

## Views of Elementary School Science Teachers in Bahrain about Their Reflective Practices

Fatema M. H. AlMalki<sup>1</sup> & Khalil Y. Alkhalili<sup>2</sup>

### Abstract

---

This study aimed at uncovering the degree of practicing reflection by science teachers at the elementary stage in Bahrain. The qualitative descriptive approach was used. A questionnaire consisting of 27 items were handed to a cluster random sample of 187 elementary school science teachers who teach general science at second cycle of the elementary stage (4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> grades) in 40 public schools in Kingdom of Bahrain. The results of this study showed that nearly all elementary science teachers in Bahrain irrespective of their gender, experience or qualification practice reflection in their teaching profession of all types that researchers designated. These results were in congruent with what some researchers found. However, Contrary to their findings, gender differences were found in this study. Female were higher than males in the first dimension (Situations of Practicing Reflection), whereas males were higher than females on the other dimensions (Areas of Practicing Reflection, and Ways of Practicing Reflection). Implications of these results were discussed, and further studies were recommended.

---

**Keywords:** Reflective, practices, elementary, science, teaching.

### Introduction

Reflective teaching which Dewey (1933) talked about in his book “How We Think” was reconsidered in recent research. Schön (1983) defines reflective action as that which involves active, persistent, and careful consideration of any belief or practice in light of the reasons that support it and the further consequences to which it leads. To him, professional growth begins when a person starts to view things with a critical lens, by doubting his or her actions. Russell (1999) emphasized that teachers should think about what they have learned from their teaching experiences, and re-evaluate these experiences in order to see them in new ways that might suggest new practices.

Tice (2004) states that reflective practice is the ability to reflect on one's actions so as to engage in a process of continuous learning. It involves "paying critical attention to the practical values and theories which inform everyday actions, by examining practice reflectively and reflexively. Mathew, Mathew, and Peechattuu(2017) considered reflection as a flash back that the teachers need to mediate for their development. The British Council (2014) states that reflecting on your performance daily is an attribute of a high-performance individual. Reflection is a powerful process in improving one's performance, and like any skill, it can be developed and mastered. It serves as the “mirror” into our past actions. Mindful of the challenges we, as educators, face in preparing our students for 21<sup>st</sup> century careers, reflective practices are (and will continue to be) an essential ingredient in that preparation.

Schön (1983; 1987) advocated 2 types of reflective practice: reflection-on-action, and reflection-in-action. Reflection-on-action involves reflecting on an experience that you have already had, or an action that you have already taken, and considering what could have been done differently, as well as looking at the positives from that interaction.

Reflection-in-action, or reflecting on your actions as you are doing them, and considering issues like best practice throughout the process. Impedovo and Malik (2016) added a third type of reflection which is reflection For-action. This kind of reflection involves the teacher reflecting proactively about teaching prior to or while preparing for practice. Presently, reflective practice has become part of the competencies required to be a good teacher.

---

<sup>1</sup> Bahrain Teachers College, University of Bahrain. E-mail: [falmalki@uob.edu.bh](mailto:falmalki@uob.edu.bh)

<sup>2</sup> Bahrain Teachers College, University of Bahrain. E-mail: [kalkhalili@uob.edu.bh](mailto:kalkhalili@uob.edu.bh)

Teachers who are able to use critical reflections to improve instruction are called reflective practitioners (Impedovo & Malik (2016). Back, De Geest, Hearst, and Jourbt (2009) stress that the development of reflection on practice is essential for sustainable professional development. Reflecting on your performance daily is an attribute of a high-performance individual. Eury, king and Balls (No date) Consider reflection as a powerful process in improving one's performance, and like any skill, it can be developed and mastered. It serves as the "mirror" into our past actions. Mindful of the challenges we, as educators, face in preparing our students for 21<sup>st</sup> century careers, reflective practices are (and will continue to be) an essential ingredient in that preparation.

Moreover, reflection has been considered an ability for continual self-renewal and is a combination of critical inquiry, conscious consideration of the ethical implications and consequences of teaching practice and deep examination of personal beliefs and assumptions about human potential and learning (Mitchell & Weber, 1999; Larrivee, 2012). Drew & Bingham (2001) and Farrell, (2007) consider reflective practice as a way of looking back on an experience and making sense of it to identify what to do in the future.

Reflective practice approach was found to be helpful for teachers in identifying weaknesses and strengths and improving their practice (Ahmed & Al-Khalili, 2013). Porntaweekul1, Raksataya, and Nethanomsak (2016) found that reflective teaching was influential on enhancing students' desirable learning outcomes. Aldahmash, Alshmrani, and Almufti (2017) found that teachers practice reflection of the all of its types that Schön (1983). Impedovo and Malik (2016) found that reflective practice was very helpful and important for the professional development of in-service teachers. Richards (no date) found that experience alone is insufficient for professional growth, but that experience coupled with reflection can be a powerful impetus for teacher development.

Camburn & Han (2017) found that teachers engaged in reflective practice more often when they had more regular access to embedded learning opportunities which they define as collaborating with peers on instructional matters or working with instruction experts.

Attard (2017) gathered data over a 10-year period using reflective self-study as a professional development tool, these data were analyzed using thematic and reflective analysis. Such analysis resulted in various overarching themes that show how reflective self-study can be of benefit if used by teachers researching their own classrooms. Benefits included teachers taking full ownership of their learning, relevance of learning, learning that is ongoing and not restricted to specific times and places, taking problematic situations as learning opportunities and how other sources take on new relevance through reflective self-study

Bahrain Teachers College at the University of Bahrain is the only college in Kingdom of Bahrain allowed to prepare public school teachers. This college gives a high emphasis to reflective practices in almost each course students take as part of the requirements. Not less than 5% of the final grade is given to reflection. Moreover, every student has to give a presentation at the completion of the requirements of graduation. Based on his/her presentation, a grade is given to him/her that would be counted in his/her GPA. It is expected that these graduates would practice reflection in their teaching after graduation. However, no study has been conducted on this vital aspect of teacher's practice. Critical thinking concerning students' learning process is widely discussed in the educational field. Alas, not much focus is driven towards the method of reflective teaching in classrooms. The most important educators and individual-shapers in society need to involve reflection in the midst of their guidance. By then, control can be exercised and this will open up the possibility of transforming our everyday classroom life.

### **Problem of the Study:**

Lack of studies on reflective practices by Bahraini teachers in general and science teachers in particular was the main factor that stands behind carrying out this study. It is logical that we have to start with investigating the degree of practicing this kind of reflection at first. Accordingly, the problem was formulated in the following question: To what extent do science teachers at the elementary stage in Bahrain practice reflection in their teaching?

### **Purpose of the Study:**

The study aimed at uncovering the degree of practicing reflection by science teachers at the elementary stage in Bahrain as a precedent for further research on this vital aspect of teaching practices that end up with high quality of science teaching at public schools.

### Research Questions:

This study attempted to answer the following four questions:

1. In which situations do elementary science teachers in Bahrain mostly practice reflection?
2. In which areas do elementary science teachers in Bahrain mostly practice reflection?
3. In which ways do elementary science teachers in Bahrain mostly practice reflection?
4. Do gender, length of experience and level of qualification make a significant difference in elementary science teachers' reflection?

### Methodology

The study followed the descriptive analytical approach through a survey with a constructed response questionnaire as an instrument for data collection.

### The Research Instrument

The research instrument was a questionnaire adopted from Aldahmash, et al (2017), and modified in accordance with the situations in Bahrain. It consisting of two parts. The first part includes the instruction to the participants in addition to three questions about gender, experience and the level of education. The second part of the questionnaire was a list of 27 reflection practices for the participants to select how frequently they practice each item according to a five Likert scale (never, rarely, sometimes, often, or usually).

### Validity of the Instrument

The construct validity of the instrument was assured through two tracks:

1. The first draft of the questionnaire was adopted from Aldahmash, Alshmrani, and Almufti, (2017). It consists of 20 items distributed into three dimensions as follows: Extent (situations) of practicing reflection (7 items), Areas of practicing reflection (5 items), Ways of practicing reflection (8 items). Acceptable procedure for the assurance of its validity were followed by the developers. In addition, they indicated that their instrument was adopted from Celes (cited in Aldahmash, 2017) and modified in accordance with the aims of their study in order to collect the data they were aiming at.
2. A draft of the questionnaire was copied from Aldahmash et. al (2017) and translated into Arabic. Then, it was handed to a panel of judges consisting of nine experts in teaching methods or educational psychology who work with the researchers at the same college. Based on their notes and suggestions some wording of the items were modified and seven more items were added. Accordingly, a final version of the questionnaire was reached consisting of 27 items distributed as follows: Situations of practicing reflection 10 items, Areas of practicing reflection 7 items, Ways of practicing reflection 10 items.

### Reliability of the Instrument

The questionnaire was administered to a sample consisting of 36 science teachers at the upper elementary cycle (4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grades). Cronbach's Alpha was calculated for the items in each dimension as well as to the questionnaire as a whole. Table 1 shows the values obtained. It is evident from these values that the questionnaire has a very good level of reliability at both dimensions and overall.

**Tale 1. Reliability Coefficients of the Dimensions of the Instrument**

Dimension	Cronbach's Alpha	N of Items
Situations of Practicing Reflection	.860	10
Areas of Practicing Reflection	.821	7
Ways of Practicing Reflection	.898	10
Practicing Reflection in Total	.923	27

### Participants

A cluster random sample consisting of 187 teachers who teach general science at second cycle of the elementary stage (4<sup>th</sup>,5<sup>th</sup>,6<sup>th</sup> grades) in 40 public schools in Kingdom of Bahrain were the participants of this study. The questionnaire was handed to these participants in the first semester of the 2018-2019 school year by our student-teachers whilst practicing training in these schools.

These schools cover all geographical areas in Bahrain as well as the villages, towns and cities. Which assures a good representation to the whole population of elementary school science teachers in this kingdom.

Table 2 shows the distribution of this sample according to gender, qualification and experience. Two cells were empty which were short experience and more for both males and females. In addition, one cell was of two cases (females of long experience who were holding the bachelor) and another cell was of three cases which is female teachers of medium experience holding the master degree or above. This situation prevents using Three Way Multivariate Analysis of variance (Three Way MANOVA) which might be more relevant for data analysis if all cells must have cases more than the number of the dependent variables.

**Table 2. Distribution of the sample according to gender, qualification and experience.**

Experience	Male			Female			Total
	Qualification			Qualification			
	Master &		Total	Master &		Total	
	Bachelor	above		Bachelor	above		
Short	14	0	14	15	0	15	29
Medium	40	9	49	57	3	60	109
Long	22	12	34	2	13	15	49
All	76	21	97	74	16	90	187

**Data Analysis**

The Statistical Package for Social Sciences SPSS was used for data analysis. The criteria set for judgment the level of practicing reflection by Aldahmash et al. (2017) was adopted. These criteria were decided by the following procedure:

1. Find the Mid of the interval which equals (Upper degree of Likert scale -Lower degree), which is in our case (5-1 =4)
2. Divide the Mid by the number of the degrees of the Likert scale, which is in our case (4/5 = 0.8)
3. Add the value in step 2 to the lower Limit of the lowest degree of the scale, and keep adding this value to get the criteria for judgement, which would be as follows:
  - **Very Low:** 1 –less than 1.80
  - **Low:** 1.8 - Less than2.60
  - **Moderate:** 2.60 - Less than 3.40
  - **High:** 3.4 – Less than 4.20
  - **Very High:** 4.20 - 5.00

**Results Pertaining to the First Question**

Table 3 Presents descriptive statistics of the teachers rating of the whole sample of teachers on each item in the first dimension of reflection (Situations of Practicing Reflection) rank ordered based on the mean of ranking. The overall rating of this dimension was high (mean=4.0535). Four situations were ranked at a very high level; top of them were:“Practicing Reflection During Writing Lesson Plan”, followed by “After a Visit of Quality Assurance Team, then “While Doing Lesson Teaching”, and “After a Visit by the Supervisor or the Principal”. The other six situations were rated at a high level. These situations were: “After Assessment of Students”, followed by “at the End of the Course”, then “At the End of the Lesson, followed by “After Meeting with Parents;“After Completion of Teaching a Unit or a Chapter of the Book”, and the lowest which was also at a high level was “After Participating in a Training Workshop”.

These results are good indicators that Bahraini teachers at the elementary stage practice reflection at either a very high or high degree in all situations that require reflection irrespective of their differences.

**Table 3. Descriptive Statistics of the Teachers' Rating of Situations of Practicing Reflection**

Rank	Situations of Practicing Reflection	Mean	Std. Deviation	Judgement
1	Practicing Reflection During Writing Lesson Plan	4.5027	.63394	Very High
2	Reflection after a Visit of Quality Assurance Team	4.4652	.53140	Very High
3	Reflection While Doing Lesson Teaching	4.2674	.90587	Very High
4	Reflection after a Visit by the Supervisor or the Principal	4.2513	.91929	Very High
5	Reflection after Assessment of Students	3.9947	1.02913	High
6	Reflection at the End of the Course or the Year	3.9893	.92742	High
7	Reflection at the End of the Lesson	3.8984	1.25096	High
8	Reflection after meeting with Parents	3.8396	1.13400	High
9	Reflection after Completion of Teaching a Unit or a Chapter of the Book	3.8289	1.04347	High
10	Reflection after Participating in a Training Workshop.	3.4973	1.25884	High
	Total Dimension	4.0535	.34380	High

### Results Pertaining to the Second Question

Table 4 presents the teachers' rating of the items in the second dimension which is "Areas of Practicing Reflection" rank ordered based on the mean of ranking. The overall rating of this dimension was very high (mean = 4.2368). Three areas were rated at very high degree, the top of which was "Classroom Control and Management"; the second top was "Lesson Planning", and the top third was "Selection of Evaluation and Assessment". The other four areas were rated at a high level. These were: "Estimation of Needed Time for Activities", "Selection of Activities for Encouraging Curiosity and Involvement", "Selection of Teaching Method or Activities Suitable for the Subject to be Taught", "Correction of Mistakes in Teaching".

These results are good indicators that Bahraini teachers at the elementary stage practice reflection at either a very high or high degree in all areas that require reflection irrespective of their differences.

**Table 4. Descriptive Statistics of the Teachers' Rating of Areas of Practicing Reflection**

Rank	Areas of Practicing Reflection	Mean	Std. Deviation	Judgment
1	Classroom Control and Management	4.4759	.69808	Very High
2	Lesson Planning	4.3583	.90100	Very High
3	Selection of Evaluation and Assessment Strategies	4.2941	.85139	Very High
4	Estimation of Needed Time for Activities	4.1604	.99241	High
5	Selection of Activities for Encouraging Curiosity and Involvement	4.1551	1.00135	High
6	Selection of Teaching Method or Activities Suitable for the Subject to be Taught	4.1070	.90951	High
7	Correction of Mistakes in Teaching	4.1070	1.06726	High
	Total Dimension	4.2368	.35399	Very High

### Results Pertaining to the Third Question

Table 5 shows the teachers' rating of the third dimension which is "Ways of Practicing Reflection" rank ordered based on the mean of ranking. The overall rating of this dimension was moderate. Only one way of practicing reflection was rated at a very high degree, which is Mind Reflection alone. Mind Reflection with other Teachers in Same School" came second but with a rating of high degree. "Writing Reflection Alone" came third with a rating of also high. The other six were rated at a moderate level. These were ranked as follows: "Mind Reflection with a Group of Teachers within the School" came fourth, followed by "Mind Reflection with a Group of Teachers

out of School”, then “Mind Reflection with a Group of Teachers out of School”, then “Written Reflection with Other Teacher in Same School”, followed by “Mind Reflection with Other Teacher out of School”. “Written Reflection with Other Teacher out of School” was rated at the ninth rank but with a moderate level. “Written Reflection with a Group of Teachers out of School” was rated at the last rank with a low level, which indicates that teachers have little contact out of their schools.

These results are good indicators that Bahraini teachers at the elementary stage practice reflection in all ways but at a moderate level. However, mind reflection alone was the dominate way of reflection which was rated at a very high level of practice. Mind reflection with other teachers as well as “written reflection alone” were also other ways of reflection that are rated at a high level of practice. Written Reflection with other teacher or groups of teachers were practiced but at low or nearly low level. Which indicates that out of school communication is not highly practiced.

**Table 5. Descriptive Statistics of the Teachers’ Rating of Ways of Practicing Reflection Dimension**

Rank	Ways of Practicing Reflection	Mean	Std. Deviation	Judgment
1	Mind Reflection Alone	4.2513	.87740	Very High
2	Mind Reflection with Other Teacher in Same School	4.1979	.96073	High
3	Writing Reflection Alone	3.6203	1.21824	High
4	Mind Reflection with a Group of Teachers Within the School	3.3476	1.42256	Moderate
5	Mind Reflection with a Group of Teachers out of School	3.2888	1.44134	Moderate
6	Mind Reflection with a Group of Teachers out of School	3.1604	1.42404	Moderate
7	Written Reflection with Other Teacher in Same School	3.1123	1.36516	Moderate
8	Mind Reflection with Other Teacher out of School	2.8717	1.28456	Moderate
9	Written Reflection with Other Teacher out of School.	2.7112	1.23220	Moderate
10	Written Reflection with a Group of Teachers out of School	2.4011	1.28037	Low
	Total Dimension	3.2963	.48972	Moderate

#### Results Pertaining to the Fourth Question

The Fourth question is related to differences in teachers’ rating of practicing reflection due to gender, qualification, and experience. For answering this question, the mean rating given by teachers to the set of items in each the three dimensions were considered as measures of dependent variables. Thus, we have three dependent variables. These were: Average rating of teachers to “situations of practicing reflection”, average rating of teachers to “areas of practicing reflection”, and average rating of teachers to “ways of practicing reflection”. The independent variables were also three which are: gender (male, female), qualification (bachelor, master or above), and years of experience (short 1-3, medium 4-6, long 6 years or more).

One-way MANOVA was used for data analysis for each of the independent variables alone, but not Three-way MANOVA since there were empty cells when checked. Following are the results of this analysis.

#### Results Pertaining to Gender Differences

Table 6. shows descriptive statistics of teachers’ ratings of practicing reflection on each of the three dimensions classified according to gender. Gender differences are evident in the mean rating in each of the three dimensions. The Hottelling’s Trace MANOVA test was selected for assessing these differences, the results of this test are presented in Table 7. This test indicates statistically significant difference due to gender on the three dimensions taken together. Table 8 shows that there are statistically significant differences due to gender on the three dimensions taken together.

**Table 6. Descriptive Statistics of Teachers' Ratings of Practicing Reflection on Each of the Three Dimensions Classified According to Gender**

Dimension		Mean	Std. Deviation	N
Situations of Practicing Reflection	Male	3.9495	.35033	97
	Female	4.1656	.30025	90
	Total	4.0535	.34380	187
Areas of Practicing Reflection	Male	4.3004	.27470	97
	Female	4.1683	.41392	90
	Total	4.2368	.35399	187
Ways of Practicing Reflection	Male	3.4763	.39575	97
	Female	3.1022	.50879	90
	Total	3.2963	.48972	187

**Table 7. Multivariate Test Results on Gender Differences**

Effect		Value	F	Hypothesis df	Error df	Sig.
Gender	Hotelling's Trace	.380	23.200	3.000	183.000	.000

Table 8 shows Statistically significant differences between-subjects' effects due to gender on each of three dimensions. If we look back to the results shown in Table 6, we could see that female were higher than males in the first dimension (Situations of Practicing Reflection). Whereas males were higher than females on the other dimensions (Areas of Practicing Reflection, and Ways of Practicing Reflection).

**Table 8. Tests of Between-Subjects Effects Due to Gender on Each of three dimensions**

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	Situations of Practicing Reflection	2.180	1	2.180	20.359	.000
	Areas of Practicing Reflection	.816	1	.816	6.710	.010
	Ways of Practicing Reflection	6.532	1	6.532	31.740	.000
Error	Situations of Practicing Reflection	19.806	185	.107		
	Areas of Practicing Reflection	22.492	185	.122		
	Ways of Practicing Reflection	38.075	185	.206		
Total	Situations of Practicing Reflection	3094.520	187			
	Areas of Practicing Reflection	3380.082	187			
	Ways of Practicing Reflection	2076.420	187			

### Results Pertaining to Qualifications Differences

Table 9. shows descriptive statistics of teachers' ratings of practicing reflection on each of the three dimensions classified according to qualification. Very little differences are evident in the mean rating in each of the three dimensions. The Hottelling's Trace MANOVA test was selected for assessing these differences, the results of this test are presented in Table 10. This test indicates non-statistically significant difference due to gender on the three dimensions taken together. Table 11 shows that there are also non-statistically significant differences due to qualification on each of the three dimensions taken separately.



**Table 9. Descriptive Statistics of Teachers' Ratings of Practicing Reflection on Each of the Three Dimensions Classified According to Qualification**

Dimension	Qualifications	Mean	Std. Deviation	N
Situations of Practicing Reflection	Bachelor	4.0620	.33771	150
	Master or above	4.0189	.37031	37
	Total	4.0535	.34380	187
Areas of Practicing Reflection	Bachelor	4.2324	.35903	150
	Master or above	4.2548	.33694	37
	Total	4.2368	.35399	187
Ways of Practicing Reflection	Bachelor	3.2960	.49343	150
	Master or above	3.2973	.48102	37
	Total	3.2963	.48972	187

**Table 10. Multivariate Tests on Qualification Differences**

Effect		Value	F	Hypothesis df	Error df	Sig.
Qualification	Hotelling's Trace	.003	.197 <sup>b</sup>	3.000	183.000	.898

**Table 11. Tests of Between-Subjects Effects Due to Qualification on Each of Three Dimensions**

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Qualification	Situations of Practicing Reflection	.055	1	.055	.465	.496
	Areas of Practicing Reflection	.015	1	.015	.119	.731
	Ways of Practicing Reflection	4.995E-5	1	4.995E-5	.000	.989
Error	Situations of Practicing Reflection	21.930	185	.119		
	Areas of Practicing Reflection	23.293	185	.126		
	Ways of Practicing Reflection	44.607	185	.241		
Total	Situations of Practicing Reflection	3094.520	187			
	Areas of Practicing Reflection	3380.082	187			
	Ways of Practicing Reflection	2076.420	187			

**Results Pertaining to Experience Differences**

Table 12. shows descriptive statistics of teachers' ratings of practicing reflection on each of the three dimensions classified according to teaching experience. Very little differences are evident in the mean rating in each of the three dimensions. The Hottelling's Trace MANOVA test was selected for assessing these differences, the results of this test are presented in Table 13. This test indicates non-statistically significant difference due to teaching experience on the three dimensions taken together. Table 14 shows that there are also non-statistically significant differences due to teaching experience on each of the three dimensions taken separately.



**Table 12: Descriptive Statistics**

Dimension	Experience	Mean	Std. Deviation	N
Situations of Practicing Reflection	Short Experience	4.1172	.29528	29
	Medium Experience	4.0761	.32458	109
	Long Experience	3.9653	.39820	49
	Total	4.0535	.34380	187
Areas of Practicing Reflection	Short Experience	4.3399	.37876	29
	Medium Experience	4.2045	.34742	109
	Long Experience	4.2478	.34844	49
	Total	4.2368	.35399	187
Ways of Practicing Reflection	Short Experience	3.3034	.50390	29
	Medium Experience	3.2771	.48812	109
	Long Experience	3.3347	.49268	49
	Total	3.2963	.48972	187

**Table 13: Multivariate Test on Experience**

Effect	Value	F	Hypothesis df	Error df	Sig.
Experience Hotelling's Trace	.047	1.415	6.000	362.000	.208

**Table 14: Tests of Between-Subjects Effects**

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Experience	Situations of Practicing Reflection	.555	2	.277	2.382	.095
	Areas of Practicing Reflection	.428	2	.214	1.722	.182
	Ways of Practicing Reflection	.114	2	.057	.236	.790
Error	Situations of Practicing Reflection	21.430	184	.116		
	Areas of Practicing Reflection	22.880	184	.124		
	Ways of Practicing Reflection	44.493	184	.242		
Total	Situations of Practicing Reflection	3094.520	187			
	Areas of Practicing Reflection	3380.082	187			
	Ways of Practicing Reflection	2076.420	187			

## Discussion and Implications

The results of this study showed that nearly all elementary science teachers in Bahrain irrespective of their gender, experience or qualification practice reflection in their teaching profession of the two types that Schön (1983, 1987) mentioned as well as of the third type mentioned by Impedovo and Malik (2016) at either a very high or high level. These results were in congruent with what Aldahmash et. al (2017) found in Kingdom of Saudi Arabia, but at degrees higher than what they found.

However, Contrary to their findings, gender differences were found in this study. Female were higher than males in the first dimension (Situations of Practicing Reflection), whereas males were higher than females on the other dimensions (Areas of Practicing Reflection, and Ways of Practicing Reflection).

The high level of practicing reflection by Bahraini science teachers at the elementary stage might be explained through the rating they gave to “Reflection after a Visit of Quality Assurance Team” which was rated at a very high level. Quality assurance team seems to be very influential in this respect. All Bahraini, public or private, schools are periodically evaluated by this team. Another factor that might be that resulted into this high-level of practicing reflection might be the professional development programs that the Ministry of Education arrange with the Bahrain Teachers College for the teachers who are underqualified for teaching. Besides the close supervision and the workshops held to them. However, it worth a follow up study for identifying the sources of such a high-level of practicing reflection and give support to these sources.

Regarding ways of practicing reflection, it was found that Bahraini science teachers at the elementary stage practice reflection in all ways but at a moderate level. However, mind reflection alone was the dominate way of reflection which was rated at a very high level of practice. Mind reflection with other teachers as well as “written reflection alone” were also other ways of reflection that are rated at a high level of practice. Written Reflection with other teacher or groups of teachers were practiced but at low or nearly low level. Which indicates that out of school communication is not highly practiced by these teachers, that means teachers have little contact out of their schools. This result implies that the Ministry of Education in Kingdom of Bahrain should encourage elementary school science teachers to benefit from the experiences of each other. In addition, Teacher preparation institute which is Bahrain Teachers College should keep giving enough importance to reflective skills to be used in their future profession.

#### **Acknowledgement:**

The researchers highly appreciate the sincere efforts of their student Hamad Alhassoni, who took the initiative to collect the data for the pilot study as well as to distribute the questionnaire with the assistance of his classmates and friends of other sections. His efforts of typing the data into Excel file is invaluable.

#### **References**

- Aldahmash, A. H., Alshmrani, S. M., & Almufti, A. N. (2017). Secondary school science teachers' views about their reflective practices. *Journal of Teacher Education for Sustainability*, 19(1), 43-53. DOI: 10.1515/jtes-2017-0003.
- Ahmed, E. W., Al-Khalili, K. Y. (2013). The impact of using reflective teaching approach on developing teaching skills of primary science student teachers. *The Online Journal of New Horizons in Education*, 3(2), 58-64.
- Attard, K. (2017). Personally, driven professional development: Reflective self-study as a way for teachers to take control of their own professional development. *Teacher Development*, 21(1), 40-56. ERIC Number: EJ1120074
- Back, J., De Geest, E., Hirst, C., & Joubert, M. (2009). *Final Report: Researching Effective CPD in Mathematics Education (RECME)*. Sheffield: NCETM.
- Camburn, E. M., & Han, S. W. (2017). Teachers' professional learning experiences and their engagement in reflective practice: A replication study. *School Effectiveness and School Improvement*, 28(4), 527-554. ERIC Number: EJ1160301
- Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Chicago: Henry Regnery.
- Drew, S. & Bingham, R. (2001). *The Student Skills Guide*. Gower.
- Eury, A. D., King, J., & Balls, J. D. (No date). 5 "Q.U.I.C.K." steps of reflective practice. Retrieved 19 March, 2019 from the world Wide Web: <http://www.teachhub.com/5-quick-steps-reflective-practice>.
- Farrell, T. S. C. (2007). *Reflective language teaching: From research to practice*. London: Continuum Press.
- Gibbs, G. (1988). *Learning by doing: a guide to teaching and learning methods*. London: Further Education Unit.
- Impedovo, M. A., & Malik, S. K. (2016). Becoming a reflective in-service teacher: The role of research attitude. *Australian Journal of Teacher Education*, 41(1), 100-112.
- Larrivee, B. (2000). Transforming Teaching Practice: Becoming the critically reflective teacher. *Reflective Practice: International and Multidisciplinary Perspectives*, 1(3), 293-307. <http://dx.doi.org/10.1080/713693162>.

- Mathew, P. Mathew, P., & Peechattuu, P. J. (2017). Reflective Practices: A means to teacher development. *Asia Pacific Journal of Contemporary Education and Communication Technology*, 3(1), 126-131. Retrieved 15<sup>th</sup> March, 2019 from the world Wide Web:  
[https://apiar.org.au/wpcontent/uploads/2017/02/13\\_APJCECT\\_Feb\\_BRR798\\_EDU-126-131.pdf](https://apiar.org.au/wpcontent/uploads/2017/02/13_APJCECT_Feb_BRR798_EDU-126-131.pdf).
- Porntaweekul1, S., Raksasataya, S., & Nethanomsak, T. (2016). Developing reflective thinking instructional model for enhancing students' desirable learning outcomes. *Educational Research and Reviews*, 11(6), 238-251. DOI: 10.5897/ERR2015.2380. Retrieved 15<sup>th</sup> March, 2019 from the world Wide Web:  
<https://academicjournals.org/journal/ERR/article-abstract/E9A929557428>
- Ricard, J. C. (no date). *Towards Reflective Teaching*. Retrieved 15<sup>th</sup> March, 2019 from the World Wide Web:  
[https://www.tttjournal.co.uk/uploads/File/back\\_articles/Towards\\_Reflective\\_Teaching.pdf](https://www.tttjournal.co.uk/uploads/File/back_articles/Towards_Reflective_Teaching.pdf)
- Russell, T. (1999). The challenge of change in teaching and teacher education. In J.R. Baird(Ed.), *Reflecting, teaching, learning. Perspectives on educational improvement* (pp. 219-238). Cheltenham, Victoria: Hawker Brownlow Education.
- Schön, D. A. (1983). *The Reflective Practitioner: How Professionals Think in Action*. London: Temple Smith.
- Schön, D. A. (1987). *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*. San Francisco: Jossey- Bass.
- Tice, J. (2004). *Reflective teaching: Exploring our own classroom practice*. British Council Lisbon. Retrieved 15<sup>th</sup> March, 2019 from the World Wide WEb: <https://www.teachingenglish.org.uk/article/reflective-teaching-exploring-our-own-classroom-practice>.