender-sensitive, healthy and safe for children, protective of them and successful in helping them to learn. In a peace-minded quality education system, learners acquire literacy, numeracy, and important life skills such as critical thinking, decision-making, communication, negotiation, conflict resolution, coping, and self-management which can be applied to specific contexts including peace building and violence prevention. It has a place in all societies not only in countries undergoing armed conflict or emergencies because the lasting behaviour change in children and adults only occurs over time. Effective peace education is necessarily a long-term process, not a short-term intervention, but this is the way through which children and young people will be empowered to participate in bringing about constructive changes, both locally and globally.

**Conclusion**

If we sit back and think about a scenario of war; Art, film, news, music, and photography have all worked to capture our sense of war a lot. There are even dozens of video games we can buy that simulate the experience of battle. Now, what do we imagine when we think of peace? War-making is a long discussed and concrete idea and subject, but peacemaking is one that receives less media hype. While the formal academic study of peace is relatively new, several notable historical figures of the 20th century have engaged in overt peace education as a means of achieving their goals of harmonious nonviolence. Gandhi, Mother Teresa, and Martin Luther King are the most famous of them.

As stated by Mahatma Gandhi, “If we are to teach real peace in the world we shall have to begin with children” and the time has come. Teaching peacemaking to students can have a profound impact on their lives. Students who know how to make peace can see themselves as leaders and important members of their communities. Making peace is a skill that students can transfer into all different parts of life. In the backdrop of violence, our former president Pranab Mukherjee once said, “there is no room in India for the intolerant Indian”. At the same time, he underscored that students must engage in reasoned discussion and debate rather than propagate a culture of unrest. Emphasizing the value of peace he further pointed that the time has come for collective efforts to re-discover the sense of national purpose and patriotism”.
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EUROLOGIST: EXPERT SYSTEM FOR EARLY DIAGNOSIS
AND INITIAL REMEDIES FOR URINARY DISEASES USING
RETE ALGORITHM

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Abstract: The system called eUrologist is an expert system that diagnoses and gives initial treatments to help not only those people who experience urinary disease but also helps any user to prevent and be knowledgeable about the urinary diseases. This technology interacts with the user by converting the knowledge of an expert into a software code and applies it to a system to produce a result. The developed mobile based urology expert system gives further information on urinary disease and gives initial treatment. The methodology used is Rapid Application Development to conceptualize and plan for the development. To support the expert system in decision-making, the Rete Algorithm was used for the simulation of questions and diagnosing diseases to display the possible result. The mobile application was evaluated based on usability, functionality, and efficiency using the ISO 9126 software quality measurement as an evaluation tool. The survey method was also conducted to an expert in urology and the common user that experience the symptoms in the urinary. Thus, the result of the evaluation was interpreted as acceptable with an overall rating of 4.19.

Keywords: Expert System, Mobile Application, Rete Algorithm

1 Introduction

1.1 Background of the Study

National Kidney and Transplant Institute (NKTI) in Manila, Philippines said over 5,000 Filipino patients were undergoing dialysis due to urinary problems and if it may take this to severe cases, 1.1 million people nationwide were on the renal replacement therapy or worst, death. According to the Department of Health (DOH) of the Philippines, there are 23,000 Filipino's in different ages are having complications in their urinary system per year and it is increasing 10 out of 15 percent year after year. It includes the Urinary Tract Infections (UTIs), Interstitial Cystitis (IC), Kidney Stones, Benign Prostatic Hyperplasia (BPH), Prostatitis, Urinary Retention, Urinary Incontinence, Bladder Prolapse and Urethral Stricture. Based on the study of DOH, the urinary diseases can occur at any age, and sometimes it develops as we get older than we expect. Additionally, some people think those urine infections are part of aging, but they do not know that there is a possibility of having these types of urinary diseases.
Mobile devices have become commonplace in healthcare settings, leading to rapid growth in the development of medical software applications for these platforms. Mobile health apps and devices are making a strong impact in the healthcare industry, as they may even be able to diagnose disease and prevent the likelihood of developing dangerous medical conditions. We came up with the idea of developing a mobile application that focuses on the common urinary diseases that give an early diagnosis and initial treatment which are home remedies and suggested medicines due to many reported cases of people having a certain urinary disease from their personal experience and their family members.

1.2 Objective of the Study

The general objective of the project is to develop a mobile application that will diagnose common urinary diseases.

The specific objectives of the study are:

- To develop a mobile application that will give initial remedies based on the diagnosed disease such as medications and home remedies.
- To implement the RETE Algorithm in examining the symptoms to produce a diagnosis.
- To evaluate the mobile application regarding usability, functionality, and efficiency using the ISO 9126 software quality measurement as an evaluation tool.

1.3 Significance of the Study

This study could contribute to help people who are experiencing some symptoms of the urinary diseases by the provision of initial remedies like home remedies and suggested medicine/s based on the diagnosed urinary disease. It will also be significant to ordinary people by providing them information about the common urinary diseases and its initial remedies. This study could also contribute to the information and communications technology by providing a reference and guidelines in developing an expert system especially in diagnosing diseases. And to the urologists, the application will help them to provide a faster diagnosis and initial remedies.

1.4 Scope and Delimitation

The scope of this study is all about:

- Giving information about the common urinary diseases such as Urinary Tract Infections (UTIs), Interstitial Cystitis (IC), Kidney Stones, Benign Prostatic Hyperplasia (BPH), Prostatitis, Urinary Retention, Urinary Incontinence, Bladder Prolapse, and Urethral Stricture.
- Providing initial treatment for the urinary diseases such as home remedies and suggested medicine/s.
- Giving video presentations about the urinary diseases.
- Converts texts into a spoken voice output.

The delimitation of this study are as follows:

- This study does not cover the cancer issues such as bladder cancer and kidney failure.
It does not include the laboratory test instruction or any machine related to cure this type of urinary disease.

- The application can only be deployed in Android Operating System.
- The system doesn't need an internet connection or mobile data to retrieve information.

2 Theoretical Framework

2.1 Review of Related Literature, Studies, and Works

The study conducted by (Venkateswarlu et al. 2012) entitled "Building a Legal Expert System for Legal Reasoning in Specific Domain." In artificial intelligence, an expert system is computer systems that emulate the decision-making ability of a human expert. Usually, Expert systems are building to resolve compound problems by conducting reasoning regarding knowledge, resembling an expert. The first expert systems were designed in the 1970s and then reproduced in the 1980s. The first victorious software in Artificial Intelligence is Expert systems. It is very cumbersome to build an expert system which is having the ability to a reproduction of logical decision-making process of the human expert. To perform Legal reasoning needs understanding, analyze certain legal case rules which are possible to build a computer logic which appears to replicate aspects of this process.

Based on this study, an expert system is a computer system that emulates decision making, similar to that; our system will have a decision-making concerning examining the symptoms to decide what appropriate diagnosis and treatment to give; The mobile application will act as an expert in providing reliable information about health.

The study entitled "Expert System for Diagnosis and Management of Kidney" by (Amosa et al. 2015). A web-based expert system for diagnosis and management of kidney disease presented. Along with the explosive increase of information services using World Wide Web (WWW), the practical application of web-based expert system has shown tremendous growth. One of the most important branches of Artificial Intelligence is the expert systems. Expert systems are application oriented. An expert system is a computer application that solves complicated problems that would otherwise require extensive human expertise. The study aims to design and implement a web-based expert system for diagnosis and management of kidney diseases. For the development of an expert system, free e2gLiteexpert system building tool (shell) implemented as a Java applet was applied which equipped with an inference mechanism and a knowledge base, and the web interface developed with the use of HTML. The system asks questions of the user to elicit the information needed to recommend or give a final result based on the user input and uses IF-THEN rules to represent knowledge. The system tested with domain data set, and results provided by the system, validated with domain experts.

This study is some kind similar to the process of the expert system the researchers propose specifically the decision-making. But it is only intended for a web-based, and only focuses on kidney disease, unlike in their mobile application; it is a mobile-based expert system for which the user can use without an internet access. The eUrologist mobile application provides information, correct
diagnosis and proper treatment which are not only for kidney diseases but also for the diseases concerning the urinary.

The study entitled "Expert Systems for Urinary Incontinence" by (Lopes et al. 2006). A simple rule-based logic system developed for preoperative assessment of women complaining of involuntary loss of urine and scheduled to undergo surgery. The aim of the mobile application, according to the authors, was to use the parameters obtained from urodynamic investigations to arrive at the correct diagnosis. The expert system shell (a) EXSYS, a rule-based system with the possibility of assigning probabilities to the different solutions, was used. Tree diagrams created for each diagnosis and the corresponding predictive values (statistical approach) calculated; then rules based on the authors’ experience (heuristic approach) were added. The results of testing the expert system prospectively, 100 patients showed that the system had a good performance for stress incontinence, but not for mixed incontinence. In another article, the authors presented the results of a testing on 54 patients. The systems had high specificity for all diagnoses, but little sensitivity for urge and mixed incontinence. The authors concluded that the expert system had been found reliable in a clinical setting and was used for teaching purposes, but the results for urge and mixed incontinence are not so satisfactory.

From this study, it is only made to advise the patients to consult directly with the expert to have several tests regarding the symptoms they have, but in our application, the user will be able to know their diseases and be able to apply the initial treatment, to avoid hassle in seeing a doctor.

2.2 Framework/Design Concept
Figure 1 Conceptual Framework of the Developed System

Figure 1, shows the conceptual framework of a mobile-based expert system on the following: input, process and the output. These three elements were discussed in detail, to aid the reader on the outcome of the study. This framework served as a guide information as to how the equipment used in the conduct of the research. These are the things needed to develop, for the study of the eUrologist mobile based expert system. Objectives need to achieve, thorough knowledge of the system, software, and hardware requirements required. The actual software needed to run the program and in depth study of the hardware (physical) should also be evaluated for the completion of the project.

3 Research Methodology

3.1 Project Design

Figure 2 Three-tier System Architecture

Figure 2, shows how the application works. In the Presentation tier, the user will select from the symptoms which are displayed by the application. The application will display the diagnosis and initial treatment based on the user's symptoms. The logic tier shows the logical process and solution for the system; the knowledge base is the expert who serves as a guide to develop the application. The RETE algorithm including the inference engine will use for examining the symptoms will make the decision-making to be able to display appropriate diagnosis and early treatment. In the Data-tier where the database works which is SQLite database that can use as storage of gathered data and factual information.
Knowledge-Based Necessary information is intended to store in the expert system in the form of facts and rules (this is the series of IF statements). It is a collection of rules or other information derived from the available books and knowledgeable persons called experts. The researchers have an interview with doctors.

We interviewed with Dr. Joseph Jacinto, M.D, Dr. Ma. Doreen Ambrosio, M.D, Dr. Diosdado Limjoco, M.D from Manila, Philippines, according to them the usual symptoms that the person may encounter are fever, chills, pain on urination and the causes of these are water intake, poor hygiene, prolonged consumption of salty food and urinary retention. The initial treatment that can make it are water therapy, antibiotics/pain relievers, proper hygiene practice, avoidance of salty foods and not to control urination.

Inference Engine - Forward Chaining

Forward chaining starts with the available data and uses inference rules to extract more data until a goal is reached. In the expert system for urinary diseases, the user will give symptoms such as a change in color of the urine, frequent urinating, back pain, etc. Then it will explore further to examine the symptoms to find those rules which will satisfy the IF condition until it reaches the appropriate diagnosis.

Domain Knowledge - Decision Tree

The system will drive to the solution by reducing the set possible symptoms of the user with a series of decision or questions to get an appropriate diagnosis and proper remedies.

Conflict Resolution Strategies - Specificity

The proportion of negatives correctly identified as the percentage of healthy people who correctly identified as not having the condition. In technical, fire the rule with the most conditions attached. It will apply for the decision-making as to which rule should fire first.

RETE Algorithm

A high burden can place on the inference engine in resolving conflicts resolution in expert systems. In alleviating the burden, RETE algorithm can use. The RETE algorithm is a method which maintains a list of rules whose conditions match the facts in the working memory, alleviating the strain on the inference engine. The RETE algorithm is memory-intensive but can improve the efficiency of an expert system. It can be implemented in coding part because RETE algorithm tailored for the Java language. It also adapted to an object-oriented interface. RETE Algorithm can be broken into two, Rule Compilation and Runtime Execution. It is a Technical Algorithm that shows decision-making.

The symptoms can match to codes in determining condition and rule by this process Data & Rules, Match, Select, Execute. An example of it is while values of symptoms remain to be input it reads Diagnosis then assign to symptoms, Evaluate Diagnosis base on symptoms, Execute Rules whose conditions satisfied.

Developmental Research
Developmental research is a study which focused on the progressive changes that occur as a project develops. In this study, the researchers will apply changes in the development of the application. From the proposed features, the system will diagnose a specific urinary disease and will give initial remedies. Also with the design, they will have a prototype showing the design they use for the application, but as the development process continues, since we are using RAD as our methodology, there was a rapid construction of prototypes and changes applied in the application to make it better. The difference in the progress of the application is noticeable.

3.2 Project Development Methodology

Figure 3 Rapid Application Development Model Design

Figure 3, shows Rapid Application Development (RAD), is a methodology that uses minimal time in planning to give favor in rapid prototyping, granting software to be created fast and makes an easy change of the requirement. RAD is the best use for projects where the objectives are well enumerated and defined, data set for the project is existing already, can quickly take the decision, the development team is small, and architecture of the project is well defined. We use this kind of methodology because the development time of the mobile application must be adjustable to the unexpected changes and decision from the testing, checking and evaluation.

RAD Process:

Business Modelling: The business model for the study of development designed concerning flow and distribution of information between various business channels. And the researchers collected all the participants of the study or known as to be the target users and defined how to process the flow of information within the application.

Data Modelling: All gathered information from the Business Modelling phase is studied and analyzed to form sets of data objects essential for the business. And they identified all data sets and relation of data objects in relevance to the business model. And we defined the scope and delimitation of our study.
Process Modelling: The defined data object sets in the Data Modelling phase are converted to create the business information flow needed to acquire specific business objectives as per the business model. We have created the movement of information through how to obtain the objective of the study. Also, they defined an architectural prototype, development plan, any changes needed in this phase. And they also described the design of the application and how to make it feasible that can have the same interesting and useful feature for the target users.

Application Generation: The actual application is being constructed, and the coding is being done using automation tools to convert process and data models into prototypes. Automated tools are used to convert process models into the code and the actual application.

Testing and Turnover: When the prototypes independently tested during iteration, the overall testing time reduced in RAD model. However, the data flow and other components needed to test thoroughly. And due to the testing of most of the components, the risk of any major issues is reduced.

3.3 Evaluation

We used the ISO 9126 standard or Software Quality Standard as the basis for us to measure the acceptability of the application. We used criteria as usability, functionality, and efficiency. And to determine the feasibility and usability of the application, we came up with a survey form based on ISO 9126 standard and have the responses scaled using the Likert scale. A Likert scale is a psychometric scale commonly used in research that conducts surveys or questionnaires. Likert scale is the most widely used approach in scaling responses in survey research, such that the term is often used interchangeably with a rating scale. With this approach, several degrees of agreement or disagreement, the respondents were asked regarding usability, functionality, and efficiency.

4 Results and Discussions

We implemented the knowledge base in the first component of our mobile application by interviewing an expert about the symptoms that we used. The first process is selecting the symptoms of the user what they feel. The inference engine started when the user has selected the symptoms which are a link in the database. The expert system provides disease information, get a diagnosis, videos, and glossary, regarding the Urinary Diseases.
Figure 4 Symptoms Selection

Figure 4, shows how we implemented the Rete Algorithm in Diagnosis part in selecting symptoms. After selecting symptoms, it has a submit button to proceed in the Question Activity which is the questioning part of the diagnosis. The Rete Algorithm is also used in retrieving questions from the database.

Figure 5 Questions and Answer

Figure 5, shows how the Rete Algorithm is used when getting a question from the database. The first question will be the basis of the expert to move forward in identifying the next question to be asked using the else if condition. Then, there is a list of a follow-up question to identify the disease. If the user doesn’t understand the question, there is available help button for the technical terms. Each answer of the user will be stored in the database, and it will be retrieved in the Result Activity.

Figure 6 Result and Treatments

Figure 6 shows how the Result Activity will retrieve the final answer that is simulating an inference engine. The resulting activity shows the image of the disease, its specified home remedies,
and its suggested medicine from the experts and a notice below stating that the result might not be complete. There is a button for the text to speech function to start and it will change its icon to stop. There is also a button for the home, disease information, and videos. Using if else function, pressing the home button will proceed to the menu. By pressing the disease information button will proceed to disease information activity. And, the video button will proceed to the video activity.

Respondents

Table 1  Total Number of Respondents

<table>
<thead>
<tr>
<th>Type of Respondents</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Urologist</td>
<td>2</td>
<td>25%</td>
</tr>
<tr>
<td>2 Persons experiencing the same symptoms</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1, shows the type of respondents and the total number of it. The researchers summarized the evaluation and tabulated the results.

Results

The users scored this mobile application by giving five (5) as the highest score and (1) as the lowest.

Table 2  Summary of Results

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Users</th>
<th>Overall Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rating</td>
<td>Interpretation</td>
</tr>
<tr>
<td>Functionality</td>
<td>4.05</td>
<td>Agree</td>
</tr>
<tr>
<td>Usability</td>
<td>4.12</td>
<td>Agree</td>
</tr>
<tr>
<td>Efficiency</td>
<td>4.4</td>
<td>Agree</td>
</tr>
<tr>
<td>Mean</td>
<td>4.19</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Table 2, shows the scale, rating and its equivalent interpretation used in the evaluation. The user can rate the system according to the scale and rating provided. With an interpretation corresponds to every rating.

4.1 Evaluation of Results

We decided to survey with the urologists and people who experience the same kind of symptoms in Manila, the Philippines that are not too busy to take the survey. Surveying urologists would benefit the group in a lot of ways such as gathering information about how they feel or think about the current application.

We focused more on the urologists because experts are more knowledgeable than another respondent regarding the Urinary disease. The survey questions can be easily answered with a rating of 1-5.
We surveyed two urologists. The experts said that the current system is easy to access and user-friendly and said that eUrologist mobile application should be detailed in providing information and possible solutions to urinary diseases. Fifteen End Users were satisfied.

With the information that the group has gathered, the new system should still be user-friendly and can easily be accessed, and the eUrologist will be more detailed, and these are the no. of respondent as shown in Table 1.

5 Summary, Conclusion, and Recommendation

5.1 Summary

The objective of the study was to develop a mobile application that will diagnose common urinary diseases. It involves providing initial remedies for the common urinary diseases and how to prevent from having it.

The research started with data gathering and establishing a prototype. The next step includes the development of the mobile application using Rapid Application Development as the methodology. During the development, we applied the Rete algorithm. The application also involves information and videos about the common urinary diseases.

The mobile application was evaluated using the ISO 9126 which were the usability, functionality, and efficiency; the results were all interpreted as agreed. The mobile application was able to deliver its functionalities based on the judgments given by the participants of the study. The objectives were also met based on the outcome of the development of the mobile application.

5.2 Conclusion

In conclusion, the eUrologist application was able to provide diagnosis about the common urinary disease based on the symptoms the user feels which also provide initial remedies based on the diagnosed urinary disease such as home remedies and suggested medications. Rete algorithm was integrated into the system for handling the user's input and making decisions using the rule base; the application will come up with the possible results of the urinary disease and will give initial remedies or treatment.

The development of the mobile application was made possible using the following technologies: Android Studio, which was used for implementing the functionalities; DB Browser Slight, which served as the application’s database; lastly, Adobe Photoshop which was used for designing the interfaces.

Based on the survey conducted by the researchers, the respondents were very satisfied with the application and passed the factors such as usability, functionality, and efficiency based on ISO 9126 standard, and it resulted in a mean rating of 4.19 that interpreted as agree rate.
5.3 Recommendation

To add more features and functionalities to the mobile application, we recommend it to be available also in IOS operating system and other operating systems available in the market. Also, adding a feature like voice recognition to simplify the diagnosing process. Plus to add more diseases to be diagnosed like in the reproductive, respiratory and nervous system diseases.

References


METACOGNITIVE SKILLS AMONG MALAYSIAN STUDENTS IN TRANSITION INTO HIGHER LEARNING INSTITUTIONS

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Abstract: The Malaysian school environment that is teacher centered, and coupled with high performance expectation of students’ in public examinations, often produce highly dependent learners. Thus, they face difficulties when the transitioning from schools into higher education institutions that expects them to be more autonomous. One of the main requirements for a student to become a self-regulated learner is to have metacognitive skills. Metacognition is a rich construct that underlies self-regulated learning. It blends three major topics in scientific psychology: the nature of knowledge, relations between knowledge and behavior and agency. To test the metacognitive skill among the students, they were given the Metacognitive Awareness Inventory (MAI) that comprises of two major components – knowledge about cognitive (metacognitive knowledge) and regulation of cognitive (metacognitive regulation). This research looked at the two components within metacognitive skills; metacognitive knowledge and metacognitive regulation and it sub-components, to provide practical suggestions on what needs to be done to facilitate the development of metacognitive skills among foundation level students in a private institution of higher learning in Malaysia.

Keywords: Metacognitive Skills, Malaysian Students, Self-Regulated Learning

Introduction

Malaysian formal education starts with early childhood education catering for children from the ages of above four to six years old. This is followed by 6 years of primary education, which is compulsory. The official entry age to primary education is seven and above six. After completing primary education, students move on to lower secondary education (Forms 1-3), and then complete 2 years of upper secondary education before finishing eleven years of school. Post-secondary education may be pursued through a two-year Form 6 programme (equivalent to A-Levels) leading to a certificate or through a one-year matriculation or foundation programme generally offered by private institution of higher learning. These programmes are considered preparatory programmes for entrance into undergraduate studies in university. In total, the 12-13 years of schooling serves as the basic entry requirement into the first year of a bachelor’s degree programme in Higher Learning Institutions (HLI). In Malaysia, the term ‘higher learning’ covers all post-secondary education leading to the award of certificates, diplomas and degrees.

In most Malaysian public schools, Tan and Goh (1999) discovered that, a guided, didactic teacher-
centered approach is generally accepted practice of teaching and learning where teachers are generally viewed as authority figures imparting knowledge, and providing direction. Dependent learners have a teaching-learning relationship where the teacher’s role is that of a director of learning and the learner is to respond to the teacher’s directions. Ramasamy (2002) reports that, secondary schools in the Malaysian context are being caught up in 'teaching to the test'. Wong (2004) said as long as you study and memorize what you learn, you can do well. He also added that, the Malaysian assessment system requires students to remember all that they have learnt and to reproduce their learning in the examination in order to do well. Recent studies have confirmed that factors such as cultural background, instrumental motivation and educational culture has an influence on fostering learner autonomy (Hu, 2016) and the many years in the Malaysian school system has affected the ability of most Malaysian students to be independent learners.

Zubir (1988) had argued that, some of the factors that cause learning disabilities among the fresh HLI students are the new educational system and the overloaded curriculum and disagrees that Malaysian students are so used to spoon-feeding that they cannot learn without it. According to Samarawickrema (2005), it is also possible that they were all new to tertiary study and the independence it allowed, and were still developing their skills in managing time, self-discipline and working within a self-created timetable as opposed to being disciplined by the teacher and the structure of the classroom.

But findings from Ziguras (2001), after visiting five transnational institutions located in Malaysian, Vietnam and Singapore, concluded that students in these institutions were of a 'spoon-fed' type with lack of self-directed learning, and a desire for close supervision from teaching staff. Ziguras (2001), also quoting lecturers’ feedback indicated that Malaysian students expected to be spoon-fed, were scared of saying the wrong things, and wanted more direction, supervision and greater attention from lecturers. Yong (2010) added that, no longer spoon-fed with notes and model answers as in Malaysian secondary school, pre-university students need high self-efficacy to develop independent study skills and critical thinking skills essential for academic success. Unfortunately, independent learning and problem-solving skills are rarely emphasized in Malaysian schools, which tend to be exam-oriented and authority-centred. These similar characteristics have been observed in the Malaysian students enrolled in the foundation programme.

Many scholar tend to perceive Asian or South East Asian students as surface leaners that rely very much on the syllabus and textbooks, and are more teacher-directed and less self-directed in classroom discussion (Kember, 2000; Leung, Wang & Chan, 2007; Tani, 2005; Ziguras, 2001). A study by Yong (2010) on Malaysian secondary and undergraduate students also, described them as surface rote leaners, unfamiliar with deep approaches to learning. The aim of their study was merely to pass examinations and to get a job after graduation. More recently Goh, Wong and Osman (2012) conducted a study with Malaysian students in public higher learning institutions and revealed that Malaysian students tend to use achieving approach to learning which allows them to do well in exams, but is externally driven to gain higher grades. This would explain the consistent request of the foundation students to provide more past year questions and tutorials (Davies, 2016).

Thang and Alias (2007), and Thang (2009) also revealed that the majority of students from public and private universities in Malaysia lacked personal autonomy and preferred a teacher-centred approach to learning. Both studies are in agreement with the previous studies where researchers have criticized
Malaysian undergraduates as accustomed to the traditional method of teaching, as dependent, and as adoptive of a surface and reproductive approach to learning (Ali, 2000; Smith, 2001).

This study intends to determine the metacognitive skills the post secondary students have upon enrollment into the foundation programmes. The sample consists of 81 students from the 4 different foundation programs in The University of Nottingham Malaysia Campus. Students were asked to complete the Metacognitive Awareness Inventory (MAI), which has 52 statements that measure the 2 major components of metacognition; metacognitive knowledge and metacognitive regulation. Metacognitive knowledge comprises three subscales: Declarative knowledge, Procedural knowledge, and Conditional knowledge. Metacognitive regulation consists of five subscales: Planning, Information management, Monitoring, Debugging, and Evaluation. This study examines metacognitive awareness using the Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994) among students of the Foundation programs in The University of Nottingham Malaysia Campus (UNMC) and to specifically look at how students score in the two major components, which is metacognitive knowledge and metacognitive cognition as well as the sub-components in them.

Metacognition

Metacognition was originally referred to as the knowledge about, and regulation of one’s cognitive an activity in learning processes (Flavell, 1979; Brown, 1977) but it is often simply defined as ‘thinking about thinking’ (Livingston, 1997). Flavell (1979), who first used the term, offers the following example: I am engaging in metacognition, if I notice that I am having some trouble learning A than B; if it strikes me that I should double check C before accepting it as fact. There are three general processes to regulate the use of metacognitive learning; planning, monitoring and self-regulation.

Metacognition has also been referred to as an awareness of one’s own knowledge and what one does and doesn’t know-and one’s ability to understand, control, and manipulate one’s cognitive process (Meichenbaum, 1985). Metacognition is a higher order thinking that involves active control over the cognitive processes engaged in learning (Livingston, 2003). Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress towards completion of a task, are metacognitive in nature. Hacker, Dunlosky and Graesser, (2009) summarise all of this by saying that metacognition allows people to take charge of their own learning. It involves awareness of how they learn, evaluation of their learning needs, generating strategies to meet these needs and then implementing the strategies. All these are components that bring about self-regulated learning.

Metacognitive Skills

Metacognition is often simply defined as “thinking about thinking” and most often associated with Flavell (1979). It is the awareness learners have about their general academic strengths and weaknesses, cognitive resources they can apply to meet the demands of a particular task and their knowledge about how to regulate engagement in tasks to optimize learning processes and outcomes (Winne & Perry, 2000).

Metacognition is a rich construct that underlies Self-Regulated Learning (SRL). It blends three major topics in scientific psychology: the nature of knowledge, relations between knowledge and behavior and agency. Metacognitive awareness and self-regulation are cognitive skills, which can impact
performance and are typically classified as factors liable for individual differences. In other words, these variables are different across individuals and tend to vary according to personal factors, such as, gender, personality, experience, educational background, and so on (Hashempour, Ghonsooly and Ghanizadeh, 2015). There are two-phase description that partitions metacognitive events into metacognitive monitoring and metacognitive control (Flavell, 1979, 1987). Metacognitive knowledge is a person’s declarative knowledge about the interactions between person, task and strategy characteristics, whilst metacognitive control refers to a person’s procedural knowledge of regulating one’s problem-solving and learning activities (Brown & DeLoache, 1978; Veenman, 2005).

Although all three components play an important in succeeding at independent learning, this study will focus on metacognition as it is the underlining components of SRL which is the most needed skill for students transitioning from dependent to independent learning environments. Furthermore, there are already studies done on the different areas of the internal components.

Self-Regulated Learning (SRL)

Self-regulated learning (SRL) is defined as an active and constructive process through which learners can set goals, monitor and control their cognition, motivation and behavior (Pintrich, 2000). Effective practice of self-regulated strategies, allows for active processing of information (Murray, 2000), which leads to academic success (Pintrich, 1999; Pintrich & De Goot, 1990). From a social cognitive perspective, self-regulatory processes and accompanying beliefs fall into three cyclic phases: forethought, performance or volitional control, and self-reflection processes.

![Figure 1: Three-phase self-regulated learning based on Zimmerman 2000.](image)

Self-regulated learning is metacognitively guided, partly intrinsically motivated and strategic (Winne, 1995, 1997; Zimmerman, 1990). Self-regulation can be measured in two ways as an aptitude or as an event. An aptitude describes a relatively enduring attribute of a person that predicts future behaviour. An event is like a snapshot that freezes activity in motion, a transient state embedded in a larger, longer series of states unfolding over time. In this research I will be assessing SRL as an aptitude. When measuring SRL as an aptitude, a single measurement aggregates over or abstracts some quality of SRL based on several SRL events. Similarly in this research, the foundation students are not being assessed over one single event but on several SRL events. The most common protocols for measuring SRL as an aptitude include questionnaires, structured interviews and teacher ratings (Zimmerman &
Martinez-Pons, 1988). Below is the list of SRL facets that have been examined in contemporary research.

**Metacognitive Knowledge (Knowledge about Cognition)**

Metacognitive knowledge refers to acquired knowledge that can be used to control cognitive processes which also known as knowledge of cognition (Moshman, 2017). Flavell (1979) further divides metacognitive knowledge into three categories; knowledge of person variables, task variables and strategy variables. Knowledge of a person variable refers to general knowledge about how human beings learn and process information, as well as individual knowledge about one’s own learning processes. For example, you may be aware that your study session will be more productive if you work in a quiet library rather than at home where there are many distractions. Knowledge of task variables, include knowledge of the nature of the task, as well as the type of processing demands that it will place upon the individual. For example, you may be aware that it will take more time for you to read and comprehend a science text, than it would for you to read and comprehend a novel. Knowledge about strategy variables, include knowledge about both cognitive and metacognitive strategies as well as conditional knowledge about when and where is it appropriate to use such strategies. Alexander et. al (1995, 2006) showed that metacognitive knowledge develops along a monotonic incremental line throughout the school years, parallel to the development of intellectual ability of students. Metacognitive knowledge is crucial for independent learning because it fosters forethought and self-reflection (Hacker et al. 2009).

**Metacognitive Monitoring (Regulation of Cognition)**

In metacognitive monitoring also known as regulation of cognitive or metacognitive control processes, the learner samples a subset of information in the environment and compares it to a profile of standards (Moshman, 2017). The result of this operation is a profile of differences as well as qualities of the operations that it generated and the learner chooses options. It is the gateway to self-regulating one's learning (Butler & Winne, 1995; Winne, 1996, 1997) because without the cognitive evaluations it creates, there is no standard against which to enact regulation. Metacognition monitoring focuses on the progress of the cognitive process in which the person is engaged (Serra & Metclafe, 2009) and produces information like a list of matches and mismatches between (a) the standards for a task and (b) a representation in working memory of the products of the task (Winne & Perry, 2000).

**Protocols for Measuring SRL**


Questionnaires are easy to administer to large groups but scores on these questionnaires hardly correspond to actual behavioural measures during task performance (Veenman, 2005, Veenman, Prins and Verheij, 2003). Off-line methods are presented either before or after task performance, whereas
on-line assessments are obtained during task performance (Van Hout-Wolter, 2000, Veenman, 2005). Questionnaires are generally self-report assessments that may not fully measure students’ use of SRL and therefore need to be backed up with other methods of assessment like interviews.

**Methodology**

This study involves students from four foundation programmes at a private higher institution of learning. The foundation programmes are the engineering, science, arts and education as well as the business programme.

The accessible population is approximately 100 Malaysian students who are enrolled in the four foundation programmes at a large private higher institution of learning. Student from the July intake of the 2016/2017 cohort with SPM qualifications will be selected.

**Instruments**

Purely quantitative data collection and analysis was used in this study. There are two components to the survey administered to the students. The first component contains information about the research, eligibility of the students as well as the consent form. The second component consists of the Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994).

**Metacognitive Awareness Inventory (MIA)**

MAI or Metacognitive Awareness Inventory is a 52 item self-reported assessment that will take approximately 8-10 minutes to complete. It looks at the two components of metacognition that is Knowledge of Cognition and Regulation of Cognition.

The knowledge of cognition component consists of three scales; declarative knowledge, procedural knowledge and conditional knowledge. The regulation of cognition component consists of five scales; planning, information management strategies, comprehension monitoring, debugging strategies and evaluation. The operational definitions of the different scales will be described in detail in the subtopics below.

**Procedure**

The MAI questionnaire was distributed to students in the four foundation programme in the second week of their first semester in the programme. Students were first given instructions in general about the study, before being given a detailed information sheet as well as a consent form. The information sheet talks about the study and the eligibility of the student. If the students fulfil the criteria as Malaysian students who are SPM school leavers and above the age of 18, they will be eligible. Only students who were eligible and consent to participation in the study were given the questionnaires. After the MAI was completed, the sheets were collected scores were given for each student based on the eight components measured.
A descriptive statistical test was run to find the mean and standard deviation of the two variables, which are metacognitive knowledge (knowledge of cognition) and metacognitive regulation (regulation of cognition). A factor analysis was also done further to find the strength of each subcomponent within the two major components.

**Results**

The results of applying the methodology are presented and analyzed in order to extract meaningful data from the raw statistics. These findings are then discussed to clarify how they can contribute to the purpose of the study.

**Descriptive Statistics**

To investigate the normality of the distribution, descriptive statistics for the two variables of the Metacognitive Awareness inventory were analyzed based on the 81 participants. Table 1 presents descriptive statistics of transition students’ metacognitive awareness.

The descriptive statistics (Table 1 and Table 4) shows the overall mean and standard deviation for the two main components – Knowledge of Cognition and Regulation of Cognition. As for the Knowledge of Component section, the mean for Declarative Knowledge is 58.64 with a standard deviation is 22.59, the mean for Procedural Knowledge is 65.12 with a standard deviation of 28.14 and the mean for Conditional Knowledge is 66.67 with a standard deviation of 25.88. As for the second major component - Regulation of Cognition, the mean of Information Management Strategies is 71.48 with 18.38 as standard deviation. Debugging Strategies with a mean of 86.42 and standard deviation of 20.45, Planning with a mean of 56.61 and standard deviation of 24.79, Comprehension Monitoring with a mean of 67.37 and standard deviation of 26.17 and Evaluation with a mean of 57.40 and standard deviation of 25.82.

**Factor Analysis**

A factor analysis was conducted to test the strength of each sub-component within the two main components of the MAI. For the first component, which is the Knowledge of Cognition, the only sub-component that showed an eigenvalue of more than 1 and variance percentage more than 50% is Declarative Knowledge. Procedural and Conditional knowledge both showed an eigenvalue of 0.64 and 0.45 respectively and accumulated variance of 36.25% for both sub-components (Table 2). As for the Regulation of Cognition component, only the Information Management Strategies and Debugging Strategies sub-components showed an Eigen value more than 1 and both these components had an accumulated variance of 71.25% (Table 5).

**Correlation Matrix**

According to Table 3, which shows the Correlation Matrix for the first main component – Knowledge of Cognition, the highest correlation was found between Declarative Knowledge and Conditional Knowledge (0.43) and between Procedural Knowledge and Conditional Knowledge (0.55). In table 6,
the Correlation Matrix table shows the strongest correlation between Comprehension Monitoring and Planning (0.563), between Debugging Strategies and Information Management Strategies (0.493) and between Comprehension Monitoring and Evaluation (0.490).

Results for Knowledge of Cognition

Table 1 Descriptive Statistics of Knowledge of Cognition

<table>
<thead>
<tr>
<th>Components of Knowledge of Cognition</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declarative knowledge</td>
<td>58.64</td>
<td>22.59</td>
<td>81</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>65.12</td>
<td>28.14</td>
<td>81</td>
</tr>
<tr>
<td>Conditional knowledge</td>
<td>66.67</td>
<td>25.88</td>
<td>81</td>
</tr>
</tbody>
</table>

Table 2 Total Variance of Knowledge of Cognition

<table>
<thead>
<tr>
<th>Components of Knowledge of Cognition</th>
<th>Total Variance</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declarative knowledge</td>
<td>1.91</td>
<td>63.75</td>
<td>63.75</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>0.64</td>
<td>21.24</td>
<td>84.99</td>
</tr>
<tr>
<td>Conditional knowledge</td>
<td>0.45</td>
<td>15.01</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 3 Correlation Matrix for the three sub-components in the Knowledge of Cognition

<table>
<thead>
<tr>
<th>Components of Knowledge of Cognition</th>
<th>Declarative knowledge</th>
<th>Procedural knowledge</th>
<th>Conditional knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declarative knowledge</td>
<td>1.00</td>
<td>0.39</td>
<td>0.43</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>0.39</td>
<td>1.00</td>
<td>0.55</td>
</tr>
<tr>
<td>Conditional knowledge</td>
<td>0.43</td>
<td>0.55</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Results for Regulation of Cognition

Table 4 Descriptive Statistics of Regulation of Cognition

<table>
<thead>
<tr>
<th>Components of Regulation of Cognition</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information management strategies</td>
<td>71.48</td>
<td>18.38</td>
<td>81</td>
</tr>
<tr>
<td>Debugging strategies</td>
<td>86.42</td>
<td>20.45</td>
<td>81</td>
</tr>
<tr>
<td>Planning</td>
<td>56.61</td>
<td>24.79</td>
<td>81</td>
</tr>
<tr>
<td>Comprehension monitoring</td>
<td>67.37</td>
<td>26.17</td>
<td>81</td>
</tr>
<tr>
<td>Evaluation</td>
<td>57.40</td>
<td>25.82</td>
<td>81</td>
</tr>
</tbody>
</table>
Table 5 Total Variance of Regulation of Cognition

<table>
<thead>
<tr>
<th>Components of Regulation of Cognition</th>
<th>Total</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information management strategies</td>
<td>2.51</td>
<td>50.25</td>
<td>50.25</td>
</tr>
<tr>
<td>Debugging strategies</td>
<td>1.05</td>
<td>21.00</td>
<td>71.25</td>
</tr>
<tr>
<td>Planning</td>
<td>0.61</td>
<td>12.11</td>
<td>83.36</td>
</tr>
<tr>
<td>Comprehension monitoring</td>
<td>0.43</td>
<td>8.53</td>
<td>91.89</td>
</tr>
<tr>
<td>Evaluation</td>
<td>0.41</td>
<td>8.11</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 6 Correlation Matrix for the three sub-components in the Regulation of Cognition

<table>
<thead>
<tr>
<th>Components of Regulation of Cognition</th>
<th>Information management strategies</th>
<th>Debugging strategies</th>
<th>Planning</th>
<th>Comprehension monitoring</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information management strategies</td>
<td>1.00</td>
<td>0.49</td>
<td>0.28</td>
<td>0.43</td>
<td>0.46</td>
</tr>
<tr>
<td>Debugging strategies</td>
<td>0.49</td>
<td>1.00</td>
<td>0.11</td>
<td>0.26</td>
<td>0.22</td>
</tr>
<tr>
<td>Planning</td>
<td>0.28</td>
<td>0.11</td>
<td>1.00</td>
<td>0.56</td>
<td>0.41</td>
</tr>
<tr>
<td>Comprehension monitoring</td>
<td>0.43</td>
<td>0.26</td>
<td>0.56</td>
<td>1.00</td>
<td>0.49</td>
</tr>
<tr>
<td>Evaluation</td>
<td>0.46</td>
<td>0.22</td>
<td>0.41</td>
<td>0.49</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Discussion

Overall the students scored pretty high (>58) mean for all sub-components in both the Metacognitive knowledge as well as Metacognitive regulation. This is contradictory to what has been seen in the students’ performance during the first year where students generally obtained lower grades in their exams. This could possibly be because the students did in fact have other factors that affected their performance during the first year (Zubir, 1988, Samarawickrema, 2005) or that scores on questionnaires generally do not correspond to actual behavioral measures during task performance (Veenman, Prins & Verheij, 2003). Self-report questionnaires are also not always reliable as students lack the ability to accurately report their use of the strategies (Boeakerts and Como, 2005; Panadero, Alonso-Tapia, and Huertas, 2012). Nevertheless the results did provide us with information on which subcomponents the students fared better in and which they didn't.

Results indicated in the first part of the MAI; the Knowledge of Cognition, students scored the highest in, Conditional Knowledge followed by Procedural Knowledge and Declarative Knowledge. There was correlation found between Declarative Knowledge and Conditional Knowledge and between Procedural Knowledge and Conditional Knowledge. This is perhaps because of the nature of Conditional Knowledge where it is uses both Procedural Knowledge and Declarative Knowledge based on conditions or situation (Schraw and Dennison, 1994).

For the second component, Regulation of Cognition; Information Management Strategies and Debugging strategies are two sub-components that contributed to more than 70% of the results while
the other three sub-components; Planning, Comprehension Monitoring and Evaluation contributed to the remaining 30%. Information Management Strategies and Debugging Strategies are correlated because both of these are skills or strategies to understand information. Comprehension Monitoring is correlated with Planning and Evaluation because of the nature of these sub-components, which are mainly to plan, and access one’s learning (Schraw and Dennison, 1994).

The results obtained for the study could be better justified by complementing it with or forms of information gathering such as at the interviews and triangulating the results against students actually class performance. Further research can be carried out to study how metacognitive awareness is varied among students from the different disciplines and explanations to possible why such differences as per our study. The content of syllabus within these disciplines could also play a part in nurturing metacognitive awareness among students. We could also use different tool such as the LASSI (Weinstein, Palmer & Schulte, 1987, as cited in Schraw & Dennison, 1994) together with the MAI to further be able to gauge students’ level of metacognitive awareness.

Conclusion

Metacognition refers to higher order thinking involving active control over the cognitive processes engaged in learning. Activities that highly involving planning how to approach a given task, monitoring comprehension and evaluating progress towards the completion of a task are all considered to be cultivating metacognitive awareness. Metacognition is important in successful learning, be in the educational environment or the workplace, so it is essential to develop metacognition in students, especially relying on the fact that our local students come from a very high dependent learning school environment. The findings reported shows that the MAI does provide reliable results to measure of metacognitive awareness among the Foundation students only as a means to compare between the subcomponents. The use of the MAI, it will be helpful strategy for us educators for planning subsequent activities in our outside the classroom that evolves around metacognitive training. The MAI also may help us to identify lower performing students who frequently display comprehension-monitoring deficiencies that can be remediated using instruction strategies. Hence, it is not only the role of the educator but this responsibility has to be expanded and encouraged everywhere including home, schools, universities and even at workplace. It is definitely a continuous development as the process of learning never ends. While the MAI is a mean to determine what type of metacognitive knowledge and regulation skills one reportedly utilise while learning, parents, educators and employers can use such tools and instruments to measure and to understand metacognitive awareness among their children, students and employees.

Acknowledgements

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References


PEDAGOGY AND ITS PRAGMATIC EFFECTIVENESS ON PUPIL’S ACHIEVEMENT IN MATHEMATICS: A STUDY OF SAMPARK IN INDIA

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Abstract: The study investigated the effect of usage of Teaching Learning Material (TLM) of Sampark on pupil’s achievement in mathematics. The Study selected the sample from Grade Two students studying in Government Primary School, Bhimtal Block of Nainital District, Uttarakhand, India.

The study named this pedagogy as Sampark means in-contact. Contact between students and between student and a teacher. Sampark pedagogy aims to develop sense of ideas, so that students work both independently and collaboratively. Sampark promotes to work with the partners in small groups. The teacher is responsible for ensuring that students understand the concepts of mathematics by contacting with each individual group and clarifying their doubts and insist them to solve their problems. Students play the participant role which includes; listening, writing, responding, questioning, work actively in group and critical assessment.

The proposed study used two different types of tools; Diagnostic Tool as Pre Test and Endline Tool as Post Test for studying the effectiveness of Sampark Pedagogy.

The Diagnostic Tool was administered between Aug- Sept 2016 and End Line Tool was administered from February- April 2017. ‘Paired T Test’ is used for analysing the assessment result in order to study the effectiveness of Pedagogy in teaching mathematics.

The study is highly original; innovative especially it is an effort, to make teaching and learning process more pragmatic and result oriented.

Keywords: TLM, Sampark, Pedagogy, Effectiveness, Pupil, Achievement

Introduction

Mathematics is considered as a key subject world-wide. It is also mandated that students should study mathematics by the end of the compulsory years of schooling. In most of the countries the aim of teaching mathematics is to gauge mathematical literacy so that students at the end of compulsory education can apply mathematical knowledge in their real life situations and equipped with knowledge to serve the nation.

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Being a teacher, we learn what matters, what engages or frustrates, what learners are good at and what they need to learn (Delpit, 2012). We also learn zones of proximal development so that we design our construction which meets the needs of the learner. Teacher has to come outside of their comfort zones and have to adopt some different methods so that it may be easy for the students to grasp.

**Key Terms**

**Sampark Foundation**

In the first phase during 2014 and 2015 the Sampark Smart Class program was implemented in 2000 schools and has trained more than 2500 teachers. On 25 Feb.2016, Sampark Foundation in collaboration with Sarv Shiksha Abhiyan, Government of Uttarakhand, India, implemented Sampark Smart Class Program in all government primary schools.’ Innovation led large scale social change’ as the central idea, Sampark Foundation founded by Mr. Vineet Nayar, Former CEO, HCL Technologies with his wife Anupama Nayar, impacting lives of 3 million children studying in 50,000 schools in Uttarakhand, Jammu and Kashmir and Chhattisgarh states of India; making it one of the world’s largest primary school transformation initiatives by a foundation. Sampark Foundation has a partnership with Sarv Shiksha Abhiyan, Government of Uttarakhand, India to enhance learning outcomes in Maths and English at Primary Level.

The objective of this initiative is that 80% of children studying in government primary school are able to perform well in basic mathematical operations and use 500 new words to speak and write in English after a year of implementation.

**Sampark Pedagogy**

Sampark is a Hindi Language word which means ‘in contact’. Sampark Pedagogy is an attempt to bring smiles to Government Primary School Students of Uttarakhand, India. The ideology of Sampark Pedagogy is to use mathematics toolkit in an effective way in teaching-learning process so that students learns mathematics with ease. The message of Sampark Pedagogy is to make learning of mathematics more interesting i.e. “Learn with Fun”.

Sampark Pedagogy for teaching mathematics used **16 TLM** having features:

(i) 3D teaching learning aids  
(ii) Games to make learning fun

The preliminary results of this pedagogy reflect that it has secured attention and interest among students in mathematics. Sampark Pedagogy helps in maintaining the relationship between teacher and students, between students and after all students’ relationship with mathematics as a subject. The essence of Sampark Pedagogy is to bring all together in contact with mathematics. It eases the work of
teacher as well as student and promotes the feelings of working in a group with co-operation and co-ordination.

**Teaching Learning Material (TLM)**

Teaching Learning Material (TLM) refers to some specific sophisticated equipment used for making teaching-learning process more interesting and interactive. TLM act like a tool in pedagogy resource centre. TLM may be hand-made creativity by the teacher or brought from the market. TLM helps in making topic more interesting and understandable for the students.

TLM is ‘By the learners, for the learners and of the learners’. Thus we can say that TLM is frugal way of making teaching more innovative and interactive. It is a frolic way of teaching and emphasis on permanent learning rather than fugitive.

**Mathematics Teaching**

School mathematics has long been seen as a static discipline rigidly defined by a known set of concepts principles and skills (Fisher, 1990). Teacher influence student’s classroom learning by their discourse. Teaching of mathematics as a subject is challenging task for teacher. An old Chinese proverb says that, ‘I hear and I forget; I see and I remember; I do I understand’.

The NPE (1996) has considered the importance of mathematics in general education and suggested that ‘Mathematics should be visualised as the vehicle to train the child, to think, reason analyse and to articulate logically’. Mathematics, by and large is taught in a stereotyped and mechanical way in schools. ‘Experience has shown that the majority of students normally fail in Mathematics at the end of class X (NCERT 2000).

National Curriculum Framework (NCF, 2005) stated that developing children’s abilities for mathematician is the main goal of mathematics.

**Mathematics Tool-Kit- Primary School**

Teaching of mathematics is very poor in government primary schools of Uttarakhand, India. Most of the students are from economically backward strata of the society. According to National Achievement Survey Class V Uttarakhand, NCERT 2014, Education Survey Division Report. The report reveals that in Uttarakhand performance of students was lower as compared to overall average on all the content areas of mathematics.

Sampark Mathematics Tool-Kit includes 16 TLM, their information as shown in Table.
Table 1: Sampark Mathematics Tool-Kit

<table>
<thead>
<tr>
<th>No.</th>
<th>TLM</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Square Counter</td>
<td>Coloured Square Counters are used for learning numbers</td>
</tr>
<tr>
<td>2.</td>
<td>Round Counter</td>
<td>Coloured Round Counters are used for learning</td>
</tr>
<tr>
<td>3.</td>
<td>Number Line &amp; Clip</td>
<td>In a group of 10 beads, there are 100 beads in a wire</td>
</tr>
<tr>
<td>4.</td>
<td>Base 10 Block</td>
<td>Yellow Cubes- Unit, Blue Rods- 10th and Green- 100th Place</td>
</tr>
<tr>
<td>5.</td>
<td>Play Money</td>
<td>It helps the students learn transactions in day to day life</td>
</tr>
<tr>
<td>6.</td>
<td>Operation Mat</td>
<td>It represents unit, 10th and 100th place and helps in solving problems (BODMAS)</td>
</tr>
<tr>
<td>7.</td>
<td>Place Value Strips</td>
<td>Strips of different colours represent unit 10th and 100th position</td>
</tr>
<tr>
<td>8.</td>
<td>Special Blocks</td>
<td>Blocks of different shapes; Triangle, Square, Rectangle, Circle</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and Hexagon, help the students identify them</td>
</tr>
<tr>
<td>9.</td>
<td>Geo Board</td>
<td>Square Board with pegs, by the help of rubber band students will draw figures</td>
</tr>
<tr>
<td>10.</td>
<td>3D (Solid Fig.)</td>
<td>Cylindrical, Cube, Cuboid, Pyramid, Cone, Prism- Students identify these pictures and their respective features</td>
</tr>
<tr>
<td>11.</td>
<td>Pattern Block</td>
<td>6 Figures of different colours; Y - Hexagon, O - Square, R</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rectangle, G - Triangle, B - // Gram, W - Rhombus (Fig. Shapes)</td>
</tr>
<tr>
<td>12.</td>
<td>Clock</td>
<td>Time related problems by the help of wooden clock</td>
</tr>
<tr>
<td>13.</td>
<td>Add./Sub Chart</td>
<td>Chart helps in learning addition and subtraction of numbers</td>
</tr>
<tr>
<td>14.</td>
<td>Dice</td>
<td>3 pairs of dice of different colours helps in learning numbers</td>
</tr>
<tr>
<td>15.</td>
<td>Hundredth Chart</td>
<td>Consists of numbers 1-100; learning numbers and their place</td>
</tr>
<tr>
<td>16.</td>
<td>Square Line Chart</td>
<td>Chart consists of small squares it helps in practising mathematical operations</td>
</tr>
</tbody>
</table>

Statement Of The Problem

To study the effectiveness of Sampark Pedagogy which used Mathematics Tool Kit in pupil’s achievement, studying in Grade 2 of Government Primary School, Bhimtal Block District Nainital (U.K.).

Need & Significance Of The Study

Now a days it become fashion that parents are sending their children to English Medium Public Schools rather than Government Schools because they think that in government school teachers are not teaching well and they will spoil the career of their children by admitting them in government school.
It is generally observed that students studying in government primary schools are from economically backward classes, since their children are getting mid-day meal, free books, free dress and scholarship they are sending their children to these schools. Parents are not interested in education of their kids as they are illiterate.

In most of the government primary schools traditional method is used for teaching mathematics, students depend upon their teachers they do not apply their mind in solving problems. In such situation if the teacher is not competent enough they will show worst result. In such situation to make teaching-learning more interactive ‘Sampark Mathematics Toolkit’ is used in order to support students mathematically i.e. diagnose their weaknesses and help them in learning mathematical concepts.

The study is an intensive attempt to explore how mathematics teaching can become more interesting by using Mathematics Tool Kit having TLM in the pragmatic way in day to day classroom teaching activities.

Wagner (2012) suggested ‘look at innovation as an approach’. The study is a mere attempt to study effectiveness of TLM

**Review Of Literature**

Review of literature is helpful in exploring the previous studies enriches and excites the intellect of the investigator. Some of the studies are:

Chang, D. (2000), ‘Design and Implementation of a Schema-based Learning System on the Web’. The purpose of the study was to address the design and development of web based system that complements the human cognition need to structure and restructure information in its hierarchal representation. The study evaluated the usability and the effectiveness of the schema-based learning system by collecting feedback from a group of students in this course.

Charsky (2004), ‘Evaluation of the Effectiveness of Integrating Concept Maps and Computer Games to Teach Historical Understanding’. The purpose of the study was to determine if one of scaffolding, concept mapping would affect the participants, games performance, game knowledge and historical understanding. Three different ninth grade advanced global history, classes participated in the study. The result indicates that there was not a significant difference between the treatment groups in game knowledge and historical understanding. However the participant’s responses and comments made in journals shows that the student did learned about theoretical history and history in general.

Cheryl Dozier, Theresa Deeney (2015),’Keeping Learners at the Center of Teaching’. The study emphasised on building relationships between teacher and learner (adult and children) so that we can better understand them personally and academically. The study explain various methods of building relationships with teachers like; introduction, celebrations and artifacts later on study enlighten on building relationships with children and families through family photographs, weekly conversations with families. Learn about students through observation of lesson plan, anecdotal notes and reflections.
The study discussed teaching as complex and teachers learn to examine both their teaching discussions and their language choices through multiple lenses and multiple interpretations.

Dubey (1990), ‘A Comparative Study of a Play-way Self-learning Technique and the Traditional Method of Teaching Hindi at Initial Primary Stage’.

The objectives of the study were:

i. To develop SLM for the illiterate children and;
ii. To compare self-learning and traditional method

The study was conducted at three stages. The major findings were:

i. The experimental group students were found to be superior to the controlled group in recognition of alphabets in reading sentences and writing.
ii. Experimental group was more interesting in learning.
iii. Play way self-learning method of teaching Hindi was found to be much better than the traditional one.

Feng-jung Liu Bai-jiun Shih (2008), ‘E-learning activity-based material recommendation system’. The study highlighted that computer based systems is very much helpful in sharing experiences. The paper explains the application to utilise the techniques of LDAP and JAXB so that we can reduce the load of search engines LDAP (Light Weight Directory Access Protocol) and JAXB (Java Architecture for XML Binding). The major findings of the study are that generally search engine, search content by using multiple key words at a time. The system allows learners to search by content creator, topic, content body keywords is order to narrow the scope of learning material.

Floyd E. H. (2006), ‘The Use of Technology and Its Effect on Student Achievement’. The study was conducted to examine the use of technology and its effect on student achievement. The responses of the teachers in teacher technology survey and the teacher pedagogy survey showed no correlation to student achievement and responses for the students in the student technology survey indicated a positive correlation to student achievement. The data showed that with the increase in the use of technology by the student their achievement increases.

HukYuen Law (2013), ‘Reinventing teaching in mathematics classrooms’. The purpose of the paper is to explore the way how teaching in general and teaching of mathematics can be reinvented. Reinvention means new possibilities of facilitating or creating new learning experiences for the students. Teachers will experience such changes by experimenting with their students. The study discussed that through pedagogical experiments, teachers are becoming more aware of the need to learn from the learners in order to teach them ore effectively through the reinvention and unlearning of their own teaching.

John Loughran (2015), ‘Teaching for Quality Learning: A Focus on Inclusive Pedagogy’. The study explained about inclusive pedagogy is derived from the ability to notice. Inclusive pedagogy offers insights into expertise that go behind the art of ‘doing teaching’ and open it for scrutiny.

Kapadia (1988),’ Development and Try-out of Programmes for Remedial Teaching of
English for the post HSSC Level’. The major objectives of the study were: (i) To identify the grammatical errors in the written expression of the student who have passed HSSC (ii) To locate the high frequency of errors in English (iii) To develop Programmed Learning Material (PLM) for remedial teaching in selected areas of errors in English

The sample consisted of 160 students. The major findings were:

i. Programme I (Pronoun) was found very relevant and had the instructional potential as aimed at
ii. Programme II (Concord) consisting of 100 frames was more difficult than the first one.
iii. Programme III (Tenses) having 108 frames the longest chunk of the programmed material required revision
iv. Programme IV (Sequence of Tenses) was the most complex from all
v. Pre-test to Post-test, the mean score always increased.

Mohammad Reza Sarkar Arani (2017),’ Raising the quality of teaching through Kyouzai Kenkyuu – the study of teaching materials’. The study attempts to examine cross-cultural learning and teaching materials known as Kyouzai Kenkyuu in Japan. The paper investigates the Iranian and Japanese teacher’s view and awareness about the teaching materials. The findings of the study are intended to position Kyouzai Kenkyuu as an important aspect of Japanese lesson study and provide pedagogical reasoning that supports the quality of teaching can be improved through lesson study. Japanese teachers focus more on learners and the teaching materials for raising the quality of teaching whereas Iranians teachers focus more on the content of teaching and learning behaviour.

**Objectives Of The Study**

The major objective of the study is to study the effectiveness of Sampark Mathematics Tool Kit on Pupil’s achievement in mathematics. The study is a mere attempt to study whether mathematics tool kit will be effective in teaching mathematics at primary level or not. Specific objectives of the proposed study are:

i. To diagnose the problems faced by the students in learning mathematics.
ii. To study the adaption of the Sampark mathematics toolkit by the students.
iii. To study the effectiveness of the Sampark Mathematics Toolkit (SMT) in terms of student’s reaction.
iv. To study the variations in achievement of students taught through traditional method (Text Book) and taught through Sampark Pedagogy i.e. Mathematics tool Kit (TLM).

**Hypothesis**

The following hypotheses are formulated and tested ay 95% level of significance.

i. There is statistically no significant difference between the pre-test and post-testscores.
ii. There is statistically no significant difference between subjects; girl and boy.
iii. There is no significant difference in mean marks between boys and girls when equal variances assumed and when equal variances not assumed.

**Research Methodology**

Research Methodology is the systematic procedure by which the research starts from the identification of the problem to its final conclusion. The method of research provides tool and techniques by which the research problem is undertaken.

**Design**

The design of the study is presented as

\[
\begin{array}{cccc}
P_1 & T & X & P_2 \\ 
P_2 & S & \end{array}
\]

P₁ - Pre-Test  \hspace{1cm} P₂ - Post-Test  \hspace{1cm} X - Experimental Group

T - Traditional Method  \hspace{1cm} S - Sampark Pedagogy (Mathematics Tool-Kit)

**Area Of Study**

The area for the proposed study is students studying in Grade II of Government Primary School, Bhimtal Block District Nainital (U.K.).

**Schedule Of The Study**

The proposed study used two different types of tools; **Diagnostic Tool** as Pre Test and **Endline Tool** as Post Test administered on Grade II for studying the effectiveness of **Sixteen TLM** used for teaching mathematics. The Diagnostic Tool was administered between Aug- Sept 2016 and End Line Tool was administered from February- March 2017.

**Population**

All the students studying in Grade II, Government Primary School, Bhimtal Block District Nainital comes under population of the study. According to Session 2016-17, there were 148 schools in which 609 students enrolled in Grade II.

**Sample & Sampling Techniques**

Sampark Foundation in first phase administered this test on 25 GPS; pre and post-test.
Table 2- Selected School (Understudy)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>School</th>
<th>B</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>GPS Bhowali Nagar Kshetra</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>GPS Bharatpur</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>GPS Mehragaon 1</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>GPS Mehragaon 2</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>GPS Gorakhpur</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>GPS Vinayak</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>7.</td>
<td>GPS Haidiyagaon</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>GPS Ghirgani</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>GPS Pandeychod</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>GPS Alchauna</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>GPS Surithum</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12.</td>
<td>GPS Model School, Bhimtal</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>GPS Taada</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>14.</td>
<td>GPS Dak Bangla</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>15.</td>
<td>GPS Dungshill</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>16.</td>
<td>GPS Songaon</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>17.</td>
<td>GPS Kwarali</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>18.</td>
<td>GPS Jantwaldhura</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>19.</td>
<td>GPS Bilaspur</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20.</td>
<td>GPS Pandeygaon</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>21.</td>
<td>GPS Bhankar</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>22.</td>
<td>GPS Sangurigaon</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>23.</td>
<td>GPS ThaplaiyaMehragaon</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24.</td>
<td>GPS Nukichyataal</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>25.</td>
<td>GPS Budhadhura</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>57</td>
<td>68</td>
<td>125</td>
</tr>
</tbody>
</table>

**Source:** Bhimtal Block Resource Centre (Students Enrol- Session 2016-17)

Purposive sampling was used for selecting the sample; 125 students studying (Grade II) in GPS, Bhimtal Block, Nainital was selected.
Tools

Diagnostic Tool as Pre-test and End Line Tool as Post-test administered on Grade II students studying in GPS.

A. Diagnostic Tool

Diagnostic Tool test reflects the outcome of Traditional Method of Teaching. It includes 11 Items and time allotted was 1 Hour. The distribution of Items and parts were.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Areas</th>
<th>Parts</th>
<th>Marks Allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shapes</td>
<td>1</td>
<td>02</td>
</tr>
<tr>
<td>2</td>
<td>Quantity (&gt;, &lt;, =)</td>
<td>3</td>
<td>06</td>
</tr>
<tr>
<td>3</td>
<td>Counting</td>
<td>3</td>
<td>06</td>
</tr>
<tr>
<td>4</td>
<td>Number Sense</td>
<td>2</td>
<td>04</td>
</tr>
<tr>
<td>5</td>
<td>Place Value</td>
<td>1</td>
<td>02</td>
</tr>
<tr>
<td>6</td>
<td>Addition</td>
<td>3</td>
<td>06</td>
</tr>
<tr>
<td>7</td>
<td>Subtraction</td>
<td>3</td>
<td>06</td>
</tr>
<tr>
<td>8</td>
<td>Multiplication</td>
<td>3</td>
<td>06</td>
</tr>
<tr>
<td>9</td>
<td>Division</td>
<td>3</td>
<td>06</td>
</tr>
<tr>
<td>10</td>
<td>Time (Clock)</td>
<td>2</td>
<td>04</td>
</tr>
<tr>
<td>11</td>
<td>Pattern</td>
<td>2</td>
<td>02</td>
</tr>
</tbody>
</table>

**TOTAL** | 50

B. Endline Tool

End Line Tool as Post-test administered after 6 months of Diagnostic Tool Test. It reflects the outcome of Teaching by Sampark Mathematics Tool-Kit. End Line Tool Test was just like Diagnostic Test covering same areas/topics with different items, administered on same experimental group on which diagnostic test conducted earlier.

Scoring

0- If child does not attend the item
1- Child has answered but answer is wrong
2- Child answered correctly

* The maximum mark was 50 for analysis we convert all the marks out of 100.
Analysis

SPSS 21 used for Paired T Test, ANOVA and Independent T Test for analysing the results. Percentage analysis is also used for studying other facts related to TLM.

Results & Discussions

I. No Significant Difference Between Pre-Test and Post-Test Scores

<table>
<thead>
<tr>
<th>Paired Samples Statistics</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE_TEST</td>
<td>39.360</td>
<td>125</td>
<td>18.4454</td>
<td>1.6498</td>
</tr>
<tr>
<td>POST_TEST</td>
<td>57.408</td>
<td>125</td>
<td>22.0966</td>
<td>1.9764</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paired Samples Correlations</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>125</td>
<td>.907</td>
<td>.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
<th>Mean Differences</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Std. Error Mean</td>
<td>95% Confidence Interval of the Difference</td>
</tr>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When we have to study within subjects then we will select 'Paired Sample T Test'. The Mean marks attained by the students in pre-test is 39 which shows below average whereas mean marks attained in post-test is 57 which shows average; the difference in the average is 18.0480. There is very high positive correlation r= +0.907 between pre-test and post-test score. The p value < 0.05 which reflects that, Null Hypothesis is rejected that there is no statistically significant difference between pre-test and post-test scores. Thus we can say that Post-test scores are better than Pre-test.

II. Between Subjects

When we have to study difference between the groups we will go for ANOVA.
Dependent Variable- Change (Difference in Marks) and Fixed Factor- Category (Boy, Girl)

Descriptive Statistics

<table>
<thead>
<tr>
<th>CATG</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOY</td>
<td>18.46</td>
<td>8.281</td>
<td>57</td>
</tr>
<tr>
<td>GIRL</td>
<td>17.71</td>
<td>10.339</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>18.05</td>
<td>9.427</td>
<td>125</td>
</tr>
</tbody>
</table>

Levene's Test of Equality of Error Variances

<table>
<thead>
<tr>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.492</td>
<td>1</td>
<td>123</td>
<td>.064</td>
</tr>
</tbody>
</table>

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Noncent. Parameter</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>17.454</td>
<td>1</td>
<td>17.454</td>
<td>.195</td>
<td>.659</td>
<td>.002</td>
<td>.195</td>
<td>.072</td>
</tr>
<tr>
<td>Intercept</td>
<td>40548.910</td>
<td>1</td>
<td>40548.910</td>
<td>.533</td>
<td>.000</td>
<td>.787</td>
<td>453.317</td>
<td>1.000</td>
</tr>
<tr>
<td>CATG</td>
<td>17.454</td>
<td>1</td>
<td>17.454</td>
<td>.195</td>
<td>.659</td>
<td>.002</td>
<td>.195</td>
<td>.072</td>
</tr>
<tr>
<td>Error</td>
<td>11002.258</td>
<td>123</td>
<td>89.449</td>
<td>.195</td>
<td>.659</td>
<td>.002</td>
<td>.195</td>
<td>.072</td>
</tr>
<tr>
<td>Total</td>
<td>51736.000</td>
<td>125</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>11019.712</td>
<td>124</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R Squared = .002 (Adjusted R Squared = -.007)

In case of Boy mean difference is very large. In case of Levene’s Test the p value > 0.05 therefore null hypothesis that error variance of the dependent variable is equal across groups is accepted which reflects homogeneity in groups.
In case of Tests of Between-Subjects Effects the sig. value for category to change (F Value) (difference) i.e. p value= 0.195 > 0.05. Therefore Null Hypothesis is accepted that there is no statistically significant difference between girl and boy.

Partial Eta Squared (Fact of Size) is 0.002 (0.2%). Fact size explains how much movement in one variable can be explained by movement in another variable. 0.2% Fact size is negligible low we can’t explain the movement in difference to movement in category.

When we go for complicated research design ANOVA has much more flexibility than the T-test.

### III. Mean Marks

<table>
<thead>
<tr>
<th>Group Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATG</td>
</tr>
<tr>
<td>Difference in Marks</td>
</tr>
<tr>
<td>GIRL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent Samples Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene’s Test for Equality of Variances</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>Equal variances assumed</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
</tr>
</tbody>
</table>

When equal variances assumed t =0.442 whereas equal variances not assumed t= 0.450. In both the cases mean difference= 0.750, whereas in both cases p value> 0.05 [0.659 and 0.653] which represents that Null Hypothesis is accepted that there is no significant difference in mean marks between boys and girls in both the cases.
IV. Facts Related to TLM

It helps in studying the effectiveness of each TLM in Mathematics Tool-Kit in terms of achievement i.e. marks obtained in particular section of Post-Test (End Line Tool).

1. Shapes

In almost 100% cases students secured full marks i.e. $2 \times 1 = 2$ Marks in identifying the shapes in post-test. It reflects that it helps the students in identifying shapes like rectangle, square, triangle circle etc.

2. Quantity

In almost 100% cases students secured full marks i.e. $2 \times 3 = 6$ Marks in identifying the $(>, <, =)$. It reflects that it helps the students in identifying quantities greater than, less than or Equal to.

3. Counting

In almost 100% cases students secured full marks i.e. $2 \times 3 = 6$ Marks in counting the items. It reflects that it helps the students in counting the articles.

4. Number Sense

In almost 100% cases students secured full marks i.e. $2 \times 2 = 4$ Marks in completing the series. It reflects that it helps the students in identifying the series either they are in ascending or in descending order. It helps the students in recalling the number.

5. Place Value

In almost 100% cases students secured full marks i.e. $2 \times 1 = 2$ Marks in identifying the Unit and Tenth place. It reflects that it helps the students in identifying number and their respective position.

6. Addition

In 72% cases students secured full marks i.e. $2 \times 3 = 6$ Marks in adding the numbers none of the student secured 0 Mark in this section. It reflects that teacher has to change their way of teaching. Students are making mistakes while adding the numbers.

7. Subtraction

In 69% cases students secured full marks i.e. $2 \times 3 = 6$ Marks in subtracting the numbers none of the student secured 0 Mark in this section. It reflects that teacher has to change their way of teaching and try to guide the students in subtracting the numbers. Students are making mistakes while subtracting the numbers especially in carrying the numbers.

8. MULTIPLICATION

In 18% cases students secured full marks i.e. $2 \times 3 = 6$ Marks in adding the numbers whereas 42% students secured 1 mark in this section none of the student secured 0 mark in this section. It reflects that teacher has to change their way of teaching and try to guide the students in multiplication of the
numbers. Students are making mistakes as they have not learned table and their applications in solving problems.

9. Division

In 10% cases students secured full marks i.e. $2 \times 3 = 6$ Marks in division of the numbers whereas 45% students secured marks between 0-1 in this section. It reflects that TLM requires modification student unable to grasp knowledge whatever it is required, teacher has to change their way of teaching and try to guide the students in division of the numbers.

10. Time (Clock )

In 6.4% cases students secured full marks i.e. $2 \times 3 = 6$ Marks in time related problems whereas 78% students secured marks between 0-1 in this section. It reflects that TLM requires modification student unable to read clock that’s why they were making mistakes in reading time. Teacher has to guide the student regarding minute, hour and second needles in the clock.

11. Pattern

In 5.60% cases; 7 students secured full marks i.e. $2 \times 1 = 2$ Marks in pattern related problems whereas 32% students secured marks between 0-1 in this section. Students are doing well in this section they requires assistance of the teacher in understanding the pattern.

Delimitations &Suggestions For The Further Studies

Since the present case is delimited to study the effectiveness of Sampark Pedagogy supported by mathematics tool-kit used for the studying students in Grade II, Government Primary School, Bhimtal Block District Nainital of Uttarakhand, India. Toolkit was distributed to all schools of Bhimtal Block but the pre-test and post-test was administered only at 25 schools.
The suggestions for upcoming studies would be:

- The study should be conducted for students studying in other schools of Uttarakhand.
- Mathematics Tool-kit should be design for Upper-Primary and Secondary classes and later on study will be conducted in order to study the problems in administering and its effectiveness.
- Toolkit should be modified on the basis of findings of the studies and further studies should be conducted in order to study the effectiveness of changes made in Toolkit
- Toolkit can also be developed for other subjects also like English, Hindi, Social Science etc. and study should be conducted for studying their effectiveness.
We can also design Computer Assisted Instructions in Mathematics so that student learns at their own pace.

If the upcoming studies will cover these areas/ issues than the results will present several facts and findings which will help the Government and other agencies working in Education sector to check their progress and implement the suggestions given by the researcher.

**Conclusion**

The most important function from teaching point of view is to provide materials and experiences in order to provoke interests among the students. Sampark Pedagogy is a mere attempt or an experiment to study the effectiveness of this pedagogy by using Mathematics Toolkit having teaching learning material in order to bring all together in Sampark; Educand, Educator and Mathematics as a subject i.e. in contact of each other so that we can make teaching- learning process more interesting and result oriented. TLM makes a learning process as an active participation of students rather than passive. TLM in mathematics teaching helps the learner to learn at their own pace and promotes the feeling of group dynamics; it helps the teacher to increase the participation of the learner through activities and game. Sampark Pedagogy by using Mathematics Tool-Kit is an experiment in the area of mathematics so that we can generate interest of the student in Mathematics at primary level and this habit inherited to upcoming classes.

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STAMPED DIAGRAM TECHNIQUES FOR ENHANCING DRAWING PERFORMANCE OF YOUNG CHILDREN OF SCHOOL

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Abstract: Drawing is a creative approach in teaching and learning process and the young children particularly the beginners require its regular practice at classroom and home. In this study, it is aimed to bring drawing within the reach of young children by using stamped diagram techniques (SDT) by which any child may be engaged in drawing a diagram in coordination with seeing closely a sample diagram stamped on drawing sheet with use of a rubber stamp, a rubber mould of the sample diagram. Among the randomly selected control (n=62; CG) and experimental (n=62; EG) groups of second standard school children, CG was asked to draw a diagram of fish (a selected diagram), in tandem with seeing a sample diagram (BD) of fish drawn on blackboard, whereas EG was to draw the fish diagram adopting the SDT. Both the groups were instructed to follow a few steps, while drawing. Using drawing assessment checklist and teacher’s questionnaires and based on basic drawing tasks and features, their performances were assessed by expert judges and teachers and presented with use of mean, percentage and student ‘t’ test; the performance of EG, the user of SDT, was better than CG, the user of BD, mainly in certain drawing tasks; the experimental group took shorter time to complete with easiness, stress free visual motor coordination, because of closer observation of the stamped diagram. The teachers also observed in majority better performance with correct shape, size and proportion in the drawings of EG than in that of CG. Further, the SDT together with teacher’s interaction, is suggested for practicing and developing drawing skill at young age and at home too.

Keywords: School Children, Developing Drawing Skill, Stamped Diagram Technique, Blackboard Drawing Practice, Stress Free Drawing Practice

Introduction

Children’s drawing provides not only to them a safe and enjoyable means that encourage to explore, make decisions, and solve problems and a way to portray their emotion, self-esteem, personality and social
competence without having to rely on words (Brechet et al. 2009; Carmichael, 2006), but also to teachers and counselors to predict and assess their activities and problems (Allan 1987). There are a lot of benefits known in using drawings as a strategy for engaging with young children (Einarsdottir et al. 2009), as a motivational aspect contributing to learning (Van Joolingen et al. 2015) and as a meaning-making activity to find communicative potentials as well as the relationship between thought and drawing in early childhood (Papandreou 2014). Besides, Chan and Chan (2007) reported that arts education is important in facilitating learning and in enhancing creativity in students and among different modes of creative arts expression, drawing has been suggested as the best choice for allowing creative expression by students with high ability in visual arts. Hence, the curriculum documents around the world stressed mixed messages about the role and value of drawing in early education and the need of encouraging children to explore their ideas, feelings and experiences through a range of means, including drawing that has become an essential approach in the teaching and learning of all the subjects.

Adoniou (2013) reported that while writing is the dominant mode through which most learning and assessment is mediated at schools, drawing is presented as an effective strategy for teaching writing based on the hypothesis that drawing and writing are comparable semiotic systems and learning is most powerful when these semiotic systems work together. It is established that drawing before writing improved the writing of the informational text types of procedures and explanations and recommended for using drawing as a teaching strategy when teaching English language learners. Thus, its influence on children are wide-ranging in all the subjects (Jolley and Zhang 2012) without gender disparity. Burkitt and Lowry (2015) revealed that pupils', parents' and teachers' views about the benefits, and how to support drawing behaviour at school and at home, varied across contrasting educational contexts and suggested that mainstream educational contexts could foster drawing behaviour and the related emotional benefits to a greater extent. MacDonald et al. (2007) also viewed that teaching drawing separately through an art unit has profound effect and assisted elementary children’s (ages 8-10) drawing. Therefore, there is a felt need of teaching drawing from elementary level onwards.

Children are drawing inventors and teaching drawing is showing interest and enthusiasm for kids’ drawing inventions (Szekely 2012). At a time when concept driven competencies are perceived to be critical in redefining effective art integrated education, introduction of drawing at young age of school children has broad implications. Children’s potentiality has to be developed in possessing multiples of skills required for varied purposes. Everybody should be taught how to freehand sketch and utilize it as a tool for supporting the visualizing instinct; thereby, freehand drawing has become an integral facet of all school education (Lane et al. 2009; Lane and Seery 2011). In general, there are two ways of teaching drawing at school in India, either by a class teacher drawing as model diagram on the blackboard and the students will see the
blackboard diagram (BD) and simultaneously draw on their notebooks; or the senior students will use drawing note book/sketch book and practice. In Chinese schools the teaching of drawing is relying upon the emphasis placed on children copying from adult drawing models (Chan and Chan 2007). In view of the fact that higher is the practice, higher the drawing skill developed, particularly more drawing practice at young age of children is considered essential. In the present study, new techniques, called stamped diagram techniques (SDT) are employed to provide drawing practice to the second standard school children aged 6-7 years and to relate with general mode of teaching drawing with use of BD.

**Aims of the study**

The present study is aimed to find out 1) how the stamped diagram techniques (SDT) are beneficial in developing drawing skill and enhancing performance among young school children of 6-7 years age and 2) the differences between common blackboard drawing practices and SDT in certain drawing tasks and features.

**Methods**

**Participants**

A total of 124 second standard students from six schools of Umiam, RiBhoi District, Meghalaya, India, participated in the study. They were aged between 6 and 7 years, studying in the schools of MeECL, St. Francis, NEPA Kendriya Vidyalaya, Bethany Society, Christ International and Army Kendriya Vidyalaya. Already they had previous practice of drawing several pictures from the first standard. While gender disparity is not viewed as a factor, both boys and girls were involved jointly and also randomly selected from each school for the control (n=62) and the experimental (n=62) groups.

**Materials**

**Diagram Rubber Stamp**

A rubber stamp (Fig 1) was made in a size of 2.5 inch X 3.5 inch containing rubber mould of diagram (Dotted, line diagram) of fish. Mainly, it is helpful in stamping the fish diagram on a drawing sheet. Similar to the rubber stamp, other rubber stamp is to be made individually for any choice of the diagram which may be chosen from any one of the commonly known items namely, axe, bee, boat, bread, bear, elephant, etc. Since the rubber stamp is made for stamping any one of the diagrams, it is named as a diagram rubber stamp.
Stamped diagram (SD)

With use of the diagram rubber stamp (Fig 1), a diagram could be stamped /pressed as a model diagram on every drawing sheet of student who will see the model to draw (Fig 2). The diagram thus, stamped has the shape of diagram of our choice from any one of the items mentioned and its size is lesser than the size of the stamp (2.5 inches X 3.5 inches). It is in dotted form without colour and shade and mostly for giving practice in drawing line diagram. This stamped diagram (SD) could be pressed quickly and easily on the drawing sheet for giving exercise to any number of students. Such stamped diagram could be made available for any other item by making rubber stamp of the diagram. Right now fish is the item selected for the stamped diagram (Fig 2).

![Fig 1](image1.png)
![Fig 2](image2.png)

Stamped Diagram Techniques (SDT)

The techniques using a (model) stamped diagram (Fig 2) are followed in the present study to give the beginners (preferably second standard school children) drawing exercise with teacher’s demonstration, instruction, guidelines, monitoring and assessment. The number of stamps made for different diagrams, determines the number of drawing exercises that could be arranged for the students. In the SDT thus, many diagram rubber stamps may be made use of providing the students regular drawing exercises which are a
fundamental approach of developing and nurturing drawing skill. With use of SDT, an exercise was given in drawing a diagram of fish.

**Blackboard diagram (BD)**

A diagram of a thing (living or non-living) is drawn as a model on the blackboard with a chalk piece by a class teacher in front of the students who will see the model to draw on their sheets. The blackboard diagram (BD) is usually a simple line diagram suitable to the beginners and it is in a size clearly seen by all the students of a classroom and hence it is considerably medium in size and proposition to the size of the blackboard. In the present study, fish diagram was drawn on the blackboard as a BD.

**Procedure**

The second standard students of a section from each school were divided into control and experimental groups who were then instructed about the steps of the drawing exercise given to them and about their nature of participation and consent obtained from them. Both the groups were explained about the steps to be followed while drawing a diagram of either a living or non-living material. In the first drawing exercise, a fish diagram was chosen because, it was commonly known by all the children. In front of the two groups the fish diagram was drawn on the blackboard of the school classroom by the teacher and they were informed about the scheme to be followed. The steps to be followed while drawing were that 1) the body of the fish was to be drawn first and 2) the accessory parts viz., fins, tail, eye, operculum etc. were to be drawn next and 3) pencil and eraser were to be used.

The control group (CG) was asked to see the (model) BD of fish and to draw on the drawing sheet given. While drawing, they had to see frequently the BD from the place of sitting on classroom benches facing towards blackboard which was within a distance of sight. This is the general practice followed in India for giving children drawing exercise in a drawing period of elementary education.

After seeing how the teacher drew the fish diagram on blackboard, the experimental group (EG) was seated separately and given drawing sheets that were stamped previously with dotted (model) diagram of fish (Fig 2) by using rubber stamp (Fig 1). This group was directed to draw the fish diagram just below the stamped diagram (SD) of fish. So, the students of the group had a chance of seeing closely the SD of fish, when drawing.
Data Analysis

Assessment of students’ performance

Time taken to complete drawing the diagram of fish was calculated by recording starting and finishing times and average times were calculated for the total students of the control and experimental groups. The drawings of the two groups were assessed for both 5 point scale (poor, below average, average, above average and super) and for a maximum of 10 marks by a set of expert judges and average marks obtained by the groups were determined. The data were presented with use of mean and percentage; values of ‘t’ test were determined for significance in time taken to complete the drawing and scoring between the groups. Further, their drawing performances were assessed based on drawing assessment checklists including seven drawing tasks and characteristics (Appendix I) identified following procedures given elsewhere (Chan 2009; Chan, & Chan 2007; Clark and Wilson 1991; Clark 1993; Ebersbach and Hagedorn 2011; Galli et al.2011; Kaplan 2003; Lane et al. 2010).

Teacher’s Observation

While the two groups of students were drawing, another set of teachers (n=12) from the six schools were engaged to observe and evaluate their performance based on the seven drawing tasks and characteristics given in the observation sheet (Appendix II). Their suggestions and recommendations were also included in the observation sheets.

Results

The performance in drawing of the single diagram (fish) was compared between CG and EG by expert judges (Table 1). Their assessment was made as follows:

Quantitative analysis

The average time taken for completing the drawing of fish is higher for CG (9.3 minutes) than for EG (4.6 minutes) with statistical significance of P<0.001 and the average marks scored by CG (3.6) is lower than that of EG (4.8) with significance of P<0.05.

Qualitative analysis

Among the control group 69% (less correct) and 26% (moderately correct) of children were bringing fish shape in their diagrams, whereas, 5% of children could not draw shape of the fish. 35% and 65% of children of EG drew the fish shape respectively less correctly and moderately correct. The fish diagram
size was at 59% small, 25% medium and 16% big for the CG, but 16% small, 59% medium (same) and 27% big for the EG. 60% less correct and 40% moderately correct proposition of size of diagram were found for the CG. In the case of EG, 24% less correct and 76% moderately correct proposition of size were achieved. Although two steps were told to follow, both EG and EG practiced own steps (65% and 17%) and mixed steps (53% and 83%) including own and the steps suggested.

Use of eraser was found increased from 5% average level to 95% high level for the CG. On the other hand it increased from 44% average level to 56% high level for EG. The free hand drawing abilities were at 69% lower level and 31% average level for CG and 22% lower level, 74% average level and 4% high level for EG. The visual and motor coordination (VMC) was found at 67% lower level and 33% average level for CG and progressively more for EG (27% lower, 70% average and 13% high levels). Most of the teachers suggested positively about the easy usability of SDT by any teachers, irrespective of their expertise in drawing.

Table 1: Comparison of drawing performance between control and experimental groups of children from 2nd standard (aged 6-7 years)

<table>
<thead>
<tr>
<th>S N</th>
<th>Characteristics of drawing</th>
<th>Control group (N=62)</th>
<th>Experimental group (N=62)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Time taken for drawing (in minute)</td>
<td>9.2</td>
<td>6.1**</td>
</tr>
<tr>
<td>2</td>
<td>Marks (average)</td>
<td>3.5</td>
<td>4.3*</td>
</tr>
<tr>
<td>3</td>
<td>Shape of the diagram drawn</td>
<td>69% lesser correct 26% moderately correct 5% Incorrect</td>
<td>35% lesser correct 65% moderately correct</td>
</tr>
<tr>
<td>4</td>
<td>Size of the diagram drawn</td>
<td>59% small 25% same 16% big</td>
<td>16% small 57% same 27% big</td>
</tr>
<tr>
<td>5</td>
<td>Proposition between main body size and accessory parts’ size (Correct proposition)</td>
<td>60% lesser correct 40% moderately correct</td>
<td>24% lesser correct 76% moderately correct</td>
</tr>
<tr>
<td>6</td>
<td>Steps followed, while drawing</td>
<td>65% own 35% mixed</td>
<td>17% own 83% mixed</td>
</tr>
</tbody>
</table>
Teacher’s Observation

In the table 2 are shown observation reports of teachers who coordinated the drawing classes for both the control and experimental groups. The teachers could not identify much difference between the two groups in the drawing performance, particularly in the steps followed, use of eraser and free hand drawing. Since there existed differences in the size of the blackboard diagram (BD) and stamped Diagram (SD) and distance between the diagram and students of CG and EG, the teachers reported difference in their observation mainly, in the shape, size and proposition of fish diagram drawn by the students. They observed better performance in drawing the diagram with correct shape, size and proposition with easy VMC in the experimental group than in control group.

Table 2: Evaluation report of teachers who observed drawing performance between control and experimental groups of children from 2nd standard (aged 6-7 years)

<table>
<thead>
<tr>
<th>S N</th>
<th>Characteristics of drawing</th>
<th>Control group (N=12)</th>
<th>Experimental group (N=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shape of the diagram drawn</td>
<td>17% less correct</td>
<td>17% less correct</td>
</tr>
<tr>
<td></td>
<td></td>
<td>66% moderately correct</td>
<td>50% moderately correct</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17% differently correct</td>
<td>34% same</td>
</tr>
<tr>
<td>2</td>
<td>Size of the diagram drawn</td>
<td>66% smaller</td>
<td>83% same and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17% same and</td>
<td>17% big</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17% same</td>
<td></td>
</tr>
</tbody>
</table>
3. Proposition between main body size and accessory parts’ size (Correct proposition) | 50% moderately correct | 50% differently correct | 50% moderately correct | 16% differently correct | 34% same

4. Steps followed, while drawing | 100% both own and directed steps | 100% both own and directed steps

5. Frequency of use of eraser | 8% lower | 75% average | 17% higher | 8% lower | 75% average | 17% higher

6. Free hand drawing from diagram drawn | 34% lower | 50% average | 16% higher | 25% lower | 50% average | 25% higher

7. Visual & motor coordination | 100% lower | 50% average | 50% high

**Discussion**

Although the second standard students had earlier exercise of drawing to some extent from the first standard, the classes organized for giving drawing practice revealed their nature of drawing experience which was in mostly very beginning stage requiring a lot of exposure in drawing. The subjects selected for getting involved in drawing exercise were considered suitable for the present study. This was also evident from the way they followed the drawing steps and they did not follow any definite step of drawing and were not formed of having any clear step of drawing.

Huntsinger et al. (2011) reported that parents and early childhood teachers in Chinese societies and the United States have had dissimilar views about appropriate art instruction for young children. The Chinese view is that creativity will emerge after children have been taught essential drawing skills. The American view has been that children's drawing skills emerge naturally and that directive teaching will stifle children's creativity. Chinese American children's drawings were more mature and creative and their parents reported more formal ways of fostering creativity as compared to their European American counterparts. Correlations showed that children who had more opportunities to draw and who received more guidance in drawing were more advanced in their drawing. Thus, it is obvious that creativity follows after a requirement of developing basic drawing skill which may be acquired through formal or natural ways of practices.
When 153 children aged 6-12 years were asked to draw a picture of their hand and their drawings were assessed for the use of detail, correct proportion, and overall contour and related the drawings with those of three identified drawing prodigies, Drake and Winner (2013) reported that most children were able to capture the overall contour of their hand; the ability to draw relevant details was not common until age 8; and correct proportion was not seen even in the oldest children. Similarly, in our two groups aged 6-7 years, the correct proportion attained was very low.

On seeing at a big BD from a distance between their seating arrangement and blackboard, the control group had to draw a small diagram on the drawing sheet. In contrast, the experimental group had to see closely both the SD and diagram to be drawn on the place of the drawing sheet itself and then to draw the diagram in a size more or similar to the size of the SD. Hence, the experimental group had better chance to have facilitated effect of expression with easy visual motor coordination than the control group, as Grossman (1971) indicated for young children’s visual-motor coordination that was a behavior facilitating effective expression in art.

Since developing good drawing and observation skills requires patience and time (Weekes 2005), the drawing practice given to young children need not take their time and test their patience. In this regard, the drawing practice is relatively lesser time consuming and easier for observing and drawing through SDT than blackboard diagram.

Hsiao (2010) conducted a study in a public kindergarten in southern Taiwan, with 27 children aged between 4 and 5 and found that the collage series of picture books had more impact on children than did other picture books in terms of teaching efficacy by picture book appreciation. Similarly, SDT is more effective in promoting drawing skill among beginners than the general BD practice. As drawing at home is also essential for their leisure time management and for continuous practice, SDT is more practicable in assigning easily all the students of a class work of drawing at home.

Yuehong and Fran Mullis (2008) and Rubin (2005) stated that around the time of 5-8 years, formal schooling begins, children find favorite ways of drawing things and repeat them. Our children of both CG and EG belonging to 6-7 years of age showed own ways of drawing and they preferred their natural, beginner’s ways of drawing to any instructed ways of drawing steps.

Soundy and Drucker (2010) explored how young children create and express meaning through art by using qualitative, interpretative analysis, and examined a small subset of drawings produced by kindergarten and first grade children. The process of drawing was influenced by illustrations in picture books, peer interactions, and the artwork of partners in close proximity (Soundy et al. 2007). In the place of
picture book, several diagrams could be stamped with use of SDT according to interest and choice of students for arranging practices for even team learning and for creativity as an additional utility in teaching and learning process.

Few empirical studies have investigated the influence of teachers, parents and children on children's drawing experience (Burkitt et al. 2010). Due to user-friendly nature of SDT, any of them may adopt the technique quickly to teach and motivate junior children. As Drake and Winner (2013) identified 13% of drawings as above average for the child's age group, the SDT may be useful to identify and evaluate different category of children’s ability in drawing.

Conclusions

The stamped diagram techniques could be used, as it fosters easy, stress free and quick Visual Motor Coordination which results in developing drawing skill with correct shape and size of the diagram and it is because of looking intimately at both the (model) stamped diagram and diagram to be drawn and the task of drawing in mostly in the same size. The present study also reveals that children's drawing behaviours could be cultivated easily and improved through SDT which have impact on kindergarten educators' instructional methods in visual art education, and may influence curriculum reform in early childhood art education. Besides enhancing performance of drawing skill, the stamped diagram technique has potential in developing and mastering drawing skill of young children through more exercises in different steps, in fostering creativity and in making them engaged themselves through practice at home.

According to Dake and Winner (2013), all children go through a pre-conventional stage where their drawings are simple and expressive and after age six, all children move to a conventional drawing style and hence giving more exercise develops and nurtures skill that could be achieved through SDT. Teaching is a complex and relational work that involves teacher's interactions with individual or multiple students around the practice session of developing drawing skill. Even though it is generally thought that while students are drawing, there is no much role the teacher has to play for developing skill, there is a great necessity of teacher’s instruction, guide, discussion, sharing, demonstration, monitoring and evaluation of important steps. Hence, SDT together with teacher’s blackboard demonstration and interaction is suggested for more well-organized drawing exercise.

Almost 80% to 90% of students in a class show a lot of interest, participate and involve earnestly in drawing which is a form of learning outcome illuminating creativity, expression of idea, originality that could delightfully be owned with satisfaction. Moreover, the school is also a place of identifying, teaching and nurturing future professional drawing artists of society. Young children have many motivations for
drawing for different purposes and contexts which need recognition in both policy and classroom practice (Hall 2009).

Acknowledgments

The author thanks Prof. H.K. Senapathy, Director, Prof. Parvin Sinclair, Former Director and Prof. B.K. Tripathy, Former Joint Director, NCERT, New Delhi for their constant support. Sincerely, the author is grateful to the six school principals, teachers and students who have rendered their consent and participated in the study. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of any organization.
Annexure I: Drawing assessment checklists

Name of the student:                                      Second standard; Age:                   Sex: M/F

School name:

Control Group/Experimental Group

Name of diagram given for drawing: Fish

<table>
<thead>
<tr>
<th>S N</th>
<th>Drawing tasks and characteristics</th>
<th>Control/Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Quantitative analysis</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Time taken to complete a diagram of fish (initial starting time: and finishing time: (time in minutes))</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>The level of drawing (Poor(1), Below Average(2), Average(3), above Average(4) or Super(5))</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Marks given from 1 to 10 (10 is the maximum)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Qualitative analysis</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Whether overall contour (Shape) achieved? [ Incorrect (1), lesser correct (2), moderately correct(3), differently correct (4), same (5)]</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Size: smallest (1), smaller(2), same (3), bigger (4), biggest (5)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Whether correct proposition achieved between main body size and accessory body part size ? [ (1), lesser correct (2), moderately correct(3), differently correct (4), same (5)]</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Level of use of eraser: [lowest (1),lower (2), average (3) , higher (4), highest(5)]</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Whether free hand drawing achieved ? [lowest (1),lower (2), average (3) , higher (4), highest(5)]</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>What is the status of visual and motor coordination ? [ lowest (1) ,lower (2), average (3) , higher (4), highest(5)]</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Whether Steps followed ? As per direction (1), own way (2), Mixed (3),</td>
<td></td>
</tr>
</tbody>
</table>
Appendix II: Teacher’s Questionnaire

**Teacher’s name and address:**

A teacher is shown the two practices of drawing (control and experimental) and requested to compare between the two and based on assessment, their answers are to be given below:

<table>
<thead>
<tr>
<th>S N</th>
<th>Drawing tasks and characteristics</th>
<th>Blackboard drawing practice</th>
<th>Stamped drawing Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Whether overall contour (Shape) achieved? [Incorrect (1), lesser correct (2), moderately correct (3), differently correct (4), same (5)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Size: smallest (1), smaller (2), same (3), bigger (4), biggest (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Whether correct proposition achieved between main body size and accessory body part size? [1, lesser correct (2), moderately correct (3), differently correct (4), same (5)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Level of use of eraser: [lowest (1), lower (2), average (3), higher (4), highest (5)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Whether free hand drawing achieved? [lowest (1), lower (2), average (3), higher (4), highest (5)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>What is the status of visual and motor coordination? [lowest (1), lower (2), average (3), higher (4), highest (5)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Whether Steps followed? As per direction (1), own way (2), Mixed (3),</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. General opinion about two practices 1 (blackboard drawing) and 2 (stamped drawing):

9. Any specific suggestions

10. Recommendation:

11. Remarks
References


Yuehong and Fran Mullis (2008). Interpreting Children’s Human Figure Drawings. Georgia School Counselors Journal 1(1);28-37.

**Caption**

Fig 1 A diagram rubber stamp made with a rubber mould of a fish diagram for stamping

Fig 2 A fish diagram stamped on a student’s drawing sheet with use of a rubber stamp
STUDENTS’ PERCEPTION OF PARENT INVOLVEMENT IN ELEMENTARY EDUCATION: A STUDY IN PHILIPPINE AND INDONESIA

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Sriwijaya University, Indonesia
Rita B. Ruesco, Salve Favila, Celia Ilanan
Philippine Normal University, Philippines

Abstract: This study aimed at describing parent involvement in education according to perception of students of Philippine Normal University (PNU), Philippines and of Sriwijaya University, Indonesia as well as related policy stipulated by both universities. To achieve the aims, this study employed interview and student questioner as methods of gathering data. Respondents involved in this research were heads of study programs and senior students majoring in early childhood education and elementary education of PNU and students majoring in elementary education of Sriwijaya University. The study found different perception among students of both universities where in general students of PNU had slightly higher scores to the importance of six aspects of parent involvement: parenting, communication, learning at home, volunteering, decision-making, and collaborating. It was suggested the latter university to have parent involvement in education course in its curriculum and both universities develop model of parent involvement concept suitable to its own setting.

Keywords: Elementary Education, College Students, Parent Involvement

Introduction

Parents are recognized as the first and main educators for their children. In this respect Berger (1995) labels parent as an active partner and education leader at home and school. Most teachers acknowledge the role of parents in education although they have professional expertise in educating children. A University of New Hampshire statements (2008) should be valued as rationale for involving parents in education, where it is not income or social status as the predictors, but the extent to which that student’s family is able to create a home environment that encourages learning, communicate high, yet reasonable, expectations for their children’s achievement and future careers, and become involved in their children’s education at school and in the community.

Some studies cited by NCSE (2005) show that the “power of out-of-school time” is significant and the quality of home environments strongly correlates with students’ academic achievement and school performance. Fullan (1985) identifies parent involvement and support to school as one of effective school indicators. Meanwhile, Henderson (1988) finds a number of facts showing
parents who are involved in formal education will have some benefits such as higher achievement and better behavior of their children. After reviewing family involvement research over 10 years, Van Voorhis, Maier, Epstein, and Lloyd (2013) summarize that learning activities at home, family involvement at school, school outreach to engage families, supportive parenting activities contribute greatly to children learning.

Involving parents in education requires to some extents collaboration between parents and teachers. Such collaboration has several characteristics such as trust and respect, parity in relationship, voluntary participation, and shared resources (Friend & Bursuck, 1996). As collaborators parents are assumed some roles. Berger (1995) portrays six roles parent that emerge in the interaction of parents and schools. They are parents as teachers of own children, parents as spectators, parents as temporary volunteers, parents as volunteer resources, parents as employed resources, and parents as policymakers.

As stated by Desforges and Abouchaar (2003:52) efforts to promote parental involvement in education might be organized into three categories. They are activities focusing on the immediate connectivity between schools and parents, activities issuing of involvement more broadly into family and community education programs, and parent training programs aimed at promoting parental psychological health and/or relationship skills which are known to be foundational to parental involvement. The work of Epstein (2002) could be a beneficial source for those who want to promote parent involvement program.

There are important differences between these approaches. Meanwhile, Mapp and Henderson (2002) elaborate Epstein proposal of six types of involvement by giving sample practice. The type can be classified into parent involvement at home and school. Specifically, they consist of program relating to parenting, communicating, learning at home, volunteering, decision-making, and collaborating with community school.

Involving parents in child education especially at elementary school level is valued as positive practice by many countries, including Philippine and Indonesia. For instances in Indonesia, currently, under a new curriculum, labeled as Curriculum 2013, teachers are suggested to ask for parental participation in children learning at home. They are encouraged to develop instructional designs that enable parents to accompany their children learning at home. Some remain unclear questions related to no extensive research available are how well teachers and parents are prepared to do this involvement, how parent involvement is practiced, and how successful is the
involvement.

Reflecting from such research, recently there is no clear information of how colleges of education prepare their students to understand the concept of parent involvement in education as well as the practice such involvement. Since today students in college are prospective teachers, they are expected to comprehend the theory and practice of parent involvement. A deep understanding of how the students of both universities perceive parent involvement in education will be a cornerstone to predict continuity of educational efforts between homes and schools by future teachers. Comparing how students of both countries perceive parent involvement in education are not only necessary to strengthen the existing efforts but also both can gain many ideas that can be shared and implemented in each country. This survey aims at describing elementary education students’ perception of the importance of parent involvement in children education and portraying curriculum practice of parent involvement defined in elementary education major course of Philippine Normal University and Sriwijaya University.

**Research Method**

To achieve the objectives this study chooses survey method as its design. As suggested by Shaughnessy, Zechmeister, & Zechmeister (2012), it is used to design, analyze, and reporting the research results relating to thoughts, opinions, and feeling. To answer the research questions this study recruited available students of Philippine Normal University (PNU) in Manila and Sriwijaya University in Palembang. Due to a difference in categorizing study program at PNU and Sriwijaya University where early childhood education would be assigned to teach K-3rd graders and elementary education students of PNU would be assigned to teach 4th-6th graders, and elementary education students of Sriwijaya University would be assigned to teach 1st-6th, the respondents of PNU consisted of 66 senior students majoring in early childhood education and 65 senior students majoring in elementary education. Total students of PNU in this study were 131 students. Meanwhile the respondents of Sriwijaya University consisted of 83 students who were majoring in elementary education. All of those students had been practicing teaching in school so that they started to be familiar with school atmosphere. They participated voluntarily as shown by informed consent forms they filled out before responding the questioners. In addition, the study also involved the head of elementary education and early childhood education of PNU and the head of elementary education of Sriwijaya University who had suitable information of curriculum practice.
Questioner, suggested by Gray (2000) as one of effective methods in collecting data, was chosen to such purpose. The Questioner of Students Perception to Parent Involvement in Education was administered to the respondents. The questioner written based on Epstein's Framework of Six Types of Involvement was written in Indonesian and English. It has 30 5-point Likert scaled items (from “strongly important” to “strongly unimportant”) on parental involvement. Data were collected from paper copies of the questioner distributed to students of PNU and Sriwijaya University. In addition to questioner, the study employed an interview guide questioning curriculum practice of parent involvement in PNU and Sriwijaya University. The interview was addressed to the head of elementary education and early childhood education of PNU and the head of elementary education of Sriwijaya University. The data gathered from the respondents was presented in table, graphs, and statistics. Specifically, this study also analyzes students’ perception to parent education in term comparing of the students’ perception of both universities.

Findings

The objectives of this study are to describe elementary education students’ perception of parent involvement in children education and curriculum practice available at both universities. To achieve these objectives researchers had collected data and analyzed them properly. For quantitative data, they were entered into Excel Windows Release 6.0 for data analysis. Returned questioners included 133 students of PNU and 83 students of Sriwijaya University. Students’ responses to questioner were scored by using Likert Scale, 5-very important, 4-important, 3-undecided or unanswered, 2-unimportant, and 1-very unimportant.

As discussed in the previous part, parent involvement activities in education were grouped into six types: parenting, communicating, learning at home, volunteering, decision-making, and collaborating. Figure 4.1 below portrayed differences of students of PNU and students of Sriwijaya University (Unsri) surveyed to parent involvement in education in six types as pertained above. It seemed in all types the students’ score of PNU were slightly higher than students’ score of Sriwijaya University.
Figure 1 Students’ Responses to Parent Involvement in Education

Table 1 Results of the t-Test between Students of PNU and Students of Unsri

<table>
<thead>
<tr>
<th>Categories</th>
<th>Students of PNU</th>
<th>Students of Unsri</th>
<th>t-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Parenting</td>
<td>4.33</td>
<td>0.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Communication</td>
<td>4.71</td>
<td>0.2</td>
<td>4.3</td>
</tr>
<tr>
<td>Learning at Home</td>
<td>4.41</td>
<td>0.47</td>
<td>4.2</td>
</tr>
<tr>
<td>Volunteering</td>
<td>4.24</td>
<td>0.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Decision Making</td>
<td>4.18</td>
<td>0.66</td>
<td>3.9</td>
</tr>
<tr>
<td>Collaborating</td>
<td>4.19</td>
<td>0.62</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 1 above showed descriptive statistics by categories. Both Students of PNU and Sriwijaya University valued communication as the most important compared to others. The mean score of communication was 4.71 and 4.3. The scores also indicated that the lowest aspect of parent involvement rated by PNU students was decision making and collaborating. On the other hand, Sriwijaya University students rated volunteering aspect as the lowest (3.8). Parenting and decision making is slightly lower by 0.1 compared to volunteering (3.9).

As revealed in the findings, there was strong evidence from this study that all of students’ PNU and Sriwijaya University surveyed responded positively to importance of parent involvement in education. A further analysis indicated students rated parent involvement in education as important aspect of school system. Students wanted parents to be involved in a variety of children learning at home and expected to play active role in school program as well. At this respect, parent involvement encompassed parenting, communication, learning at home, volunteering, decision-making, and collaboration. Instead of the similar perception to such involvement, students of both universities showed different perceptions at each aspect of involvement.

In Likert Scale of 1-5, students scored parent involvement in education reached averagely 4.05-4.34 of 5. Specifically, the total of mean score reached 4.34 (SD = 0.62) for students of PNU and 4.05 (SD = 0.3) for students of Sriwijaya University. It meant that their perceptions to the involvement had been reached between important and very important level. This perception level indicated that parenting, communication, learning at home, volunteering, decision-making, and collaborating were action that according to students should be perform ideally by parents in order support children learning.

Across all categories of parent involvement, mean scores of Sriwijaya University’s students were below its counterpart PNU’s students. For PNU’ students, communication was valued almost very important (4.71). This value was higher than Sriwijaya University’s (4.3). The t test of 8.017 between two groups of students indicated that although the differences were wide enough, each group of students felt communication was primary compared to other categories. Learning at home was the second category that was in agreement between two groups. Mean scores of PNU’s students was 4.41 (SD=0.47) and Sriwijaya University’ students were 4.2 (SD=0.29). The students responded positively to this category indicating that learning at home was expected action that should be performed by parents. For the rest categories of parent involvement, the mean scores of PNU’ students were above 4.0, meanwhile Sriwijaya University’s was less than 4.0 except for collaborating categories that reached 4.0.
For qualitative data obtained through interview they were described as follow. First, there are difference policies between curriculum at PNU and Sriwijaya Universitiy related to this concern. The College of Teacher Development of PNU provided parent involvement course in its curriculum. It was placed in fifth semester. This course was intended to give students with theory and practice of parent involvement in school. Meanwhile, Sriwijaya did not provide exclusively a parent involvement course in its curriculum. It was part of introduction to education course given to first semester students. The content spent for 150 minutes (3 credit hours) focused on the importance, responsibilities, roles, collaboration between parents and teachers in educating their children.

Discussion

First, finding of this study in general shows all of students of PNU and Sriwijaya University has positive perception to the importance of parent involvement in education. Their average responses to six types of parent involvement activity, parenting, communication, learning at home, volunteering, decision making, and collaboration, are above important level. However, in closer look, there are differences in all aspect of students’ perception on parent involvement between students of both universities where students of PNU is somewhat higher compared to their counterparts. Another finding indicates a similarity between both universities in perceiving parent involvement. They are in agreement to the importance of parental role to children in all types of involvement. There is a major difference of curriculum practice between PNU and Sriwijaya University in teaching prospective elementary teachers. The first provides parent involvement course and the latter only part of introduction to education course. However, when students are in field experience at school, there is no program required the students to practice such involvement.

Second, all of students participating this study are those who have been practicing teaching or field experience in schools so that they started to be familiar with school atmosphere. Even though they are not required to practice some of types parent involvement activities, as the students entering school gates, classrooms and play grounds, observing teaching and learning activities, student learning and social behaviors, and taking notes a number of difficulties faced by teachers in directing students in classroom or out classroom activities, they may start to discover that educating children was challenging instead to say it was not easy task. These experiences may open students’ mind that educating children cannot be done only by teachers. By further observation and discussion with teachers and principals pertaining to school facilities,
school management, and school financial students may realize that in order to educate children properly schools need some more resources or helping which are not always available in there. Parents were considered to be such resources.

Students who participate at this study has long education experiences since they entered school for the first time (e.g. elementary school). When the questioner administered to them their ages are 21 years in average. It is possible they have satisfied or unsatisfied past educational experiences. The satisfied experiences may be perceived as they feel that their education successful cannot be separated from their parent efforts in helping their learning. These experiences in turn result a belief that parent involvement in education is a must. The same perception may be stated by students who feel their past educational are unsatisfied. Although they have graduated from high school and have been in college, they might feel that they will be more successful if their parents are able to engage in their learning more deeply. At this respect, they probably perceive that parent involvement in education are also a must.

Unlike its counterpart, Sriwijaya University do not provide a course of parent involvement in education in its formal curriculum. This can explain why the perception rate of Sriwijaya Univeristy’s students are lower than PNU’s. Perception, a process by which individuals detect and interpret environmental stimuli, can be shaped by direct experiences and/or indirect experiences. Taking a course of parent involvement in education, students of PNU gain some benefits particularly their knowledge of such involvement have expanded. They may clarify the relationship between their past educational experiences and theories pertaining parent involvement. Although students are not required to practice the types of parent involvement, when they come to field experience in school, they gain more insight of such involvement. The accumulation of both theory and experience finally shapes positively their perception to the importance of parent involvement in education. Meanwhile having little content of parent involvement in introduction to education course, students of Sriwijaya University although have rated positively of such involvement, their perception are not systematically shaped. It is presumably affected by their past experience instead of along with theoretical foundation. This explanation gives impression why all of students still have positive perception to such involvement instead of having different background educational experiences.

College students will be teachers of the future. They have to accomplish a set of competencies that enable them to educate children properly. As such having been knowledgeable, having positive attitude, and having proper skills of how to involve parent in education will be a
modality for students to be professional teachers. The more they have positive perspectives of parent involvement the more they may implement such perspectives in actual educational practice.

Third, the respondents of this study are students who have not been real teachers, so their perception might be ideal and different from teachers as indicated in the following findings. A study of Sharifah and Wee Beng Neo (2001) to teachers of primary schools in Malaysia finds different findings. Their finding indicates teachers value parenting, learning at home, communication, and communication as the main need of parental involvement. Meanwhile, the main school practice on parental involvement are preferably in learning at home, communication, and decision making. Another related study focus on secondary school teachers’ perception by Reduan (2008) finds the four types of parental involvements specified by teachers are parenting, communication, home learning, and collaboration with community. Study of parental involvement by Moon and Ivin (2004) indicates that the vast majority of the parents feel attendance, learning at home, and communication with school as extremely important activity in their involvement.

Fourth, this study has been shown that all students have positive perception to parent involvement in education and there are differences to such perception between students of PNU and Sriwijaya University. However, there are still some limitations of conducting this study. Using Epstein’s model of parent involvement which proposed six aspects of such involvement will not always fit to different cultures. Another limitation of the study is the number of participated respondents that only involved one university in each country. The data will not be representative enough to generalize the findings.

Fifth, considering the limitation of the study, particularly the college students as research participants, future studies may be focus on how parental involvement perceived by students from different backgrounds. Future research is also expected reach other subjects with different background, such as teachers and parents. Knowing their perception is important in order to build more comprehensive picture of parent involvement.

Conclusion and Recommendation

Students of PNU and Sriwijaya University differed moderately in aspects of parent involvement such as activities related to parenting, communication, and volunteering. Meanwhile in the activities related to learning at home, decision-making and collaboration the differences are not
significant. In sum the students of both universities perceived the importance of parent involvement in educating their children.

In case of Sriwijaya University, this higher education institution should support the importance of parent involvement education in light of a recent policy of Ministry of Education and Culture in implementing Curriculum 2013 where parents are crucial agents in supporting children learning. The support will be adding a course in its curriculum containing parent involvement theory and practice as well as gives students to practice it in field experience in elementary schools.

The research design of this study is based on Epstein’s framework. Even though students have positive responses to the importance of parent involvement, Epstein’s framework will not always fit to Philippine or Indonesian context. It is suggested that each university initiates to develop a model of parent involvement in education suitable to the need of each country.
References


Abstract: Classroom furniture affects a child’s health, posture and ability to learn. There has not been systematic work to develop ergonomic guidelines for children that can accommodate the age spectrum of children and adolescents. The use of unergonomic furniture, especially school desks and tables, have a negative impact on the health of the children mainly with their postures. School children report high rate of discomfort particularly in the neck and back region. Such musculoskeletal problems often result to children’s discomfort and long-term health. Bad adapted postures and classroom furniture are important contributors to children’s musculoskeletal discomfort. The present study suggests ways of improving the postures of the children which will not only reduce the discomfort experienced by them but also, improve their work performance in the classroom.

Keywords: Classroom, Furniture, Ergonomics, Postures, Quality Education

1. Introduction

Education is the process of teaching and learning, which just does not consist of verbally communicating to pupils and students. Education also involves other things in the process, by providing adequate conditions to be fulfilled, which allows the implementation of assigned tasks, without hampering the health of the students. Another aspect which is important is that the students should be able to work with their educators in a safe, comfortable and friendly environment. From the mentioned factors, the application of ergonomics becomes necessary to address the problems faced by the students with respect to school furniture and postures and make the classroom a better and safe place to study. Ergonomic furniture, anthropometric dimensions and posture are the three main components in which ergonomics can contribute in quality education. In the following, the contributions in ergonomic research will be highlighted related to these elements. The research indicates the importance of application of studies in the field of ergonomics for identify various problems that encircles the education process.

1.1 Ergonomics in Education

ERGONOMICS has been defined by ILO as the “application of human biological sciences in conjunction with engineering science to the worker and his working environment, to obtain maximum satisfaction for worker while at the same time enhance productivity”.

The term ERGONOMICS is derived from Greek word Ergon: work; Nomos: natural. It is a science dealing with the MAN – MACHINE – ENVIRONMENT relationship to get the optimum output from the MME system with less human cost.
Educational ergonomics is defined as that field of human factors concerned with the interaction of educational performance and educational design by the facilities given in education. Educational ergonomics has the power to intensify the achievements of students and the system to a substantial degree. Ergonomic interventions which work on design improvements contribute in education scientifically. A concise definition would be that ergonomics focuses on designing appliances, systems and tasks in such a way as to improve human safety, health, comfort and performance. The science of ergonomics deals with man in relation to his working environment. So, the science seeks to explore the most efficient man product environment relationship at minimum human cost. Any product to be used by man must fulfill the following criteria:

i. The product must be as safe as possible
ii. The product must be easy to handle
iii. The product must be economical
iv. The product must follow the natural phenomenon of man
v. The product must also operate within the human limits.

1.2 Man, Machine and Environment

Ergonomics seeks to maximize safety, efficiency and comfort by matching the requirements of the operator’s “machine” (or indeed any aspect of workplace which he must use) to his capabilities. By linking the man to his machine in this way a relationship is established between these two components, so that the machine presents information to the man via his sensory device to which he may respond in some way—perhaps to alter the machine’s state via various controls.

1.3 Postural development in children

The posture that a person adopts when performing a task is determined by the relationship between the dimension of the person’s body and the dimensions of the various items at his/her workplace. Posture can be defined in a general way as “the organization of bodily segments in space according to gravity forces” (Grandjean 1969, Berthoz 1978). Postural muscles provide stability. According to Child and Youth Health, posture is the manner and position in which your child holds his head, neck, back and spine, as well as his arms and legs, when standing, sitting or lying down. Bad posture usually results from a combination of physical and environmental issues, such as uncomfortable furniture, inappropriate furniture dimensions, unfriendly environment etc. Children must be able to sit or stand in a range of stable postures before they can read and write effectively. Poor postures are often induced by the poorly designed seat, work table and adverse environmental factors. It has been observed that while resting or attending to the teacher, students adopt backward position leaning against the back rest. This awkward posture was forced on the children by the badly constructed seat as they seek to achieve a comfortable and stress-free sitting condition. The design of suitable school furniture is therefore a complicated task which aims at enhancing safety, comfort and effective performance at school children workstation. As a result, chair and other seating furniture thereby have become most important tools for children, youths and adult’s population. Unfortunately, postural problems are increasingly common among children. Many developmental specialists suggest that today’s infant rearing practices impede the development and strength of postural muscles and contribute to postural deficits.

2.0 Review of Literature

Human body have been conveniently divided into segments which include head and neck, upper arm, fore arm, hand, thoracolumbar, thigh, foreleg and foot which are connected by linkages at different joints (Phillips. 2000, Pope, 2002, and Onawumi, 2013). It is seen that much of the damages in posture are done at the childhood age with poor attitude to interventions expected in the process of seat systems development, seat component design and fabrication and monitoring of sitting children posture. The contributions of house and school furniture to musculoskeletal development for both adult and children cannot be over-emphasized (Farley et al. 2003. Magnuson and Dilabio 2003). In addition, the introduction of seating systems at an appropriate age is considered to facilitate
psychosocial and cognitive development (Dworak, 2005). Human posture was defined in the work of Ham et al (1998) as “the position of one or many body segments in relation to one another and their orientation in space” Posture therefore synchronizes the effect of function, stability and comfort on human musculoskeletal system. A seating system that does not match the user’s requirements would likely fail to provide adequate postural support and may therefore limit function rather than promote it (Di Marco et al, 2003).

3.0 School Furniture And Children: Musculoskeletal Symptoms

A growing body of research indicates that school children report high rates of discomfort, particularly in the neck and back. Such musculoskeletal symptoms often impair children’s comfort and long-term health. School furniture is not the only cause of pain and discomfort. However, research has shown that awkward and constrained sitting postures and poorly designed classroom furniture are important contributors to children’s musculoskeletal discomfort. These considerations are particularly important given that childhood is a critical time to learn and develop good postural habits that they might practice through their lifetime. Hence utmost care needs to be taken when children are performing any classroom activity like reading, writing, drawing etc. The classroom educators need to be careful and alert as soon as a child adapts a wrong or awkward posture, the child needs to be corrected immediately before any more harm is done to the back and neck region.

4.0 Children and Classroom Furniture: Is there a match?

Research studies worldwide showed that there have been mismatches of children’s body dimensions and the classroom furniture, which results in poor seated postures and musculoskeletal problems. Table 1 shows the studies of children’s postures with the dimensions of the furniture.

Table 1: Studies of children’s postures with the dimensions of the furniture.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CITATION</th>
<th>SUBJECTS</th>
<th>FINDINGS</th>
<th>CONCLUSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Milanese and Grimmer (2004)</td>
<td>Surveyed 1269 adolescent Australian students. Examined the fit between sizes of individual children and their school furniture. Compared the reported back – symptoms with mismatches between children and their school furniture.</td>
<td>The smallest student had the “best fit” with the school furniture. The tallest students reported higher rates of low back pain</td>
<td>The degree of mismatch between the sizes of children and their school furniture is associated with adolescent low back pain.</td>
</tr>
<tr>
<td>Greece</td>
<td>Panagiotopoulou et al (2004)</td>
<td>118 randomly selected elementary school children in Greece. This included 10 boys and 10 girls from each of the 2nd, 4th and 6th grades at three primary schools. Compared the fit of older and newer furniture provided to children in grades 1-3</td>
<td>15% of 4th grade children and 23.3% of 6th grade children reported suffering from back pain associated with sitting at school. 8.3% of 2nd graders, 10% of 4th</td>
<td>Major mismatches between the anthropometric measures and classroom furniture dimensions Desks and chairs were too high for all 2nd and 4th</td>
</tr>
<tr>
<td>Holland</td>
<td>Molenbroek et al (2003)</td>
<td>Compared body sizes data of Dutch children with data from German and British national standards</td>
<td>Statistically estimated the fit of a draft European school furniture design standard (CEN/TC 207 prEN 1729 1,2, 2006 a,b) They found it would not fit Dutch school children.</td>
<td>Unless sizing is based on popliteal height rather than stature, draft European standard will not fit Dutch school children.</td>
</tr>
<tr>
<td>Iran</td>
<td>Habibi and Hajsalahi (2003) and Habibi and Mirzaei (2003)</td>
<td>Anthropometric survey of 17 body dimensions of male and female Iranian primary school children aged 7-11 years in the city of Esfahan</td>
<td>71% of school children reported back pain 42% reported problems related to classroom space Students mean height was 1305mm and their mean weight was 29kg</td>
<td>Argued for using 17 body size dimensions in the design of school furniture and equipment to minimize musculoskeletal, visual, and circulatory problems.</td>
</tr>
<tr>
<td>Mexico</td>
<td>Prado – Leon et al (2001)</td>
<td>Studies 50 anthropometric dimensions and 4758 Mexican primary school children in this part of Mexico have different</td>
<td>Mexican</td>
<td>It requires 50 anthropometric dimensions to properly design</td>
</tr>
</tbody>
</table>
children, boys and girls aged 6 to 11 in the city of Guadalajara. Compared these measurements to those of American, Cuban and Mexican children. body dimensions than do American, Cuban and Mexican children, possibly due to ethnic differences and temporal differences when studies were concluded. the school furniture; fittings and equipment to minimize risk of musculoskeletal, visual, and circulatory problems.

New Zealand Legg et al (2003) 189 students in three New Zealand secondary (high) schools A high level of mismatch between school furniture and anthropometric dimensions. There is a considerable mismatch between the sizes of children and their school furniture.

Taiwan Lin and Kang (2000) Applied anthropometric data of Taiwanese people to the design of high – school classroom equipment’s Compared advantages and disadvantages of six current desks and chairs used in Taiwan high schools. Summarizes the ideal desk and chair design dimensions for Taiwanese high school children.

Source: Ergonomics for Children

5.0 “Ergonomic” Classroom Furniture Designs

In the 1980s, a Danish researcher proposed that schools replace conventional flat desks and low chairs with higher chairs with forward-tilting seat pans and with slope adjustable table surfaces (Mandal, 1982, 1984, 1997). Mandal argued that this design would reduce forward bending of the low back and neck (lumbar and cervical flexion), improve the abdominal angle, and allow children to work in more neutral body postures. Studies that evaluated the effects of different types of furniture suggested by Mandal generally have found favourable results (Linton et al., 1994; Aagaard-Hansen and Storr-Paulsen, 1995; Taylour and Crawford, 1996). However, simply providing the furniture does not ensure that school children will sit in good postures. It was also seen that children did not automatically sit “properly,” even in “ergonomic” furniture, which highlights the need to provide children with proper instructions and adjustment. Sloping desks that adjust—together with proper training—may improve posture for paper-based classroom tasks, such as writing, drawing, or reading from a book. Adjustability is not likely to provide the same benefits for computer work, which is increasingly a component of classroom instruction.

6.0 Conclusion

More research is needed that systematically reviews the potential impact of ergonomic classroom furniture on schoolchildren’s educational performance and well-being. To date, the term “ergonomic” has often been ill-defined in the research and loosely applied to alternative furniture designs which lack a standard that defines what constitutes an “ergonomic furniture design.” Hence, there should be better classroom furniture provided to children which decrease the musculoskeletal problems and lead to a better environment to work.
7.0 Correct Ergonomics

- Both feet flat on floor
- Knees, hips and ankles at 90-degree angles
- Chair pulled in under the desk and
- Knees comfortably under the desk
- Shoulders relaxed
- Wrists and hands resting lightly on the desk
- Neck balancing lightly on top of the spine and in the middle of the body – “take your head to top of clouds”.
- Avoiding pro long sitting

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THE EFFECTIVENESS OF SCIENCE PTECHLS MODULE IN A RURAL PRIMARY SCHOOL IN MALAYSIA

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Abstract: Designing and developing lessons that cater to students’ learning styles are important to enhance students’ motivation and engagement in learning. In achieving this, technology tools are found helpful to help teachers to cater to each learning style. Past studies have proven that the integration of technology and learning styles in science subjects is helpful to help students to master abstract science concepts. One of the examples is PTechLS (Physics Technology and Learning Style) module that is designed to improve students’ mastery by integrating technology and students’ learning styles. Hence, the current is aimed to develop a module for Science subject in a selected rural primary school in Malaysia and to measure its effectiveness. This study employs one-group quasi-experimental design, with 18 Year 5 students as the sample of the study. In the first phase, their learning styles are identified using the modified ILS (Index of Learning Styles) instrument. The design and development of the module is based on their learning styles and appropriate technology tools. Finally, the effectiveness of this module is tested. The findings suggest that the module is significantly effective to enhance students’ achievement, where t(17)=27.564, p<0.0005 and the posttest (M=36.67, SD=2.61) score is higher compared to pretest (M=19.44, SD=2.52). This indicates that students’ achievement score could improve after using the Science PTechLS module. Hence, there is possibility that the Science PtechLS Module could be used in other primary schools in rural areas in Malaysia to improve students’ achievement and interest in Science.

Keywords: Learning Styles, Technology, Abstract Science Concepts, Teaching and Learning

Introduction

A lesson that is planned based on students’ learning styles will not only enhance their motivation but also their level of understanding and engagement. A number of studies have highlighted the importance of designing teaching and learning activities based on students’ learning styles to help enhance their engagement in learning (Aviles & Moreno, 2010; Manolis, Burns, Assudani & Chinta, 2013; Naime, Siraj, Abuzaid & Shagholi, 2010). As defined by Labib, Canós and Penadés (2017), learning style refers to “…a set of characteristics, mostly related to personality and attitudes, that a person shows when participating as a student in a learning process.” (p.433). Among influential models of learning style is Felder-Silverman Learning Style model (Felder & Silverman, 1988). In this model, learning styles can be divided into five dimensions: a) process, b) perception, c) input, d) understanding, and e) organization. However, in their proposed assessment instrument to identify learning styles (known as is Felder-Silverman’s Index of Learning Style, ILS) only four dimensions, except organization dimension (inductive or deductive), that reflect students’ learning styles. Felder and Silverman (1988) justified that inductive and deductive (under organization dimension) are learning preferences and related to teaching approaches. Hence, from these four dimensions, students can be categorized into eight learning styles: a) active, b) reflective, c) sensing, d) intuitive, e) visual, f) verbal, g) sequential, and h) global. It has been established that students’ behavior during a lesson serves as indicators of how they perceive, interact and responding to learning (Keefe, 1987; Kolb, 1984). Acknowledging their learning styles and designing lessons accordingly are therefore very important.

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However, its effectiveness on students’ academic achievements has been the subject of contentious debate. An and Carr (2017) argued that the available learning style theory is inadequate to explain the causal mechanism and effects of learning style on academic achievement. They further mentioned that there are limited evidences to support this claim. Nevertheless, studies such as Aviles and Moreno (2010), Lau and Yuen (2010), and Rashid (2009) have exemplified that designing lessons that suit students’ learning styles has a positive impact on students’ motivation and achievement. For instance, Rashid (2009) found that there is a significant relationship between identifying students’ learning styles and designing lessons that match their preferences and their learning motivation. As the result, students’ engagement in learning process has increased and thus, enhance their learning outcomes.

Ideally, catering to students’ learning styles offers promising outcomes to enhance students’ motivation and academic achievement. However, an important point to consider is to avoid clashes between teacher’s teaching styles and students’ learning styles. In Monós’s (2015) work, the term ‘style war’ is used to represent this tension. It is undeniable that some teachers might hold to their belief that their style is the best for their children. Monós (2015) further explained that learning style awareness should first be mastered by teachers in order to avoid the ‘style war’. Not only that, designing various learning activities to suit different learning styles in a classroom might appear as a challenge for teachers. Similar concern is being addressed in Al-Shammakhi and Al-Humaidi’s (2015) study, where they mentioned that lack of teaching skills and knowledge on methodology pose a challenge in catering to different students’ needs and styles of learning.

Current body of research has suggested matching learning styles with technology is potentially beneficial to overcome aforementioned problems (Alias, DeWitt, Siraj, Rahman, Gelandin & Rauf, 2014), especially in catering to various learning styles in a classroom (Labib et al., 2017), and in introducing students to abstract science concepts (Isman, Yaratan & Caner, 2007). In Malaysia, there are three core science subjects, introduced in primary, lower-secondary and upper-secondary level, and four elective science subjects introduced in upper-secondary level (Additional Science, Physics, Chemistry, and Biology). Undeniably, grasping the idea of abstract science concepts is a challenge for students. In Abdullah Nor (1998) and Shahanom Nordin’s (1998) study, they reported that students’ mastery of abstract concepts in Physics subject is poor. In fact, an analysis report by Ministry of Education Malaysia (MOE) (2007) on students’ performance in this subject for Malaysian Certificate of Education examination, exemplified that they were struggling in this area.

In fact, as early as primary level, developing students’ mastery of scientific concepts, knowledge, skills and attitudes, are among the primary focuses of Science subject (MOE, 2014). In achieving this, MOE (2014) also believes that the integration of salient technology is helpful to enhance learning, and as stated in the Standard-Based Curriculum for Primary School Document (Science Year 5); “Technology is an effective method to strengthen the learning of science.” (p.14). Therefore, matching learning styles and salient technology has a high potential to enhance students’ motivation to learn, mastery of science concepts, and help teachers to design meaningful lessons for various learning styles in a classroom, as well as avoiding ‘style war’.

In supporting above claim, in 2010, Alias (2010) has developed a pedagogical module based on technology and learning styles for Physics subject in Malaysia. Later, in 2012, Alias and Siraj (2012) has implemented the module, named PTechLS (Physics Technology and Learning Styles), in a selected secondary school. The findings suggested that there was a significant difference in students’ achievements in Physics after completing the PTechLS module. In 2014, Alias et al. (2014) have developed another module for Biology subject and tested it on students from a rural school in Negeri Sembilan. It is found that, after completing the module, students’ achievement has significantly improved ($t$(36)=13.95, $p<0.05$). In both studies, the researchers first identify students’ learning styles using modified ILS instrument (Felder & Silverman, 1988). The findings suggested the students learning styles are only active, reflective, visual and verbal. Then, appropriate technological tools are selected to match all four learning styles. In selecting these tools, they have based the selection on the
experts’ consensus through Delphi technique. The experts’ suggestions are presented in Table 1 below.

Table 1: Framework in designing PTechLS modules.

<table>
<thead>
<tr>
<th>Learning style</th>
<th>Technology tool</th>
<th>Electronic support</th>
<th>Teaching technique</th>
<th>Activity</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Laptop</td>
<td>Webquest</td>
<td>In-group project</td>
<td>In blog</td>
<td>Group work</td>
</tr>
<tr>
<td>Reflective</td>
<td>Laptop</td>
<td>Video clip</td>
<td>Individual exercises</td>
<td>Wiki</td>
<td>Create mind map</td>
</tr>
<tr>
<td>Visual</td>
<td>Laptop</td>
<td>Webquest</td>
<td>Practical/pairing demonstration</td>
<td>Wiki</td>
<td>Create PowerPoint</td>
</tr>
<tr>
<td>Verbal</td>
<td>Laptop</td>
<td>Video clip</td>
<td>Lecture</td>
<td>Tutorial</td>
<td>Presentation tasks</td>
</tr>
</tbody>
</table>

(Alias, DeWitt & Siraj, p.69, 2013)

Based on the above suggestions by experts, the module is then developed using Isman Instructional Design model (2011). According to Isman (2011), the first step is to identify needs, contents, objectives, teaching methods, materials and instructional media. Alias et al. (2013) have developed a web page for both students and teacher as the guidance in conducting the lessons. Then, they have gather experts’ feedbacks in measuring the suitability of the prototype module, and then is being implemented on 40 students and two teachers. Later, students and teachers’ feedbacks on the implemented module are gathered and evaluated. Finally, effectiveness of the module is being evaluated using experimental design. Alias et al. (2013) noted that there is an increment in students’ performance in this subject after completed the module, and thus, suggesting that the integration of technology and learning styles is effective to enhance learning.

The Study

Based on the previous discussion, we recognized the importance of integrating technology in catering to students’ learning styles, and thus, there is a need to develop a PTechLS module for Science subject in a rural primary school in Malaysia. The present investigation is designed to design and develop a Science PTechLS module, and to evaluate its effectiveness in enhancing students’ achievements of a selected rural primary school, in this subject.

Methodology

Participants

The selected school is located in Jelebu district of Negeri Sembilan, with enrollment around 200 students and 20 teachers. For this study, 18 students in Year 5 are selected as the sample of the study.

Research design

This research employs one-group quasi-experimental design, also known as one-group pretest-posttest design (Colman, 2014). Through this design, students’ performance in Science subject before and after receiving the treatment (Science PTechLS module) can be determined. Also, a comparison
between both performance in pretest and posttest will help to determine the effectiveness of the selected intervention (Chua, 2010; Colman, 2014). In this study, all 18 students have completed a pretest before undergoing the treatment, which is the implementation of Science PTechLS module. Upon completion of the module (four weeks duration), these students have to complete the posttest. The overall achievements in both tests are compared and analyzed using mean difference and t-test.

**Instrument**

There are two instruments designed for this study; a) Index of Learning Style, and b) pretest and posttest questions. In initial stage, students are required to complete the modified ILS instrument, in determining their learning styles. This instrument is adapted from Alias et al.’s (2013) study, which consists 44 items (11 items for each learning style), with two answer options for each question. Students’ responses to the questionnaire are calculated through online platform, to determine their learning styles. The highest score reflects the learning style of each student.

The second instrument is the pretest and posttest instrument. In this instrument, there are 20 objective questions. The questions are designed based on the States of Matter topic (Year 5 Science). Two sets of questions are designed for pretest and posttest.

**Procedure**

Firstly, students are asked to answer the modified ILS instrument. Their responses are calculated using online platform and the results represent each student’s learning style. Students are then categorized into groups according to their learning style. Then, the Science PTechLS module is developed based on Alias et al.’s (2013) framework. In this module, the objectives, content, teaching methods and assessment are designed based on Alias et al.’s (2013) findings (refer Table 1). Detailed lesson plans and learning materials are then developed using relevant technology tools, such as Webquest, Wiki, YouTube, links and blogs. Before the module is being introduced, students are asked to complete the pretest instrument. Then, the teaching and learning using this module are conducted for four weeks during Science periods. After the final lesson, the students are required to answer the posttest instrument. Their responses are analyzed by calculating means and standard deviations, as well as t-test score.

**Results and Discussion**

**Lessons design and development based on the modified ILS findings.**

In designing lessons to suit students’ learning styles, the responses in modified ILS instrument are first analyzed. Table 2 summarizes the learning styles of all 18 students.

<table>
<thead>
<tr>
<th>Learning style</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>4</td>
<td>22.22</td>
</tr>
<tr>
<td>Reflective</td>
<td>4</td>
<td>22.22</td>
</tr>
<tr>
<td>Visual</td>
<td>4</td>
<td>27.78</td>
</tr>
<tr>
<td>Verbal</td>
<td>5</td>
<td>22.22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

From 18 students, 27.78% (n=5) are visual learners. The remaining students are active (22.22%; n=4), reflective (22.22%; n=4) and verbal learners (22.22%; n=4). The above results are similar to Norlidah et al’s (2013) study, where only four learning styles that are dominant among the selected students.

Based on the above findings, the students are categorized according to their learning styles. Lessons for four weeks period are designed accordingly. Table 3 represents the framework of lessons design and development.
Table 3: Module design and development for current study.

<table>
<thead>
<tr>
<th>Learning style</th>
<th>Technology tool</th>
<th>Electronic support</th>
<th>Teaching technique</th>
<th>Activity</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Laptop</td>
<td>Webquest</td>
<td>Collaborative learning</td>
<td>Responses posted on blog</td>
<td>Gathering information on states of matter and post their findings on blog</td>
</tr>
<tr>
<td>Reflective</td>
<td>Laptop</td>
<td>Video clip</td>
<td>Individual learning</td>
<td>Wiki entry</td>
<td>Producing a mind map of states of matter, and post it on Wiki</td>
</tr>
<tr>
<td>Visual</td>
<td>Laptop</td>
<td>Webquest</td>
<td>Practical/pair-work learning</td>
<td>Wiki/PowerPoint</td>
<td>Gathering information from suggested links, creating PowerPoint presentation on states of matter, and post it on Wiki</td>
</tr>
<tr>
<td>Verbal</td>
<td>Laptop</td>
<td>Video clip</td>
<td>Presentation-based learning</td>
<td>Presentation</td>
<td>Gathering information by watching suggested videos, describing the information verbally, answering questions and present their findings (through presentation)</td>
</tr>
</tbody>
</table>

The above structure of the module is in line with Norlidah et al.’s (2013) framework. Since four learning styles are identified among the selected student, findings of Delphi technique in Norlidah et al’s (2013) study, are relevant to be used as the foundation for the current study. In their study, they have gathered opinion of ten field experts in selecting appropriate technology tools, teaching techniques, learning activities and exercises according to the learning styles (findings are summarized in Table 1, in earlier section).

For this study, the lessons (in the module) for each learning styles throughout four weeks follow the above structure. For active learners, the learning focuses on collaborative activities, where students work in group to find information online, discuss on their findings and post their findings on provided blog. Reflective students conduct learning individually. They search information and understand them, and finally produce a mind map using MindMeister individually to be posted on Wiki. Visual students work in pairs (and in a small group of three) to produce a PowerPoint presentation based on the information gathered from the suggested links. Lastly, verbal students are required to verbally present their findings to group members, based on the online learning activities (watching suggested videos and links) and task.

Effectiveness of implemented module.

In measuring the effectiveness of the implemented module, the results of pretest and posttest are analyzed and presented in Table 4.

Table 4: Mean and standard deviation for pretest and posttest.

<table>
<thead>
<tr>
<th>Test</th>
<th>No of students (n)</th>
<th>Mean (M)</th>
<th>Standard deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>18</td>
<td>19.44</td>
<td>2.52</td>
</tr>
<tr>
<td>Posttest</td>
<td>18</td>
<td>36.67</td>
<td>2.65</td>
</tr>
</tbody>
</table>
There is an increase in the overall mean score of students in posttest ($M=36.67$, $SD=2.65$) compared to pretest ($M=19.44$, $SD=2.52$).

Table 5: Paired-sample t-test result.

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest</th>
<th>n</th>
<th>p</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19.44</td>
<td>2.52</td>
<td>36.67</td>
<td>2.65</td>
<td>0.0005</td>
<td>17</td>
</tr>
</tbody>
</table>

Based on the analysis of paired-sample $t$-test (Table 5), the result suggests that there is a significant improvement in students’ achievement in posttest compared to pretest, with $t(17)=27.564$, $p<0.0005$. The data provide adequate evidence to summarize that the implementation of Science PTechLS is effective to improve students’ achievement. Even though there are studies that argued that the relationship between designing learning according to students’ learning styles, and increased academic achievements (An & Carr, 2017; Mayer & Massa, 2003), the current study has proved the opposite. The findings of the current study are in agreement with other past studies that prove that integration of technology is pivotal in catering to students’ various learning styles, and as the result is effective to enhance students’ academic performances (Aviles & Moreno, 2010; Lau & Yuen, 2010; Norlidah et al., 2014; Rashid, 2009). One of the possible reasons to this improvement is its ability to motivate and encourage students to learn based on their strengths. In addition, with the integration of technology, the teaching and learning process is more organized and ease teacher’s roles in catering to each learning style (Alias et al., 2014; An & Carr, 2017; Labib et al., 2017). Norlidah et al. (2013) supported that the integration of technology and learning styles has made teaching and learning more organized and effective in motivating and encouraging students to actively participate in this process.

Implication and Conclusion

The result of the current study has added flesh to the current body of literature on the effectiveness of integrating technology and learning styles in improving students’ academic achievement. Even though, there is a continuous debate on this issue, the current study has made a contribution in providing direction for an effective Science teaching practice. As discussed earlier, the mastery of abstract science concepts, such as in describing different states of matters and its changes, is one of the challenges in teaching. However, through the integration of technology and learning styles – the Science PTechLS module, students are able to master this knowledge. Their achievement in posttest is an evidence of success. It is hoped that the findings of the current study will serve as a point of reference for educators, policy makers and even academicians, to design more lessons that integrate technology and learning styles as the foundation for an effective teaching and learning.
References


INFOGRAPHIC POSTERS FOR ENHANCING 21ST CENTURY COMMUNICATION SKILLS

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Abstract: Graduate students face problems in reading the large numbers of research articles assigned in a research methodology course is reading during the course. The task is overwhelming and is not meaningful for the students. Hence, one method to make the task meaningful is for students to present these reading assignments as an infographic and share it among their peers. In this way more students would be able to have access to summaries of more research papers. In this case study, the case of three students who used infographic posters for presentation in the classroom was investigated. The students participated in the reading assignment and summarized the information in an infographic poster they developed, which was shared on the course platform. The findings indicate that the learners developed the 21st century communication skills as well as literacy skills for summarizing main points. In addition, the other students in the course also managed to view the research papers in the infographic poster. In conclusion, infographic posters could be used for enhancing communication skills. Further research should be done to determine if it could be implemented in other courses and in enhancing other skills among learners.

Keywords: Communication Skills, Infographic Posters, 21st Century Learning, Technology In Education, Online Learning

Introduction

Communication is considered as an important life skill. United Nations International Children's Emergency Fund or UNICEF (2003) defines life skills as the psychosocial ability to adapt and exhibit behaviors to deal with the demands and challenges of life, and include cognitive skills for analyzing and using information; personal skills for developing personal agency and managing oneself; and inter-personal skills for communicating and interacting effectively with others. The World Health Organization (WHO) identified five basic areas of life skills which were considered relevant across cultures: decision-making and problem-solving; creative thinking and critical thinking; communication and interpersonal skills; self-awareness and empathy; coping with emotions and coping with stress (World Health Organization, 1999). Further, the Report of the Inter-Agency Working Group on Life Skills headed by The United Nations Educational, Scientific and Cultural Organization (UNESCO) considers that there needs to be a life skills approach for quality education for human development (UNESCO, 2004). A life skills-based approach to education should cover the individual dimension; the social dimension; the cognitive / reflective dimension; and the instrumental dimension (UNESCO, 2004). Hence, a well-developed communication skills, problem-solving skills, motivation, persuasion, and critical thinking.
skills are the soft skills of the 21\textsuperscript{st} century (MacDermott & Ortiz, 2017). Soft skills are required for employability as they are required for tasks such as managing and working with people as well as to ensure customer satisfaction and loyalty (MacDermott & Ortiz, 2017). Social skills, namely communication, have been emphasized in a life skills definition. Hence, communication skills is required in the 21\textsuperscript{st} century.

In addition, innovative methods to improve teaching standards will enhance the opportunities in life among students for economic growth so as to meet the continued demand for highly skilled employees (Department of Business Skills and Innovation [DBSI], 2016). The need for a competitive and innovative higher education system is also reflected in Asia. This is because a quality higher education systems provides the environment for developing skills and capacities as well as foster research and technological innovation (World Bank, 2009). In Malaysia, the Malaysia Education Blueprint for Higher Education 2015-2025 also aims for Malaysia to be globally competitive in higher education by ensuring innovative pedagogies for instruction is provided in higher education institutions (HEI). In line with this, HEIs need to explore new and innovative instructional strategies to develop better skills and capacities among learners.

In this context, an instructional problem was selected so that so that an innovative teaching strategy could be explored. In teaching research methodology courses, instructors find it challenging as they face several instructional problems. Firstly, most students find the course materials difficult to understand (Hovell, Adams, & Semb, 2008; Rock, Coventry, Morgan & Loi, 2016). This is because the content matter and the terms used were new to these students (Ball & Pelco, 2006). The language used for communication was difficult to understand as academic writing had its own particular format and structure (Ball & Pelco, 2006). Next, most students also found the quantity of content and the readings to be done in a research methodology course was too much (Ball & Pelco, 2006). Students tend to spend more time in understanding the content and required to be scaffold to comprehend the content. Collaborative learning methods may be used to scaffold and support the learners in understanding the content. Without effective instructional methods, students experienced more difficulties in learning (Hovell et al., 2008). Hence, effective and innovative instructional strategies are required to address these problems.

Many students become disinterested in learning research methodology and were not motivated to learn (Ball & Pelco, 2006; Hovell et al., 2008). They did not see the need for research skills in their future jobs (Hovell et al., 2008). Some, on the other hand, developed anxiety in learning this course (Rock, et al., 2016). Hence, a new and innovative instructional method which may provide some fun to motivate the learners and reduce anxiety is required.

In a research methodology course, communication is one of the core skills. Students need to present their research effectively in both oral and written forms. However, the difficulties in using the unfamiliar vocabulary and terms for communication may be a problem (Hovell et al., 2008). Effective communication in the 21st century needs to consider media and information literacy as well. Hence, the instructional strategy developed should allow for the development of these literacies.

In order to address the issues on the difficulty of the topic, the need to motivate the learners, and to develop communications skills, an online technology tool will be considered. Although technology has
been used in teaching research methods courses, the technologies investigated were mostly general in nature, example e-learning on learning management systems (Rock, et al., 2016). However, there is still a need for new pedagogies that allow instructors to use the potential of eLearning tools. Hence, in this study, a pedagogy for teaching research methods using an easy-to-use online poster development tool is suggested. The tool was selected for the students to summarize their reading assignments and develop infographics for presenting their assignments. The purpose of the study was to investigate whether developing infographic posters could develop students’ 21st century communication skills, and to explore students’ perceptions in the use of infographic posters for learning in the context of the study using the following research questions: How does developing infographic posters develop students’ 21st century communication skills? What are the students’ perceptions in the use of infographic posters for learning in the context of the study? This study would be significant as it would determine whether students in HIE were willing and able to use this technology in their reading and presentation tasks. This would be a innovative strategy which could be used to develop both communication and media information literacy skills, useful in the 21st century.

Collaborative learning

Collaborative learning is the acquisition of knowledge, skills and attitudes through group interactions (Johnson & Johnson, 2004). Collaborative learning has been shown to improve memory and contributes to the building of knowledge and at the same time engage and motivate learners (DeWitt, Alias, Siraj, & Zakaria, 2014). During the processes of collaborative learning, new ideas are generated for knowledge-creation (Palloff & Pratt, 1999; Rogers, Connelly, Hazlewood, & Tedesco, 2010; So, Tan, & Tay, 2012). During the interactions for collaborative learning, support from their peer helps to scaffold learning (Boticki, Looi, & Wong, 2011; Timmis, 2012). As the learners interact, both face-to-face and online, and reflect on their discussions, a learning community for sharing learning experiences is built (So & Bonk, 2010, Palloff & Pratt, 1999). Collaborative tools for learning such as wikis, discussion forums and text messaging, enable the interactions to be increased for learning (DeWitt, Alias, Siraj, & Hutagalung, 2014).

Although technology tools have been used to support collaborative learning, there does not seem to be any studies employing posters for this form of learning. In teaching courses in higher education, information has been presented to learners using technology in the form of videos and Powerpoint presentation slides. In addition, ready-made posters from repositories like Pinterest have been used to present information. However, there are some studies which investigates learners developing their own materials for learning.

Studies in using technology for producing materials, have mainly focused on producing videos and Powerpoint presentations (Kaur, Yong, Mohd Zin, DeWitt, 2014). However, few studies have been done where learners produce posters. An infographic poster developed by the learner has a lot of information. The learner needs to summarize the information and present it in an interesting and casual manner. In developing posters, the learner needs to have the skills to summarize and decipher main points and highlight them in an interesting manner.
The use of technology has contributed to attitude formation (Teo & Zhou, 2014). When learners have a successful experience and effective support in using technology, the intention to use the technology will be enhanced. In addition, the perceived usefulness of the technology intervention is very much influenced by the ease of use (Teo & Zhou, 2014). Hence, in this study it would be important to determine the perception on the difficulties in using this online poster tool, Canva, to determine if it could be used for future interventions.

Posters are static presentations. However, it is believed that when the learner shares the posters they produce in a collaborative learning environment, the format of reading and presentation is changed and becomes less boring. Articles which were assigned for reading and need to be presented can be more engaging when done in the form of an infographic poster. Information can be presented in an interesting and casual manner using infographic posters. Further, there is the possibility of sharing the infographic posters on discussion forums, or in text messaging applications such as Whatsapp to be evaluated by the community of learners. This makes the activity meaningful and the learner is accountable for information shared. In this way, collectively, the group has had more readings done. Poster development can be done using ready-made templates from poster development tools such as PosterMyWall, Fotor, Piktochart and Canva, which requires less technical skill than traditional poster development tools such as Adobe Photoshop. Further, there are more attractive design templates for the learner to use.

**Communication skills in the 21st century**

The need to be technology-savvy in communication has arisen because the way we communicate in the 21st century has changed when compared to a century ago. In the present time, we seldom write letters to be posted. Instead, emails are the most popular means of online communication today. We also share our thoughts with friends, not through face-to-face communications or even phone calls, but using text messages on Whatsapp, or posts on Facebook and Instagram. We may use video calls on Facebook, Skype or Hangouts, and leave voice-recorded messages on Whatsapp on our mobile. We are living in a media-rich environment, and hence, we need to be technology savvy as well.

The framework for 21st century learning defines the ability to communicate clearly as being able to do the following: (1) articulate thoughts and ideas using oral, written and other nonverbal communication skills in a variety of forms and contexts; (2) to decipher meaning in terms of knowledge, values, attitudes and intentions from listening effectively; (3) to use communication for a variety of purposes; to utilize different media and technologies and judge their effectiveness; and to communicate in diverse environments (P21, Partnership for 21st century Learning, 2017). This means that communication in the 21st century is not just communicating in oral and written forms, but includes other non-verbal communication.

Oral communication includes listening and speaking while written communication would include reading and writing. In addition to the skills in the language, communication skills includes the ability to comprehend meaning when listening effectively, as well as being able to use a variety of different media and technologies. This means that the graduate should be able to decide on the effectiveness of technology tools for communication. For example, he would need to know that videos would be effective for conveying emotions and other non-verbal information, while posters
would only be able to convey 2-dimensional graphics and textual information. The graduate with efficient communication skills would be able to decide how he needs to present information to his audience, using different media to capture their attention, and convince them. He should be able to present to different types of audiences, using the most appropriate tool - Powerpoint presentation, a video or a poster.

This means that communication in the 21st century has changed tremendously as it is influenced by media and technology. In face-to-face communication, we used to pay attention to non-verbal cues in facial expressions, but in the 21st century, we need to be sensitive to textual and graphical symbols, which may include emoticons and graphics that are being used in communications to interpret messages.

Method

This study is a qualitative case study of the implementation of four online tools for learning in a postgraduate course. The phenomenon of interactivity in the use of the tools are explored in this context using Robert Stake’s (1995) approach in an intrinsic study whereby the purpose is not to develop theories nor to understand abstract constructs, but to better understand the case of using these online tools where the issue of interactivity needed to be addressed (Baxter & Jack, 2008). The findings of the case cannot be generalised to other cases because it is specific in its context but can be instrumental in gaining understanding (Baxter & Jack, 2008; Stake, 1995). However, in instructional design research, context is important for relevant research in the field (Oliver, 2014).

Context and participants

The context is Masters course in research methodology in the Faculty of Education in a public university. The course participants were working adults who were teachers and lecturers. The postgraduate course was selected because it was believed that postgraduates were matured students and could contribute richer experiences. Although, the participants might not be digital natives as compared to undergraduates (DeWitt, Naimie, & Siraj, 2013), they were enrolled in the instructional technology program, and hence, had experience in using technology and were positive on technology use.

The three participants who formed the case were selected for the study was done through non-homogenous purposive sampling for maximum variation (Patton, 2002). Participant P was a school teacher, Participant Q an instructor in technical vocational college, and Participant R a lecturer in a higher education institution were selected. Participation was entirely voluntary and participants were informed that their opinions on the online tools used were important and would be used as data in a study.

Data Collection

Data collection was done using a semi-structured interview protocol with the participants identified for the case. In addition, data was collected from the online discussion forums, observations and records in the researchers’ journal as well as the students’ product.
A checklist for analysing 21st century communication in the data collected was used for content analysis. Based on the framework for 21st century learning outlined by P21, Partnership for 21st century Learning (2017) there are 3 domains of communication skills which are: (1) articulate thoughts and ideas using oral, written and other nonverbal communication skills in a variety of forms and contexts; (2) to decipher meaning in terms of knowledge, values, attitudes and intentions from listening effectively; (3) to use communication for a variety of purposes; to utilize different media and technologies and judge their effectiveness; and to communicate in diverse environments. The content analysis was based on these domains.

Finally, the researcher was a participant observer and recorded observations of the interactions with the online tools (Baxter & Jack, 2008; Stake, 1995).

**Procedure**

The study was conducted for over three weeks during the course. In the first phase, an introduction to the task that had to be done and to the technology tool was done. An article from Morrison and Ross (2013). Research-Based Instructional Perspectives. In J.M. Spector et al. (eds.), Handbook of Research on Educational Communications and Technology, 31-38, was used. The course participants were shown an exemplar: the article and the poster summarizing the main points. The technology tool, *Canva*, was introduced. The participants then had to sign in for their *Canva* accounts and explore the tool. The participants were then given their reading assignments). They had to summarize the articles in the poster for the following week.

In the second phase, the participants had to draw out the main points from the articles. Then the production phase, when they had to select a suitable template to present the information in the form of a poster. The fourth phase involved presenting their poster to the other course participants in class where their peers would ask questions after the presentation. The elaboration as they answered their peers’ questions enabled communication, and the posters were later shared on online platforms such as the course Learning Management System and on the course *Whatsapp* text messaging application.

Throughout the period, observations were made and recorded as the researcher’s field notes. At the end of presentation and sharing, the participants were interviewed separately and the interview was audio-recorded. After the interviews were completed, the audio recordings were transcribed for analysis. In addition, transcripts of the online communications were transcribed and coded using content analysis.

**Data analysis**

The data from the transcripts of the interviews, the online discussion forum, and observations form the researchers journals were transcribed, coded and analysed according to themes using content analysis to answer the research questions (Mostmans, Vleugels, & Bannier, 2012). However, only aspects of the case relating to the salient and emerging themes in the study are reported according to the scope of the study.
**Reliability**

The data which was collected from the interviews was triangulated with documentation of the interaction on the online tools and observations during presentations. In addition, the participants were selected from different background and experience in teaching using technology to ensure a wide range of opinions were gathered. These procedures ensured reliability and credibility of the data in an online learning environment (Mostmans et al., 2012).

**Findings and discussion**

The data on the use of four online tools was analyzed according to themes in order to answer the research questions. For the first research question, how does developing infographic posters develop students’ 21st century communication skills?

**Analysis of communication skills in developing infographic posters**

In the analysis of the posters produced and shared, it was seen that the learners managed to successfully summarize the main points of the articles (see Figure 1).

![Figure 1: Posters produced by participants](image)

In producing the posters, the participants fulfilled part of the 21st century communication skills. In domain 1, it was partially fulfilled when articulating thoughts and ideas was done in written and graphic forms, and fulfilled in domain 3, which is utilizing different media and technologies (see Table 1). However, there was no oral presentation, and listening elements involved in producing the posters.

However, when the students presented their work to the class, they had to articulate their ideas orally, which is the first domain. In addition, they had to decipher feedback from listening
effectively, to determine the knowledge required, as well as the attitude and intention of the audience in interpreting their presentations, which the second domain.

An example of the interpretation can be seen from this interaction. Participant P was asked by X: “What do you mean by mixed method methodology?” P verified during the interview, “I had to interpret the intent of the question, whether X wanted to know the definition or wanted to know the process of the research, or whether it was to accuse me as wrong. I am going to answer as content”. Her answer was, “Mixed method is using both qualitative and quantitative methods of research.” And the enquirer said, “But what is the purpose of mixed method design? You put your goal as design or development. I think that this is wrong”. P had to reinterpret the communication as it was now accusing her as being wrong in her analysis, “Now I know where this was going to,” and she said, “So what should it be?” Enquirer X answered, “It should be qualitative and quantitative. Mixed method may confuse others.” P responded, “Thank you, I will take that into consideration.” Hence, in this anecdote, P had to listen to decipher meaning, inquiry for understanding, and communication to gather information and to communicate intent. All the domains of 21st century communication skills was being addressed.

During this interaction, collaborative learning was occurring as there was support from peers to scaffold learning (Boticki et al., 2011; Timmis, 2012). In contributing to the building of knowledge, the learners could as the learners interact and reflect on their presentations, they form part of a learning community for sharing and building experiences (So & Bonk, 2010, Palloff & Pratt, 1999).

To further support the online community the summary of the discussions were put online by the instructor to reinforce and further support the learning. It was noted in the discussion forum: “As you have noticed, empirical research is important and when design and developmental studies are undertaken, different methods are employed. I won’t call it mixed-methods, but a variety of quantitative and qualitative data can be collected.” Hence, further support to scaffold learning was provided by the instructor (Boticki et al., 2011; Timmis, 2012).

<table>
<thead>
<tr>
<th>Domain</th>
<th>21st century communication skills</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Articulate thoughts and ideas orally*</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>1</td>
<td>Articulate thoughts and ideas in written form</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>1</td>
<td>Articulate thoughts and ideas other nonverbal communication</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<tr>
<td>2</td>
<td>Decipher from listening effectively, meaning in terms of knowledge*</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>2</td>
<td>Decipher from listening effectively, meaning in terms of values, attitudes and intentions*</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>3</td>
<td>Utilize different media and technologies</td>
<td>√</td>
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</table>

*During presentation for collaborative learning

For the third domain, in utilizing different media, Participant Q inserted graphics in addition to text in the template, indicating higher level skill in using of technology. Participant Q had the most
experience in the use of technology and could produce graphics for the presentations. More interesting was Participant R, who was averagely skilled in technology by managed to produce a poster and inserted ready-made icons. Only Participant P used text and a table to display the information. However, tabulating the information also involved skills of summarization and display in different formats. Hence, all the participants seem to be successful in integrating different media in their posters.

In conclusion, developing infographic posters develops 21st century communication skills in all domains when it is used in a collaborative learning environment, when learners ask questions, interact, and defend their arguments. The posters contain graphic and text elements and when the participants present their posters, they are verbally articulating their thoughts in the poster. In addition, there was communication for understanding and to convey information. Different media was used, namely text and graphics, and the communication continued online in social media and the learning management system.

**Perceptions in the use of infographic posters**

When the task was first presented to the course, the course members were first taken by surprise. Then there was a question in the online forum on the LMS in response: “Are you giving our assigned articles to read during our class or do you need us to post here? I mean, are we going to read all those articles and made a Canva for each?”

After using Canva for developing their posters they were excited on using it. Participant R who was less technology-savvy said: “Wow... The Canva is interesting and quite useful to summarize on certain topic/ journal reading... Will introduce to my students... Thanks.” This is important to note as the participant who was less technology-savvy found it useful and would recommend using it.

Participant Q was skilled in using technology and also found it useful: “Yes, it is really useful. It's like the mini version of Microsoft publisher and Adobe IDD with lighter graphical properties and easier to use but of course with limited features as it is only a "mini" version but enough to make a summary and outline of lessons.”

The perception on the use of the tool is important as it will contribute to attitude formation and the perceived ease of the tool (Teo & Zhou, 2014). This was obvious as participant R found the tool easy to use and hence felt that it would also be useful for his students (Teo & Zhou, 2014).

**Conclusion**

In developing and presenting their infographics among a community of learners in the context of the course, the learner was able to develop their communication skills. The communication skills were measured in the framework of 21st century learning in three domains. The learner seemed to be able to articulate their thoughts and ideas using oral, written and other nonverbal communication skills in a variety of forms and contexts; had to decipher meaning in terms of knowledge, values, attitudes and intentions from listening effectively; and had to use communication for a variety of purposes, to utilize different media and technologies and judge their effectiveness, and to communicate in diverse environments. Hence, the use of infographics in a collaborative learning environment seem to have
potential for developing communication skills required in the 21st century. However, it is not known how effective the communication was, as the assessment of the quality of the communication was not part of the scope of the study. Hence, future studies could be done to investigate the effectiveness of using infographics for improving skills of summarizing and identifying main points in an article.

The use of infographics was also perceived to be useful. The attitude towards the tool and the perceived usefulness of the tool would influence the students’ intention to use technology (Teo & Zhou, 2014). Having an easy to use tool for integrating technology, such as Canva, would foster the development of computer self-efficacy among the learners, thus enabling the learning to be more productive. The use of technology needs to be addressed as students in higher education institutes are more in touch with technology. As the beliefs and attitudes of students change over time, educators and administrators should adopt change and enhance teaching in these institutes to adopt practices who could be optimize and enhance teaching (Teo & Zhou, 2014). Hence, the use of infographics for engaging and producing effective learners is a possible intervention which can be introduced to learners in different subject areas and levels.

References


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EVALUATION OF SECONDARY SCHOOL CURRICULUM
PROMOTING LIFE SKILL BASED EDUCATION

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Abstract: Developing Life skills in young children is considered as core concept in modern education throughout the world. So it is rapidly growing trend to identify essential life skills which are considered as important tools for the survival of secondary level students and how well the existing secondary school curriculum supports to inculcate these life skills in students. The research was a twofold study; firstly it was intended to investigate the expectations of parents regarding the essential life skills for their secondary school children. Secondly, the secondary school curriculum was evaluated to identify which life skills were being promoted among the secondary school students. To attain data parents were interviewed about their expectations of life skills for their secondary school children. Furthermore, secondary school curriculum and text books were reviewed to evaluate which life skills are integrated in curriculum and which life skills are overlooked. Data were analyzed by identifying various codes, categories and themes. Most of parents seemed very anxious for the development of essential life skills among their secondary school children as they are in the view that this age is very crucial for development of life skills that can lead their life towards successful future. Moreover it was observed that most of the essential life skills have been incorporated only in the curriculum and text books of English and Urdu subjects but over-looked in Islamiat, Mathematics and especially Pak-Studies subjects.

Keywords: Life Skills, Life Skills Based Education, Secondary Education And Curriculum

Introduction

Life skills are considered extremely important in every one’s life and equipped people with problem solving behavior to manage all personal affairs and tackle different life situations. These skills help people to meet their daily life challenges courageously and successfully (Life skills in Canada, 2014). It is shown in many studies that promotion of such life skills are a way for developing positive and productive youngsters in the societies. It helps individuals to adapt appropriate behavior according to the time and situation (WHO, 2001). Day by day the societies are developing as more diversified and demanding which put forward our youngsters in more complex
and challenging situations (Orodho & Abobo, 2014). What such societies are demanding are, the key skills to furnish the young people not only to maintain the quality of their lives and social cohesion but to build them as healthy, productive and self-governing individuals. Life skills based education is considering as methodology which deal with variety of issues related to child’s comprehensive development. Many organizations are working on this thematic issue as World Youth Report (2003), World Program for Human Right Education (2004), and World Development Report (2007). Expected learning results are based on the problem solving abilities, critical thinking, good relations with others, interpersonal communications, and self management. These all skills are related directly to knowledge, value, and attitudes of students (Callery, 2012). It is recognized fact that secondary level of educations must enable students to lead their lives as productive, responsible, and democratic citizen and help them to realize what potential they have and how effectively utilize it to lead a successful and healthy life (Vineeta, & Avinash, 2012). Furthermore education must foster students’ abilities such as positive behavior, and social adaptability that makes them capable to face their daily life challenges and solve their problems efficiently (Life Skills-Based Education, 2014). Life skill development is now rapidly considering as one of key component of national progress and stability. There is an emerging demand to realize the value of life skill education to accommodate new challenges and trends of the fast growing world (Baela, 2009). So was very crucial to discover the demands of parents, teachers and students about the essential life skills in the context of Pakistani societies and which life skills are being promoting through secondary education curriculum in Pakistan. The study intended to identify essential life skills for secondary students and how well the current curriculum is facilitating the development of these life skills among students.

Objectives of the Study

Following were the objectives of the study:

1. To find out the parents’ opinion about the essential life skills required for their young children.
2. To evaluate which life skills are being promoted through secondary curriculum in Punjab.
3. To analyze the discrepancies in current secondary curriculum for promoting the essential life skills among students.

Research Questions

The following research questions were addressed:

1. What are the perceptions of parents about the essential life skills for secondary students?
2. Which life skills are integrated in the secondary education curriculum?
3. Which life skills are missing in secondary education curriculum?

Review of Related Literature

Many organizations spent a lot of time and resources in researching the true importance of life skills for the people’s survival in the demanding and challenging world. The term ‘life skills based education’ is a widely growing concept as a methodology which threw a light on the issues related to the health and comprehensive development of the child (Rasheed, 2010). Many meaningful and thoughtful results are presented by different organizations such as in 2001 UNGASS efforts related to HIV / AID, in 2002 UNGASS’s extensive work related “A World Fit for Children”, in 2003 the
World Youth Report, in 2004 the World Program for Human Right Education. There are some more work done related to the issue e.g. in 2005 the UN Decade on Education for Sustainable Development, in 2006 the UN Secretary General’s Study on Violence Against, in 2007 the 51st Commission on the Status of Women, and the World Development Report. Through the extensive work of these organizations it came obvious that education must emphasize upon the combination of knowledge, skills, values and attitudes of young people, particularly related to creative and critical abilities, self management and interpersonal skills and more importantly problem solving abilities (WHO, 2001).

Livelihood Skills and Life Skills Based Education

Life skills based education focuses on specific skills related to important psychological competencies and in most of studies it focuses upon the skills related to health. Often the ‘life skills’ and ‘skills based health education’ terms are used in the same context but after extensive literature review it becomes obvious that these two term are very different such as ‘skills based health education’ emphasizes on health issues and skills related to health promotion whereas the life skills specifically linked with humans right, social life issues, citizenship and peace education (Orodho & Abobo, 2014). In fact both of these terms deal with real life applications of knowledge, skills, and attitudes for young people lives. Whereas the term ‘livelihood skills’ specifically deals with the capabilities, resources, opportunities to identify individual and domestic economic goals means income generation or money making. Livelihood skills include technical and vocational abilities such as farming, trading, carpentry, or sewing etc. skills used to find out job e.g. interview skills, demonstrating skills, money management skills, business management skills and entrepreneurial skills (World Youth Report, 2003). Although livelihood skills are also very crucial for survival, health and development and must be kept in view while planning educational program for young people but this term is quite different from the concept of life skills based education (Rasheed, 2010).

Importance of Life Skills

Life skills are very essential for young students; and this is supported by many studies conducted by various organizations like WHO, UNICEF, UNESCO etc. In these studies great stress is given to the life skills based education that positively contributes in the comprehensive development of young children, enhances their socialization abilities, encourages youngsters to adopt prevention measures for diseases, life risk situations and disabilities (UNICEF, 2012). These skills prepare the child and young people for improving social circumstances by providing them skills that help in adapting positive attitude and behavior and deal effectively their daily life issues. Life skills based education helps to promote children’s abilities for their self-protection and care, democracy, good social relations, lifelong learning, basic education and creating the peace. Furthermore it is also asserted that life skills also promote the ability of young adolescents to opt best health related choices (Pillai, 2012). Life skills contribute to enable young people to get prevented by unpleasant events such as, violence, early pregnancy, abuse, suicide, HIV/AIDS, injuries, accidents, and conflicts and environmental problems etc (World Health Organization, 1999).

Life skills education promotes mental well-being and equips them to handle demands and challenges of life and enhance their ability to encounter the bitter facts of the life. Moreover it encourages the
young people to take responsibilities for their every action (Pillai, 2012). Different organizations have described life skills education with different objectives. Some argue that life skills are source of prevention from bullying and abuse, for some prevention of AIDS/HIV, and some feel it is essential to help young people to handle successfully their everyday difficulty and challenges. The World Health Organization (1999) stresses that life skills education is not only for prevention of anything or to introduce life skills education only for mental and behavioural disorders, instead of this, effective use of life skills education must is to influence the way youngsters feel about themselves and others, which in result contributes their self esteem and self confidence (Parmar, 2013). It is suggested through many researches that school is a suitable place to introduce life skills because the school years are very crucial time period for children development, as school time period which is the major part of their formal education. Children learn more social skills when they are in the school and generally look for guidance and support from the adults (Orodho & Abobo, 2014).

However life skills can be paired with-in five main life areas as for

i. Health promotion
ii. Psychological competence
iii. Prevention of substance abuse and adolescence pregnancy
iv. Peace education
v. support of self self-confidence and self respect

Teaching of life skills, specifically related to daily life can be the great source of enabling the young students to achieve their best well-being and healthy relationships with others and acceptable behaviors. Many problem specific skills such as to get protection from peer pressure, involvement in vandalism, sex harassment etc can be promoted though proper educational programs (Rasheed, 2010). Life skills education trains the people to transform their knowledge, values, and skills into the concrete abilities related to make decisions about certain actions and ways to complete a task e.g. what to do, when and how to do in certain situations. These skills enable the young people to have the desire to opt healthy ways for living, choose possible ways to do so and identify opportunities how to do so (Parmar, 2013). Social support, cultural and environmental factors help the adolescence to learn essential life skills which support their ability to behave in positive and creative manner to lead a successful life.

Furthermore effective attainment and use of life skills can manipulate our perception about ourselves and others; it contributes in the development of self-confidence, self-efficacy, and self esteem that influence the way we think about ourselves and interact with others. Life skills therefore can be said as important source for the promotion of well-being of young people that furthermore helps to prevent behavioral problems, health issues and mental disorders.

**Research Design**

A qualitative research approach was used based on interview and documental analysis.

**Research Instruments & Data collection**

Data were obtained via conducting a semi structured interview guide based 20 open ended questions was developed related to the components of life skills proposed by WHO to take opinion of 20
parents including both male and female about the essential life skills for their children. The researcher personally visited every parent and information was obtained from them. The curriculum document of class IX and X compulsory subjects including Mathematics, English, Urdu, Islamiat, and Pak-studies were critically reviewed to analyze which life skills are being focused or overlooked for secondary students.

A semi-structured interview guide was conducted for parents to know about which life skills, according to their opinion, are essential for their young children to have a successful life. It was made sure that all parents included in study have the child studying in 9th or 10th grade and were encouraged to answer the questions respective to their that child. For this purpose both male and female parents were personally interviewed by the researcher and requested to give their valuable opinions regarding essential life skills for their young secondary schools students.

Data Analysis and Interpretation

Parents’ Views Regarding Life Skills

Data analysis illustrates that most of parents recognized that theme 1 related to “Critical and creative thinking (CRT)” ability is very important skill for the children especially for secondary level students. The parents showed their consent for this skill as “it helps to be get adjusted in the society; take decisions independently; cope with the problems of life”. Regarding the skill to ‘handle challenging or tricky situations’ almost all of parents seemed stated it is “important for living an independent life; understand how to face different situations; understand how to face the problems; resolving further obstacles in her life; gain confidence”. Only two parents had different viewpoint and thought that at this stage of their life children are unable and even not properly trained to handle tricky and critical situations.

For the ‘use of technologies effectively e.g. computer, internet, email etc’ most of parents were in favor of this skill and expressed “It is the need of the time; for success in any future task; progress is mainly based on technology; Without using these technologies no one can get progress”. But some of parents seemed more conservative while discussing the use of technologies like computer, email and internet and said children “must use it in positive sense; should not use such technologies because of it he wastes a lot of time and get distracted; avoid excessive use and misuse of such things”. Some of them expressed their concern in the words “we should keep an eye on the children”, “we should be aware of the children’s activities” and “use technologies but under supervision and for limited time”. But most of parents positively perceive the significance of learning these technologies for their young children especially secondary students.

While discussing about theme 2 “Decision making/problem solving skills” almost all parents are agreed with the statement that secondary students must be able to make their own decisions and equipped with the ability to solve various problems encountering in their life. Foremost, all of parents were in favor of the sub-theme ‘plan the things before performing some tasks’ and thought their children must possess this skill because it leads their life towards success and guide various plan with ease and accomplishment. Parents show their consent using the statements as, “Successful people always plan their tasks; it gives a proper guide line for a task; lead you to a better plan or solution; makes it simple and easy; leads to logical situations and results in success; things should be planned so that can be done appropriately; Planned tasks are always better carried out; necessary for every
type of task e.g. studies, parties; get good results” Most of parents were seemed very concerned regarding the skill ‘discuss or take opinions from others’ for their secondary students and show their consent with the expressions with proper guidance success rate of children increases; Discussion helps to avoid mistakes; collective wisdom is better than individual one; must get other’s view to plan better; must discuss with his family, friends and parents”. Almost all parents confirm their concern about the skill ‘give the importance to others opinions’ for their secondary students by saying “must seek guidance; discuss their problems & ask for possible solutions; should be able to give importance to others view”. They feel it is important for their young kids and said “discussion is always very helpful; help him to get experience and get help from others point of views; helpful for them to handle their life issues easily. Regarding the sub-theme ‘resolve conflicts and clashes by themselves’, twelve parents were in the favor of this skill and expressed their assent as “necessary for the child to resolve conflicts and clashes by themselves; should try themselves; should handle all conflicts”. Further they justify their consent as “it helps them in decision making; gives them confidence and they get prepared for the years to come. But eight parents disagree with this statement and uttered “No, should invite extra support; should do under the guidance of her elders; should take help from their elders”. These expressions illustrates that for some parents, children at the secondary level are not enough groomed that they can handle or solve all type of their conflicts by themselves, so it is better for them to take help from their elders to overcome such type of situations.

All of parents were in favor of the skills discussed under the theme 3 heading “Interpersonal and communication skills” which secondary students must equipped with. Most of parents express their consent for the first sub theme ‘express his/her feelings, ideas and opinion openly’ and elucidated their expression with the statements as “must be given full freedom to express their feelings; should be groomed to speak out; has to be confident and straight enough to share his ideas and opinions openly” but P 4 and P 9 straight forwardly said “No” because they feel the secondary school children are not grown up enough to express their thinking and opinions openly as P 4 said “No, because he is in immature age”. For some parents it is ‘okay’ but with some conditions i.e. parents are agreed that children should be able to express their ideas and feelings but within limits. For the sub theme related to the skill ‘appreciate other’s viewpoints’ all of parents seemed in favor of this and expressed their consent as “Yes it is very necessary; should be able to know” They justified their consent with the statements “to avoid unwanted situations; learn how to manage life; can make the right decisions; can overcome their negatives; Most of parents showed their approval for the skills related to second sub-theme ‘行为 with people who are different i.e. Most of parents are concerned about the “Self awareness and empathy skills” for the secondary school students. For the sub-theme ‘know their own strengths and weaknesses’ all of parents seemed in favor of this skill and uttered their expectations as “yes it is very necessary; should be able to know”. They justified their consent with the statements “to avoid unwanted situations; learn how to manage life; can make the right decisions; can overcome their negatives; Most of parents showed their approval for the skills related to second sub-theme ‘behave with people who are different i.e.
in race, caste or social statuses’ for secondary students and expressed their view in such words “behave politely; should behave with the rule of equality; should treat all people equally and ethically; generously and politely; should ignore such differences; avoid discrimination among different people”. Concerning the third sub-theme ‘understand how people could feel if they are in pain or crisis’, all of parents were agreed about the importance of this skills for secondary students and expressed “Yes it is very important; must be able to understand other’s feelings; should show concern for others; try to understand other’s feelings” and additionally they elucidated their assent by saying the statements as “in order to grow well in the society; very important for their moral development; it will allow him to help others; will be able to help others in time of need”. Regarding the sub-theme ‘understand their and other’s rights and responsibilities’ most of parents were in favor of this skills for secondary students and expressed their expectations as “always important; should understand”. Various parents illustrated their consent by uttering the statements as “to become a responsible citizen; to develop a healthy society; very necessary for her good personality; important to build a healthy society; he can fight for his rights if he knows”. Some of parents have contrary comments regarding this skill for secondary students as P 10, P 12 and P13 uttered “it is difficult for this age group” and P 17 stated “she is small to think about her or others rights and responsibilities”.

While discussing the theme 5 “Coping and self management skills” most of parents think positively about this skill for their secondary level students. For the first sub-theme ‘manage his/her work independently’ most of parents showed their concern about this skill for their children and uttered their expectations as “I expect my child to be perfect and manage his work independently; manage his affairs by his own; take his decisions independently; should be able to perform their tasks independently”. But some of parents seemed different in their views as P 1 stated “can’t manage their work independently because they are too young for it”, P 2 said “we have to check him and guide him at every step”, P4, P6, P7 and P8 uttered “not always independent” and P9, P15, P16, and P17 said “he needs help”. These comments elaborated that for some parents the secondary level students are unable to manage their work independently but all of them expected that children in this age should learn to manage their work independently. For the second sub-theme ‘take initiatives especially in challenging or risky situations’ some of parents seemed in favor of this skill as they stated “should try to take initiative; should be ready to take initiatives” further they elaborated their expressions as “take initiatives at the time when it requires; should handle the situations positively and calmly; be careful in every type of situation; Yes because luck favors the brave; important to face the challenges in life”. But some parents perceived this skill negatively as P4, P5, P10, P12; P13 & P17 elucidated with words “No. I don’t think so”, P6 and P7 said “not necessary, depend upon risk and situation”. Parents expressing negative perceptions regarding this skills indicated their over protective attitude for their children. Regarding the third sub-theme ‘improve his/her self instead of changing others’, all of parents were in favor of this and expressed their expectations as “Yes; one must be true courageous to accepts ones failure; should improve themselves; must be able to change himself” further they elaborate their expressions with the statements “changing of their habit will make them that true strength is in struggle and proceeding forward rather than blaming others; it will make his life easy and happy; improving oneself is more important; setting personal examples are always a motivation for others”. Most of parents think positively for the sub-theme ‘do when get disappointment or failure’ and expressed their views as “I expect them to be calm; should try to overcome it; learn from failure is the lesson of hard work which is the key to ultimate success; need
to be bold, confident, and ready to overcome; should try to overcome their negative feelings; should take a fresh breath and forget the past; must learn from his mistakes and move forward; face it courageously”. Some of parents perceived it differently as P3, P10, P12 and P13 uttered “at this age it is difficult” and P18 said “elders must encourage them”.

**Curriculum Matrix Reflecting Life skills**

Table: Error! No text of specified style in document.-1: Incorporated Life Skills into Curriculum & Text Books

<table>
<thead>
<tr>
<th></th>
<th>Urdu</th>
<th>English</th>
<th>Mathematics</th>
<th>Pak-Studies</th>
<th>Islamiat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative thinking/critical thinking</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision making/problem solving</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Interpersonal/communication</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self awareness/empathy</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Coping and self management</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

Above table 4-56 illustrated the key objectives regarding the essential life skills for secondary school students offering in the curriculum and textbooks of various subjects such as in ‘National Curriculum for English, Urdu, Islamiat, Pakistan Studies and Mathematics (Ahmad, 2006). It was observed in the National Curriculum Documents and Textbooks of Punjab that most of components related to the life skills such as, creative and critical thinking, decision making and problem solving, interpersonal and communication skills, self awareness and empathy and coping and self management, were incorporated in the curriculum of English and Urdu subjects. Whereas the National curriculum of Islamiat involves most of components of life skills but missing content related to ‘creative thinking/critical thinking’ and ‘interpersonal/communication’ skills similarly National curriculum for Mathematics does not consists any content related to ‘self awareness and empathy’ and ‘coping and self management’ life skills but incorporated rest of components. Furthermore curriculum document of Pakistan Studies only incorporated one component reflecting to the ‘self awareness and empathy’ and most of components were overlooked related to essential life skills for secondary students.

**Conclusion**

Various parents were being interviewed and all of them were in the opinion that their secondary level children must possess essential life skills because this is the crucial age period and their future decision get influenced by training of this age. To attain two of research objectives which were “to evaluate which life skills are being promoted through secondary curriculum Punjab” and “to analyze the discrepancies in current secondary curriculum for promoting the essential life skills among students”, the researcher made an effort to review the National Curriculum Documents and text books of compulsory subjects i.e. English, Urdu, Math, Islamiat and Pak-Studies for grade IX-X. While reviewing the curriculum documents and text books it was observed that only the National Curriculum and text books for English and Urdu subjects have incorporated most of life skills within
their SLOs and benchmarks and textbook content. The National Curriculum and textbook for Mathematics also incorporated most of life skills but missing the SLOs and content related to the ‘self awareness and empathy’ and ‘coping and self management’. Similarly the National Curriculum and textbook of Islamiat subject possessed most of life skills but missing the SLOs and content related to the ‘creative thinking/critical thinking’ and ‘interpersonal and communication skills’. Furthermore it was observed while reviewing the National Curriculum and textbook of Pakistan Studies that the content and SLOs do not reflect most of life skills and only one component of life skill is seen and that is ‘self awareness and empathy’. In nut a shell, to emphasize the life skills based education is need of present time as highlighted by various parents because the life skills are considered extremely important in every one’s life and equipped youngsters with problem solving behaviour to manage all personal affairs and tackle different life situations. These skills help them to meet their daily life challenges courageously and successfully so the best efforts must be made to promote these all skills among our secondary school students by incorporating them into our curriculums, textbooks and emphasized in the whole teaching learning process for their holistic development.

Recommendations

- The Ministry of Education could take an active part in providing best opportunities for teachers’ trainings, teachers’ guide materials. Furthermore they could ensure effective monitoring and evaluation system for assessing life skills through establishing a monitoring cell for secondary schools as NACTE is working for evaluation of teacher education.

- The National Curriculum Wing could focus upon life skills oriented curriculum for all subjects and ensure that all subjects’ curriculum is equipped including the SLOs, content, and teacher training guides with most of life skill. Moreover they may ensure that all of the curriculum experts are outfitted with the knowledge regarding essential life skills required for the secondary schools students and incorporated in the curriculum documents.

- School administration may emphasize upon the implementation of life skills education at every level and keep following it up. Arrange in-service trainings for teachers to prepare them with the latest pedagogical expertise that could help them to inculcate essential life skills in the secondary students that could further facilitate in reduction of crime and dropout rate of students. Furthermore give on and off feedback to the curriculum wing and educational ministry regarding the effectiveness of the policy implementations and curriculum/content effectiveness.

- The future researchers may conduct research on life skills including various levels as this study was confined only to secondary levels of students.

- More studies could be carried out including various subjects related to arts and sciences imparting life skills among children.

- A study may be conducted to evaluate the effective implementation of life skills based education.

In Pakistan most of studies had been conducted related to the life skills based education only with the reference of health and population issues but it is suggested that life skills based education must include as whole and involve all components of life skills in curriculum and educational programs.
Reference


A COMPARATIVE STUDY OF KNOWLEDGE MANAGEMENT RESEARCH TRENDS IN MALAYSIA AND PAKISTAN

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Abstract: Knowledge management is one of the emerging topics in the field of higher education since last three decades. The purpose of this research was to explore the research trends in knowledge management practices in two Muslim states, Pakistan and Malaysia. Pakistan is a developing country and developing its education system day by day, while Malaysian education system is recognized internationally. Historically, in Islam knowledge is a very dominant point of teaching and learning. Knowledge management practices are the new phenomena for the researcher of both Muslim countries. Knowledge management is the process of knowledge creation, acquisition, dissemination, storage and its re-application. The main objective of the research was to analyze the research trends in the area of knowledge management by analyzing papers published by Malaysian and Pakistani researchers in the last five years. Five papers were selected from both states randomly. Document analysis was used as a research method. Three major area of research papers, the namely approach of the study, research methodology, and conclusion of research papers were examined. It was found that there were some differences in research approaches, methods, and conclusions. It was concluded that Malaysian researchers cover all aspects of research in the area of knowledge. It was also concluded that Pakistani researchers were new in the field of knowledge management and contributed to theoretical perspective only. It was recommended that both Muslim state researchers and scholars may contribute more in the application area of knowledge management. Pakistani researchers may be more involved in the emerging field of knowledge management practices particularly with reference to higher education problems and their solutions.

Keywords: Knowledge, Knowledge Management, Higher Education, Knowledge Research

1. Introduction:

Knowledge management is the new phenomena of the 21st century. All over the world knowledge management is the favorite area of research for researchers. Mohamed, Stankosky, and Murray, (2004), described that the terminology of knowledge management comprises of several elements of the organization for example knowledge, the collection of the knowledge, store, organize, share and communicate. According to Durcker (1993), knowledge management practices are recognized by researchers and institutional planners of any type of organization. He further categorized the knowledge management into two types viz explicit and tactic knowledge. Explicit knowledge may be referred as articulated knowledge, expressed and recorded as words, numbers, codes, mathematical and scientific...
formulae, and musical notations. Explicit knowledge means open and easy access to all stakeholders. Knowledge management as filed and subject accepted by strappingly in all field of life. Higher education institutions are the massive source of knowledge (Alavi and Leidner 2001). On the other hand, Tactic knowledge is referred as knowledge that is difficult to transfer to another person by means of writing it down or verbalizing it. It resides in human. According to Baran, and Cagiltay (2006), Tacit knowledge is based on the idea that "we know more than we can present” and Explicit knowledge is carefully arranged and systematically stored knowledge in any database.

In higher education institutions knowledge creation, knowledge dissemination, knowledge storage, knowledge accusations and knowledge applications are the main purposes of their smooth functioning and development. Knowledge management practices in higher education institutions are acknowledged by every country. Davenport (1998) defined knowledge management as the process for capturing of knowledge, spreading of knowledge and effective use of knowledge for any type of organization development and growth. According to Thorn (2001), knowledge management practices and their implications are very important area for the development of educational institutions.

2. Background of the Study

According to Brown and Duguid (2000), all over the world, knowledge management practices are accepted and recognized in an organization. According to Arisha (2013), Knowledge Management has already reached the level of a scientific discipline. Butcher (2007) argued that knowledge management principles and applications are the essential part of organizations development. In higher education institution knowledge management plays a vibrant role in the students’ performance, administrator’s progress and development at all levels. Arisha (2013) described that the number of Knowledge Management publications all over the world is growing exceptionally. Pakistan and Malaysia are the prominent countries of the Muslim world.

Pakistani education system is still in the developing stage. After the establishment of Higher Education Commission, Pakistan, the education system developed fastly among other countries of the region. As a result of efforts and steps taken by the HEC, the publications of researchers are accepted and recognized worldwide and the contribution of the creation of new knowledge by Pakistani researchers has increased significantly. Publications and research are the fundamental element of any university in Pakistan. Publications are the indispensable part of any research study. Now, researchers are interested to investigate the contribution of Pakistani scholars and researchers to the creation of new knowledge. Knowledge management practices in higher education institutions are a most preferred topic in research trends. Through Knowledge management techniques and practices, higher education may be improved in the terms of academic and administrative services, and reduced cost.

Malaysian higher education, with its best reputation for academic excellence is an international education hub attracting students from many different countries around the world as it offers a comprehensive list of the programs (MUP, 2013). Knowledge management studies have been done by Malaysian researchers. According to Yaakub, Bakir, Othman, Yousif, (2014), in Malaysia, organizations are influenced by Knowledge management to a large extent and this is the key factor to achieving opportunities for better decision-making. Malaysian higher education is seriously geared in approaching its academic excellence.
status and becoming an international education hub. The authors also described the current set up of Malaysian higher learning institution (MHLI) and prospects in applying and practicing Knowledge management to support every part of MHLI’s mission. Knowledge management practices are active part of Malaysian research in the universities. Now the question arises that what are the research trends in the field of knowledge management exist in Pakistan and Malaysia.

3. Statement of the Problem

According to Laal (2011), the universities have been assigned traditionally two main roles which are creating knowledge and spreading knowledge. Learning organization and institution depends on knowledge management principles, which always facilitate their students and researchers continuously. According to Jones and Sallis, (2013), intellectual capital deals with particular, reasonable, knowledgeable and substantial fruits of the mind. But the problem is that these practices are different in different conditions and geographical locations. There is a need to study and compare the practices of knowledge management in different countries. So, the problem to be investigated was ‘how the trends of knowledge management in Pakistan and Malaysia can be compared’?

4. Objectives of the study

Following were the objectives of the study

1. What are the trends of knowledge management in the universities of Pakistan?

2. What are the trends of knowledge management in the universities of Malaysia?

3. How can these trends of knowledge management be compared?

5. Research Methodology

The study was qualitative in nature. Document analysis was used as a technique of data analysis.

6. Population and Sampling

The population of the study comprises all papers written on the topic of knowledge management in Pakistan and Malaysia. Using theoretical sampling, five published papers were selected from Pakistan and five published papers were selected from Malaysia.

7. Review of literature

The review of literature was divided into two parts. In Part-I the selected papers from Pakistan were discussed and in Part-II selected papers from Malaysia were analyzed.

7.1 Section A Research Papers from Pakistan
The first research paper was written by Iqbal & Mahmood and published in 2012. They conducted a review of literature on Knowledge management literature. The purpose of research paper was to analyze the literature of knowledge management which directly involved the new ways and direction of future research. To achieve the desired objective of research, the authors reviewed the information system management journal. The articles between 1999 and 2011 were selected for review. The findings of the research showed that there is less collaboration between industry and academia. The majority of research methods in published articles was conceptual and descriptive in nature. While reviewing the information system management journal knowledge management literature, the main emphasis was to deliver an overview of current KM research from different perspectives. Few important trends in knowledge management were identified during the analysis of the articles, these were:

1. The first was the knowledge management publication era. In late 1990's and early 2000's KM publication took place, when KM concept was evolved.

2. The results of the study showed that KM publication slowed down but in the year 2011 once again KM publication got momentum and the significant amount of KM research was published in different counties.

3. There is a need for comprehensive research in order to overcome the limitations of this study.

The results of this study were matched with the findings of Graham, Morecroft. (Senge & Sterman 1990).

The second research paper was written by two Pakistani and one USA authors, Qureshi, I. A., Raza, H., & Whitty, M. in 2014. The focus of the article was to analyze the use of Facebook as an e-learning tool for higher education institutes in Knowledge Management & E-Learning. In this article, they argued that the world is changing day by day, so the current new requirement of the global world is to advance in technology as well as in education. The authors decided to work on Facebook for education because of its popularity in student’s life.

The study was conducted on Pakistani students’ perception about the use of Facebook for education purpose. The study was survey based and 180 questionnaires were distributed to students of graduates and undergraduates’ levels. A total of 140 questionnaires were received. The analysis of study showed the perception of Pakistani students towards the positive use of Facebook, as the educational purpose, student’s faculty relationship and academic contribution of Facebook for the development of urban ecosystem and smart city concept was very significant and positive. The study also suggested that students need strongly information and guidance for better use of Facebook. The study result gives the future direction to explore the area of social media for faculty as the smart city (Qureshi, I. A., Raza, H., & Whitty, M. 2015).

The third article was written by Shah & Mahmood and published in 2015. This article aimed to explore the research done in Pakistani context on knowledge management with the title of “Knowledge management in Pakistan: A literature review” conducted by Shah & Mahmood (2015). The basic
purposes of the study were to explore the literature review regarding knowledge management and its related topic within the educational institution and organizations. The study used document analysis as the research method. The articles were retrieved from different websites, research journals and library catalogs. The research study concluded that the Knowledge management arena is new and growing discipline in Pakistani universities and organizations. There are many gaps in theoretical and practical implications areas of knowledge management, which need to explore by the Pakistani researchers. The results showed that researchers were more interested in the application of knowledge management in educational institutions as well as in corporate sectors. The study concluded that the importance of knowledge management and its impact on performance is vital, so there is no way to escape and ignore knowledge management practices. The study suggested that there is strong need of developing of relationships between academia and education sectors for the better development of Pakistan and grooming of knowledge management practices. The study recommendations have value for future direction to research on knowledge management in Pakistani context (Shah & Mahmood, 2015). Nonaka, & Takeuchi (1996) and Mohamed, Stankosky, and Murray (2004) also had the same results with different scenario and population.

The fourth article titled “Knowledge management at educational institutions: a case of Pakistan” by Lodhi, M. S., & Mikulecky, P. (2010) was presented in International Conference On Mathematics And Computers In Business And Economics and published in proceedings of the 10th World Scientific and Engineering Agency and Society (WSEAS). The purpose of the study was to explore the importance of knowledge management in universities of Pakistan and all over the world to uplift the standards of an institution for the development of economy of a country. The study highlighted that COMSATS University of Information and Technology, newly established university adopted the concept of knowledge management and the result of that adoption is that now COMSATS is one of the top three leading universities of Pakistan. The study results showed that if Pakistani universities want to compete in national as well as the international level they must be used to knowledge management principles and approaches to improve standards.

The fourth article “Role of knowledge management practices for escalating universities performance in Pakistan” by Jamil, R., & Lodhi, M. (2015) explored knowledge management practices and its vigorous role in university performance. The method for the study was exploratory in nature. The study used convenient sampling. Total 450 university employees were selected for sampling and distributed questionnaires. Exploratory factor and linear regression were used for data analysis to explore the elements of knowledge management practices. The study results highlighted that with proper attention towards knowledge management infrastructure, processes, and technology, universities can beat their competitors in the academic performance. Findings of the study have valuable theoretical and practical implications and were supported by the finding of Rad, Shams, and Naderi, B. (2009).

7.2 Section B Malaysian researcher papers trends on knowledge management

This section attempts to analyze the knowledge management practices and research trends by Malaysian researchers. The details are as follow
The first paper “Islamic Conceptualizations of Knowledge Management” written by Yaakub, M. B. (2011) described the concept of Islamic knowledge management to answer fundamental theories of theory of knowledge management. The author addressed the uncertainty of contemporary knowledge management. The objectives of the study were to clarify the Islamic perspective of knowledge management with the reply to knowledge management practices in the modern era. The results of study revealed that knowledge management was an important determinant factor for individual success. The study revealed that Mankind has problems in all stages throughout the life, to reduce and overcome the problems, integrated approach and the up-to-date investigation is necessary. The study also found that Islamic knowledge management practices included all types of knowledge, defining a modeling progression that widely covers the revealing issues of humanity, storing of knowledge generated and managing knowledge requires a suitable tool. The study also discovered that Islamic knowledge management is very fundamental for a Muslim manager to achieving progress and productivities in the life they are living.

The second paper “Knowledge from Islamic Knowledge Management Perspective” written by Yaakub, H., Bakir, M., Othman, K., &Yousif, A. F. (2013), explained that philosophy of knowledge is a well-established discipline in Islamic perspective of knowledge as well as a western philosophy of knowledge. Both civilizations recognized the fundamental principle of knowledge. The study also explored the wide-ranging concept of knowledge management from the Islamic perspective and its significant contribution to human development.

The third article “Impact of Structural Approach to Knowledge Management Practice (KMP) at Malaysian University Libraries” was written by CheRusuli, M. S., Tasmin, R., &Takala, J, (2012) in Australian Journal of Basic and Applied Sciences, 6(10): 122-128. The main purpose of the paper was to explore factors which are directly involved to support knowledge management practices in Malaysian universities libraries. The other purpose of the study was to explore the knowledge management practices and factors like knowledge creation, knowledge acquisition, knowledge storage, knowledge sharing and knowledge capturing which have significance and association with universities library. They developed Structural Equation Model (SEM) of knowledge management. The study results showed that the universities of Malaysia will take help from the Structural Equation Model and researcher will find some new direction for further research. This research paper presented the proposed model of knowledge management practices (KMP) and library users’ satisfaction at Malaysian Universities.

The fourth paper titled “Knowledge Management, Total Quality Management and Innovation: A New Look articulated” was written by Honarpour, Jusoh, &Md Nor, (2012). The purpose of the study was to investigate the knowledge management and total quality management phenomena with the importance of both in academia and organization. They explained that knowledge management and total quality management have played the vital role in management progress. Knowledge management plays an important role in innovations as knowledge creation, knowledge dissemination, knowledge storage, and the application of new knowledge. Total quality management described by authors as an important factor, which influences on innovations. The aim of the study was to develop knowledge management and total quality management framework for improvement of universities. The results of the study suggested that to overcome the problems, the universities need to implement TQM and KM at the same time. Knowledge management and TQM implementation help in growing efficiency of the organizations
and reduced the costs of production in the innovation process. The study also revealed the relationship between TQM and KM and showed their influence on conceivable performance has been neglected in the literature review. The empirical studies of TQM and KM are insufficient and future studies should be the focus of research on TQM and KM, possible variables that contribute to development of organizations. The results of the study matched with the findings of Rastgoo, and Namvar, (2010) and Seonghee, and Boryung, (2008) but contrasted with the findings of Rowley, and Berman( 2000).

The fifth paper “An Assessment of Personal Knowledge Management for Teachers in Malaysian Secondary Schools” was Written by Alamein, K. M., & Tasir, and published in International Journal of Sciences: Basic and Applied Research (IJSBAR) recently in 2015. The authors attempted to explore the area of personal knowledge management. The purpose of the paper was to investigate the role of personal knowledge management in individuals to manage knowledge, integrate new information to improve their knowledge assets in real life. The other purpose of the inquiry was to investigate the level of personal knowledge management. The research study was conducted in five states of Malaysia to collect the data from 409 teachers of secondary school’s level. The results of the study revealed that there is a need to encourage teachers to share their personal knowledge for enhancement of teacher profession and student achievement in academic. The study also found that the practice of retrieving information got the highest and practice of presenting and sharing information got the lowest scores.

8. Findings

The first objective was related to research trends of knowledge management in Pakistan. In this regard, it was found that

1. In Pakistan, there is lack of coordination between researchers and industry. Most of the research is conceptual and there is less focus on practical issues. It was also found that research publications started in late 90’s and speed up in 2011 and onwards.

2. It was found that Facebook was also used as a tool for knowledge management but there is still need to provide information and guidance to students.

3. It was found that this is a growing area of research in Pakistan. It was also found that most of the focus of knowledge management is in educational institutions and corporate sector.

4. It was also found that COMSATS was the pioneer in adopting the concept of knowledge management.

5. It was found that knowledge management practices has vigorous role in university performance. The universities may pay proper attention towards knowledge management infrastructure, processes, and technology so that they can beat their competitors in the academic performance.

6. In Malaysia, the focus of research is the Islamic concept of knowledge management. It is an important factor for personal success. The study also found that Islamic knowledge management practices included all types of knowledge. The study also discovered that Islamic knowledge management is very fundamental for a Muslim manager to achieving progress and productivities in the life they are living.
7. It was found that philosophy of knowledge has well established in Islamic perspective of knowledge.

8. It was found that Malaysian researcher developed Structural Equation Model (SEM) of knowledge management which is best suited in Malaysian context.

9. It was also found that knowledge management and total quality management have played a vital role in knowledge management progress. The study also revealed the relationship between TQM and KM and their influence on conceivable performance has been neglected in the literature reviewed.

10. It was also found that there is a need to encourage teachers to share their personal knowledge for enhancement of teacher profession and student achievement in academic. It was also found that the highest practice was to retrieving information, and practice of presenting and sharing information was the lowest.

9. Conclusions

The main objective of the study was to compare the trends of knowledge management practices by the researchers of Pakistan and Malaysia. In this regard, it was found that

1. Pakistani researchers were new in the field of knowledge management practices and contributed to theoretical perspective mainly. They started working after 2011. The focus of research is on educational institutes (Findings 1,2,3)

2. COMSATS was pioneer institute in adopting Knowledge Management practices. It was also concluded that by paying proper attention towards knowledge management infrastructure, processes, and technology, universities can compete in batter way. (Finding 4,5)

3. In the field of knowledge management practices, Malaysian researchers cover all aspects of research on the field and its theoretical and practical foundation with special emphasis on Islamic perspective of knowledge management. It was concluded that philosophy of knowledge management is a well-established discipline in Islamic history. (Finding 6,7)

4. Development of structural equation, application of Knowledge Management in Total Quality Management and encouragement of teacher were some of the significant contributions of Malaysian Researchers. (Finding 8,9 and 10)

5. It was concluded that the results of this paper further recommended that Pakistani and Malaysian researchers and scholar should contribute in the application area of knowledge management like application of Knowledge management in Total Quality Management and school teacher’s knowledge management. Pakistani researchers should be involved in the emerging field of knowledge management practices particularly with reference to higher education problems and solution. (Finding 9 and 10)

10. Recommendations

On the basis of above conclusions, it was recommended that
1. It was concluded that researcher of both countries was paying attention towards Knowledge Management and its application in universities. There is need of strong collaboration between both countries.
2. A study may be conducted on knowledge management systems application with references to higher education problems of the Muslim world.

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