

# PERSPECTIVES ON CONNECTING THEORY TO PRACTICE IN EDUCATION: A STUDY ON FIJI PRIMARY SCHOOL TEACHERS' KNOWLEDGE AND PRACTICE OF REFLECTIVE TEACHING

<sup>1</sup> Taraivini Nailigamasei Raiula, <sup>2</sup> Dr (Mrs) VijayaKumari.S.N.

<sup>1</sup> Research Scholar, <sup>2</sup> Associate Professor and Research Guide  
St Ann's College of Education(Autonomous), Mangalore -India

**Abstract :** *Quality education is the ultimate goal for the Ministry of Education; as the sole employer for teachers, and its expectation is for every Primary School Teacher in Fiji, to teach all subjects that are prescribed by the ministry with the necessary teacher qualification. The notion of quality teaching also expects teachers to be reflective practitioners, and often articulated during workshops, conferences, however, the practicality of the said notion is mostly ignored, thus becomes the researcher's core objective of the study. The study engrosses descriptive survey with the engagement of Stratified Sampling technique with the sample size of 363 Primary School Teachers, from each stratus covering the four major Divisions; Northern, Central, Western and Eastern and uses a 'Test on Knowledge of Reflective Teaching,' and a 'Rating Scale on Practice of Reflective Teaching' to find out the perceptions of teachers' on reflective teaching with respect to teachers' teaching locations, and analysis of Variance(ANOVA) is used to analyse the data quantitatively. The relevance of the study is to allow the Ministry of Education in Fiji, to assist teachers with reflective practices in order to improve its status quo, which would lead to more effective teaching of mathematics thus result to better performance of primary school students. The findings of the study are discussed in detail in the paper.*

**Key words:** *Knowledge of reflective teaching, practice of reflective teaching, reflection in action, reflection on action, reflection of action*

## I. INTRODUCTION

The notion of reflective teaching was originated from the work of Dewey(1933), which highlighted that reflective exercise normally occurs when one is confronted with confusing or troubling situations, and such approach normally connects theory to practice, which could be seen as an important medium for teachers to reflect on one's own practices (Ditchburn 2015).

There is a need to inspire prospective and practising teachers to develop critical thinking and reflective practice which results in transprimitise learning which is the need of the hour (Kumari V.S.N 2014,p.38). Reflective teaching demands teachers to be develop critical thinking skills in order to evaluate past, and current practices to improve one's practice(Farrell 2004). Through reflection, one could be motivated to try out new approaches for better practice and that would involve action research.This type of engagement would help teachers to develop research skills and positive attitude towards research, and in doing so, one would contribute to knowledge production, familiarising oneself to action research process, which would result to modified classroom practices based on research.

## Reflective Teaching

Reflection engages a teacher in a systematic, demanding and disciplined thinking about professional practice and involves a process of self- observation and self-evaluation.

Reflective Teaching according to (Schon 1983), are in three forms; reflection-on action which focus on strengths and weaknesses of past experiences; reflection-in-action which include reflection during practice focus on current experience; and reflection for action, reflection as one prepares for practice. Reflection needs to be on going to allow teachers to develop one's own personality(Schon1993); through analysis of feelings, and evaluation of experiences resulted in the formulation of a reflective teaching model using five steps; description, feeling, evaluation, conclusion and action(Gibbs 1988). Reflective teaching gives opportunity for teachers to self- reflect one's own teaching style and find ways for improvement. The more a teacher reflects, the better one teaches resulting to positive outcomes. In sum, therefore, qualities of reflective practitioners are open mindedness, responsibility, and whole-heartedness and overcoming fears but instead build up confidence and evaluate.

The reflective process constructed by Pollard(2005) is closely related to teacher motivation, teacher competency, professional attitude which is summarized by Dewey's analogy as 'the teacher is a lover.' In addition, the qualities of a reflective practitioner, according to Farrell (2008) can be categorised into three which are as follows; open-mindedness responsibility, and wholeheartedness.

Some of the merits of reflections, according to McKay (2002);Larrivee &Cooper (2006) are moving away from routine behaviour such as textbook teaching ;understanding different theoretical basis which drives classroom practice; connecting the gap between assumptions and beliefs about teaching and learning and what one actually does; thus connecting theory to practice.

Fat'hi &Behzadpour (2011) summed up major aspects of reflective teaching as; firstly, reflections needs to be based on the learner, with emphasis on students' cognitive development with related learning styles; secondly, reflections need to focus on the teacher, which focus on teachers' personality, background, values and beliefs; thirdly ,reflections which focus on practical aspects which focus on its different forms, using ways and procedures such as journal writing, observation, group discussion, and others.

Fourthly, reflection based on teachers' cognitive development paying attention on one's professional development, in terms conducting small scale researches, action research, small classroom projects and others.

Furthermore, reflections based on critical or contextual development aspect of practice, which includes reflections related to a teacher's intellectual abilities and one's practice. Critical reflection highlights reflections which consider relationship between individual teaching actions and the role of education in the society.

Finally, the focus of reflection covers moral or ethical parameters refers to reflection which includes teachers' critical thinking about their purposes and justifications; relational approach, which draws philosophies which emphasise personal characteristics, effective social interactions; reflections that claim a voice of their own as students.

### **Need And Importance Of The Study**

Since there is hardly any literature available on Knowledge and Practice of reflective teaching conducted on Fiji's primary teachers, this study would throw some light on the significance of reflective teaching in the teaching of mathematics, and for other subjects. Moreover, Fiji's population is almost about 850 000 and is categorised under 'small island state' category, therefore since research literature for small islands states are not plentiful, Sanga (2012), findings of such studies can be used as building blocks of local and international literature in mathematics education.

## **II. REVIEW OF THE RELATED LITERATURE**

Hains-Wesson.R&Young.K.(2017) revealed that teachers' collaborative contribution to in designing a reflective professional practice package for STEM(Science Technology Engineering Mathematics) is of great significance as they have genuine sharing and in-depth reflections since they have first-hand experience of what actually happens in the classrooms.

Thomas R.J., & Kallanackal I.J.(2017) revealed that for reflective teaching professional development, higher percentage of teachers have unfavourable attitude towards journal writing. For qualities of reflective practitioners, higher percentage of teachers favour open-mindedness, in comparison to responsibility and whole-heartedness. Attitude towards types of reflective thinking, higher percentage of participants engage on reflection- for-action, compared to reflection-in-action and reflection-on-action.

Ajitha.P.(2016) revealed the significance of consistent reflection on teaching using journal entries, for students and teachers. From students' reflections, the most dominant teaching method is chalk and talk method which is boring; over-emphasis of simple things; and preference for teachers to be facilitators than being dominant. From teachers' views, journal entries cover a wide range of issues such as, disciplinary issues, teaching techniques with related issues, class management skills, assessment techniques, diverse learner needs, and strengths and areas of improvement.

Impedovo.M.A. &Malik.S.(2016) revealed that with teacher engagement in action research and related activities, brings about positive attitude and develop skills in research, which result to having a new perception on reflective practice. This sort of professional exercise improves chances to develop new practices, increase content knowledge, and familiarise oneself to mechanisms of action research which leads to more researches that focus on teaching practices and enhance reflections based on realistic experiences.

Kumari. S.N.V., & Naik S.P.(2015 highlighted the importance of reflection as part of trainees' preparation package. The objective of the study was to study the effects of reflective teaching training, levels of teaching aptitude and their interaction on teaching skills, among the teacher trainees. The result showed reflective teaching package is more effective in the development of teaching skills of teachers and helps teachers to take more responsibility to self -reflect and work on the areas of teaching that would need improvement.

Dogra.B.(2015) revealed that guided reflective journal writing help improve teachers' knowledge in teaching, and enhance professional capacity which contributes to better practitioners. Other benefits of guided reflective journal writing are improved in; classroom management, content knowledge, varied teaching strategies, interaction, favourable classroom environment, instructional resources, lesson preparations and 'out of the box' thinking.

### **Research Questions**

- Whether Knowledge and Practice of Reflective Teaching affect the teaching of mathematics?
- Whether Knowledge and Practice of Reflective Teaching differs with respect to teaching location?

To find answers to the following research questions which arose as a result of critical analysis of the research studies and theoretical perspectives on reflective teaching the present study was undertaken to contribute to the quality enhancement of mathematics education in Fiji, the study titled, "Perspectives On Connecting Theory to Practice in Education: A Study on Fiji Primary School Teachers' Knowledge and Practice of Reflective Teaching."

### **Operational Definitions**

#### **Knowledge and Practice of Reflective Teaching**

Knowledge and practice of Reflective Teaching refers to how teachers understand the concept of Reflective Teaching and exercise to bring about improvement in teaching. In the present study, the researcher used related aspects of reflective teaching of Fat'hi&Behzapour(2011) to measure the different categories and levels of Knowledge of Reflective Teaching for Primary School Mathematics Teachers in Fiji.

Components of the 'Test on Knowledge of Reflective Teaching'(Fat'hi&Behzapour (2011)] include the following:

- 1.Focus on the learner(FL)
- 2.Focus on the teacher(FT)
- 3.Focus on Practical aspects(FP)
4. Focus on teachers' Cognitive development(FC)
- 5.Focus on Contextual Development(FCD)
6. Focus Ethical parameters(FE)

The test items were constructed by the researchers using the above components.

In addition, for the Practice of Reflective Teaching, a Rating Scale For Fiji's Primary School Mathematics teachers was used to measure the level of the different categories of reflective teaching which was constructed by the researchers.

The components used are as follows (Farrell 2004):

1. Reflection- in -action(RI)
2. Reflection-on-action(RO)
3. Reflection-for-action(RF)

### Primary School Teachers

In the present study, Primary School Mathematics Teachers refer to male and teachers in Fiji serving in different schools as various locations throughout the country, currently serving at 731 primary schools in Fiji, and are basically divided into Divisions namely; Central Division, Northern Division, Western Division, and Eastern Division whereby the schools are further categorised as remote, rural, semi-urban and urban schools. According to Ministry Of Education Report(2011), rural schools are classified under 10 to 20km from a town boundary; and remote are greater than 20km away; semi-urban, 4km to 9km from town boundary; and urban, within 3km within town boundary.

Primary School Mathematics Teachers are directly employed and supervised by the MOE with a minimum qualification of Primary Teacher Certificate and are required to teach all the subjects prescribed by MOE.

### Objectives Of The Study

1. To study the level of Knowledge and Practice of Reflective Teaching of Primary School Mathematics Teachers of Fiji
2. To compare Knowledge of Reflective Teaching among Primary School Mathematics Teachers in Fiji with respect to teaching locations.
3. To compare Practice of Reflective Teaching among Primary School Mathematics Teachers in Fiji with respect to teaching locations.

### Hypothesis Of The Study

1. Primary School Mathematics Teachers of remote, rural, semi-urban and urban schools differ in Knowledge of Reflective Teaching
2. Primary School Mathematics Teachers of remote, rural, semi-urban and urban schools differ in Practice of Reflective Teaching.

### III. METHODOLOGY

The population covers all Primary School Mathematics Teachers in Fiji, which has a total of 5974 teachers in 2016, as the data obtained from the Ministry of Education.

The Sample was obtained using Krejcie and Morgan(1970) Sample size table. Descriptive survey was used with engagement of Stratified Random Sampling technique, whereby a stratus from each Education District is selected, from the four Education Districts; Northern, Central, Western and Eastern. The research tool used, was validated using Content Validity whereby, the process included elaboration of objectives and description of variables to the experts in the field of educational research, who were validators. The reliability of the tool was calculated using Cronbach's Alpha..

### IV. ANALYSIS OF DATA AND RESULTS

The collected data were tabulated, analysed and interpreted using SPSS.

#### Objective 1

To study the Knowledge and Practice of Reflective Teaching of Primary School Mathematics Teachers of Fiji

#### A. Knowledge of Reflective Teaching(KRT)

For Knowledge of Reflective Teaching, the data collected by administering the tool 'A Test on Knowledge of Reflective Teaching' was analysed by calculating the mean, standard deviation and percentage. The teachers were categorised levels:

High KRT Level- Teachers who have KRT score which is greater than mean + 1SD

Average KRT Level- Teachers who have KRT score which is between mean +1SD to mean – 1SD.

Low KRT Level- Teachers who have KRT score which is less than mean – 1SD.

Percentage of KRT with respect to each level of teachers are given in Table 1.1

**Table 1.1:** Percentage of KRT of Primary School Teachers in Fiji

Level of KRT	N	%
High	39	10.7%
Average	262	72.2%
Low	62	17.1%

Table 1.1 indicates that 72.2% of the teachers have average level of Knowledge of Reflective Teaching Hence it can be concluded that Primary School Teachers of Fiji have average level of Knowledge of Reflective Teaching.

#### B. Practice of Reflective Teaching(PRT)

The data for Practice of Reflective teaching was collected by administering the tool a 'Rating Scale' for Practice of Reflective Teaching, which was analysed by calculating the mean, standard deviation and percentage. The teachers were categorised levels:

Favourable - Teachers who have PRT score which is greater than mean + 1SD

Moderate - Teachers who have PRT score which is between Mean +1 SD to Mean – 1SD.

Unfavourable - Teachers who have PRT score which is less than mean – 1SD

Percentage of PRT with respect to each level of teachers are given in Table 1.2

**Table 1.2:** Percentage of Practice of Reflective Teaching of Primary School Teachers in Fiji

Level of Practice RT	N	%
Favourable	47	12.9%
Moderate	261	71.9%
Unfavourable	55	15.2%



Table 1.2 indicates that 71.9% of the teachers have average level of practice of Reflective Teaching. Hence it can be concluded that Primary School Mathematics Teachers of Fiji have average level of Practice of Reflective Teaching.

To compare the KRT, with respect to teaching location, the reliability of the data was calculated using Cronbach's Alpha. The details is given in Table 1.3

**Table 1.3:** Details of reliability of Data with respect to Teaching Location

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.393	.391	6

### Objective 2

To compare Knowledge of Reflective Teaching among Primary School Mathematics Teachers of Fiji.

#### Hypothesis 1

**H<sub>1</sub>:** Primary School Mathematics Teachers of remote, rural, semi-urban and urban schools differ in Knowledge of Reflective Teaching.

To test the hypothesis it was changed into null hypothesis as stated below.

**H<sub>0</sub>:** Primary School Mathematics Teachers of remote, rural, semi-urban and urban schools do not differ significantly in Knowledge of Reflective Teaching.

The hypothesis was tested using one-way 'Analysis of Variance(ANOVA) with the level significance fixed at 0.05 level. The details are given in Table 1.4

Table 1.4: ANOVA Details of Level of KRT among Remote, Rural, Semi-urban and Urban Primary School Mathematics Teachers of Fiji

Source of Variation	Sum of Squares	df	Mean Square	F-value	P-value	Result
Between Groups	27.181	3	9.060	1.680	.171	NS
Within Groups	1936.461	359	5.394			
Total	1963.642	362				
Within Groups	201.438	359	.561			
Total	210.171	362				

From Table 1.4 it is evident that there is no significant difference in Knowledge of Reflective Teaching among teachers of remote, rural, semi-urban and urban Primary School Mathematics Teachers, hence is equal among Primary School Mathematics Teachers teaching in different locations in Fiji.

To compare the Practice of Reflective Teaching, with respect to teaching location, the reliability of the data was calculated using Cronbach's Alpha. The details is given in Table 1.5

**Table 1.5:** Details of reliability of Data with respect to Teaching Location

Cronbach's Alpha	N of Items
.630	3

### Objective 3

To compare Practice of Reflective Teaching among Primary School Mathematics Teachers in Fiji

#### Hypothesis

**H<sub>2</sub>:** Primary School Mathematics Teachers of remote, rural, semi-urban and urban schools differ in Practice of Reflective Teaching

To test the hypothesis it was changed into null hypothesis as stated below.

**H<sub>0</sub>:** Primary School Mathematics Teachers of remote, rural, semi-urban and urban schools do not differ significantly in Practice of Reflective Teaching.

The hypothesis was tested using one-way 'Analysis of Variance(ANOVA) with the level significance fixed at 0.05 level. The details are given in Table 1.6

Table 1.6: ANOVA Details of PRT among Remote, Rural, Semi-urban and Urban Primary School Mathematics Teachers of Fiji

Source of Variation	Sum of Squares	df	Mean Square	F-value	P-value	Result
Between Groups	1150.359	3	383.453	1.464	.224	NS
Within Groups	94005.327	359	261.853			
Total	95155.686	362				

From Table 1.6 it is evident that there is no significant difference in Practice of Reflective Teaching, among teachers of remote, rural, semi-urban and urban Primary School Mathematics Teachers, hence equal among Primary School Mathematics Teachers teaching in different locations in Fiji.

### 3.1 Major Findings

- (i) Primary School Mathematics teachers in Fiji have an average level of Knowledge of Reflective Teaching
- (ii) Primary School Mathematics teachers in Fiji have an average level of Practice of Reflective Teaching
- (iii) There is no significant difference in Knowledge of Reflective Teaching among teachers of remote, rural, semi-urban and urban teachers, hence is equal among Primary School Mathematics Teachers teaching in different locations in Fiji.
- (iv) There is no significant difference in Practice of Reflective Teaching, among teachers of remote, rural, semi-urban and urban Primary School Mathematics Teachers, hence is equal among Primary School Mathematics Teachers of Fiji teaching at different locations in Fiji.

### IV RECOMMENDATIONS

In order to improve the average level of Knowledge of Reflective Teaching among Primary School Mathematics teachers in Fiji, the Ministry of Education needs to:

- Allocate funds to cater for Professional Development sessions for capacity building in knowledge of reflective teaching especially in reflection processes that would lead to conducting research
- Give initiatives to teachers to carry out action research
- Organise symposiums or conferences that give opportunities for teachers to present findings of studies conducted
- Initiate partnership with Teacher Education Institutions and discuss ways how teacher educators can support teachers in carrying out researches.
- Involve teachers in joint projects with teacher educators on best reflective practices

In order to improve the average level of Practice of Reflective Teaching among Primary School Mathematics teachers in Fiji, the Ministry of Education need to:

- Support teachers in providing Professional Development sessions on Practice of Reflective Teaching by implementing IMRIT model constructed by Kumari.V.S.N.(2014)
- Provide support for schools' in-house training on best practices of reflective teaching
- Initiate the 'culture of reflection' for every teacher
- Encourage teachers' to conduct at least one action research annually and to be published
- Invite resource personnel to help conduct Professional Development sessions on practice of reflective teaching
- Organise workshops, seminars, conferences to give opportunity for remote teachers to share research findings from undertaken projects

### V.CONCLUSION

From the findings drawn from this study, and if the suggested actions are implemented and monitored closely by the Ministry of Education, Primary School Teachers' Knowledge about reflective teaching would increase which would motivate one to be an effective reflective practitioner. Teachers would be develop critical thinking in analysing classroom practice and find out ways to improve practice based on research. Teachers would be confident in carrying out simple action researches for the betterment of one's practices. If such practices are nurtured in schools, more research publications from teachers and this contributes to capacity building for teachers. In this way teachers' knowledge levels would increase, and effective teaching would improve and teacher effectiveness would be enhanced as teachers would be confident to carry out interesting mathematics lessons and come up with creative ways to interact meaningfully with the students. Students would also be motivated to learn mathematics with clearer understanding and at the same time learning mathematics with fun. This positive learning environment would motivate the students to work harder and gain higher achievement in mathematics.

### REFERENCES

- [1] Ajitha.P.(2016). Action Research on Reflective Teaching. EDUTRACKS 15 (5).pp 44-46.Neelkamal Publications Pvt. Ltd, Sultana Bazar. Hyderabad. Telangana. India.
- [2] Dewey.J.(1933). How To Think: A Restatement of the Relation of Reflective Thinking To The Educative Process. Boston: Heath & Co.
- [3] Farrell. T.S.C.(2004). Reflective Practice In Action. Thousand Oaks. CA. Corwin Press
- [4] Ditchburn, G. M. (2015). Remembering Reflection in pre-Service Teachers' Professional Experience. Australian Journal of Teacher Education, 40(2). Retrieved on 20<sup>th</sup> June,2018 from <http://dx.doi.org/10.14221/ajte.2015v40n2.7>
- [5] Farrell. T.S.C. (2008).Reflective Practice in the Professional Development of Teachers of Adult English Language Learners. Brock University. Ontario. Canada, Caela Network Brief.
- [6] Fat'hi&Behzadpour.(2011). Beyond Method: The Rise Of Reflective Teaching. Retrieved on 9<sup>th</sup> January, 2017 from [www.ccsenet.org/ijel](http://www.ccsenet.org/ijel)
- [7] Fiji Ministry Of Education.(2011). Annual Report.Suva. Fiji: Government Printers
- [8] Gibbs. G.(1983).Learning by Doing: A Guide to Teaching And Learning Methods. Further Education. Unit Oxford Brokers University. Oxford.
- [9] Schon.D.A.(1983). The Reflective Practitioner: How Professionals Think in Action.New York
- Hains-Wesson.R&Young.K.(2017). A Collaboration Autoethnography Study To Inform The Reflective Practice In STEM. Higher Education Research and Development 36(2).pp297-310. Retrieved on 17<sup>th</sup> November,2017 from <http://dx.doi.org/10.1080/07294360.2016.1196653>

- [10]Imdedovo.M.A.&Khatoon.M.S.(2016). Becoming a Reflective-In-Service Teacher:Role of Research Article. Australian Journal of Teacher Education 41(1) Retrieved on 6<sup>th</sup> June, 2018 from <http://dx.doi.org/10.14221/ajte.2016v41n1n1.6>
- [11] Krejcie.&Morgan(1970).Determining Sample Size for Research Activities. Educational and Psychological Measurement.pp607-610. Retrieved on 6<sup>th</sup> October, 2017 from <http://research.advisors.com>
- [12] Kumari V.S.N.,&Naik S.P. (2015). Effect of Reflective Teaching Training and Teaching Aptitude on Teaching Skills Among Elementary Teacher Trainees In Journal OF Educational Psychology. 9(3),pp11-23
- [13] Larrivee, B. (2000). Transforming teaching practice: Becoming the critically reflective teacher. Reflective Practice, 1(3), 293-307. DOI: [10.1080/713693162](https://doi.org/10.1080/713693162)
- [14]Kumari.V.S.N.(2014). Constructivist Approach to Teacher Education: An Interactive Model for Reflective Teaching. i-manager's Journal of Educational Psychology 7(4).pp31-40. Retrieved on 20<sup>th</sup> June 2018 from <https://doi.org/10.26634/jpsy.7.4.2655>
- [15] Larrivee, B., & Cooper. J. M. (2006). An educator's guide to teacher reflection. Boston: Houghton Mifflin Company.
- [16] Mckay, S. L. (2002). The reflective teacher: A guide to classroom research. Singapore: SEAMEO Regional Language Center.
- [17]Sanga.K.(2012). Give Me Another NiuLupu: Enhancing Pacific Education Research Capacity. In Sanga. K.,&Kidmann. J(Eds.).Harvesting Ideas: Niu Generation Perspectives. University Of The South Pacific. Suva. USP Press.pp8-36
- [18]Schon.D.A.(1983). The Reflective Practitioner: How Professionals Think in Action.New York
- [19]Schon.D.A.(Ed.)(1993). The Reflective Turn:Case Studies In and On Education Practice. New YorkTeachers College Press.
- [20] Thomas R.J.,&Kallanackal I.J.(2017).Attitude of Student Teachers Towards Reflective Journal Writing for Professional Development. Educational Extracts 5(1).pp9-21

