



PREDICTING REFLECTIVE THINKING AMONG SAUDI ELEMENTARY SCHOOL TEACHERS IN RIYADH PUBLIC SCHOOLS

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ABSTRACT

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One of the educational objectives of Saudi Arabia's Vision 2030 is to develop students who are creative and critical thinkers. The present study thus examined Saudi elementary teachers' reflective thinking, based on the ideas that teachers who possess reflective thinking will have direct influence on their students' thinking, and that reflective thinking is closely related to critical and creative thinking. The study looked at four variables, lifelong learning, self-awareness, self-belief, and teaching awareness, testing each variable's influence on teachers' reflective thinking skills. The study adopted and utilized the instrument of reflective thinking developed by Choy, Yim, and Tan (2017) creating a survey to examine these relationships. The study found that only two of the constructs, teaching awareness and self-awareness, have a significant relationship with reflective thinking. Self-belief and lifelong learning were found to have no significant relationship with reflective thinking. The results suggest that it is necessary to incorporate activities and practices that foster reflective thinking into teacher preparation programs. It is suggested to conduct further research in order to identify what factors influence teachers' reflective thinking and to compare teachers of different students' ages.

Contribution/Originality: This research is one the very few studies that investigated reflective thinking among female Saudi teachers. The findings of the study revealed the current stage of reflective thinking among elementary teachers in Saudi Arabia. The Ministry of Education and teacher educators can use these data to re-evaluate teacher training programs and provide in-service teachers with training programs to practice reflective thinking. In addition, the research report pointed out that Saudi Arabia has limited research sources in this field and needs to be expanding on it.

1. INTRODUCTION

Reflective thinking is a skill highly advocated among educators in teacher preparation programs. It is often defined as the ability to pay "critical attention to the practical values and theories which inform everyday actions, by examining practice reflectively and reflexively" (Bolton, 2010). In order to be reflective thinkers, teachers must utilize two processes: reflective thinking and reflective practice (Kalantari & Kolahi, 2017). Reflective thinking includes self-awareness and self-evaluation, whereas reflective practice focuses on modifying and improving current teaching practices (Kalantari & Kolahi, 2017).

John Dewey introduced the term "reflective thinking" and defined it as a process in which a teacher recognizes a problem, thinks about it, evaluates it, and finally reflects on it. The purpose of reflective thinking is therefore to develop consciousness and improve teaching practices. Without exception, teaching as a career calls for a great deal of self-reflection and the ability to tailor solutions to specific situations in a classroom. It is not only necessary for

teachers to acquire knowledge about teaching from outside the classroom, but also to use reflective thinking to derive knowledge from their daily practices within the classroom (Sparks-Langer & Colton, 1991). Atay (2003) describes reflective thinking as a process of recalling past events, pondering and debating them, and re-evaluating them with regard to a specific goal.

In other words, reflective thinking involves self-questioning, performance analysis, and redefining for performance improvement by repositioning one's objectives (Alp & Taşkın, 2008). One of the most important criteria that determine teachers' effectiveness is being able to analyze and adjust their teaching methods to students in specific social, cultural, and political contexts (Liu, 2015). Therefore, reflective teachers are able to recognize problems, examine objectives and contexts, consider probabilities, and create suitable teaching methods in order to help learners achieve more (Baleghizadeh & Javidanmehr, 2014).

Reflective judgment is closely related to reflective thinking, and refers to the logic people rely on when faced with unfamiliar situations (Parry, 2010). A report of the Association of American Colleges (1991) indicated that one of the challenges colleges face is how to enable students and educational staff to generalize concepts beyond concrete and more complex situations. Another challenge is how to urge students and staff to use expository reasoning, decisions, and judgments that involve actual conclusions for which they must be responsible, rather than shirking responsibility under the auspices of a lack of experience (1991, pp. 16–17).

Reflective teachers educate themselves on issues and responses related to their own perspectives and educational practices. They are more open to their colleagues' criticisms and well aware how to utilize such criticism appropriately (Unver, 2003). Accordingly, they groom themselves as productive and effective individuals, which is necessary for the community, as they in turn transfer their reflective thinking skills to their students (Duban & Yelken, 2010). Taking these things into consideration, it is clear that elementary school teachers play an indispensable role in executing pedagogical methods with particular goals in helping students achieve success. Such teachers should also be knowledgeable not only about the course content but also about reflective thinking.

It should be noted that Saudi Arabia's education system is segregated by gender: to comply with Islamic rules that discourage mixed schooling and co-education. Hence male and female students receive education separately at all levels: elementary, secondary, high school, and college education. Because of this segregation, many studies on Saudi education subjects choose to target female teachers or female students specifically. Most Saudi studies on reflective thinking have therefore conducted studies on female teachers (Alamodi, 2019; Alfalih, 2014; Almogawasi, 2019; Almotawi, 2015; Alzubari, 2014) focusing on determining strategies that foster different thinking skills among students. Other studies (Alotabi (2019)) simply seek students' reflective thinking levels.

In 2017, Saudi Arabia introduced its Vision 2030 plan for near future. A section of this plan explains the objectives and challenges of Saudi education system today and how these challenges might prevent the achievement of the objectives of Vision 2030. One of these objectives is to ensure that students who graduate high school should possess critical and creative thinking skills with other necessary skills and knowledge for their chosen careers (Saudi Vision, 2017). Specifically, it stresses the importance of women education in order to empower them economically and socially, and provide them with the necessary leadership opportunities and skills.

Vision 2030's objectives have also raised questions related to teachers' preparedness and their knowledge of the curriculum and the extent to which it fosters skills such as critical thinking, creative and reflective thinking, and problem-solving skills in students. To achieve these goals, it is necessary to invest efforts in elementary education particularly and ensure that teachers have the requisite reflective thinking to help students acquire the higher order thinking skills that will enable them to compete globally (Smith, 2011).

Saudi studies on female teachers have traditionally focused on strategies to increase students' reflective thinking (Choy et al., 2017), but there has been little focus on helping these teachers learn how to be reflective and demonstrate this quality in their teacher journals or in discussions with colleagues. To the best of our knowledge, no research has been conducted that can explain the variables that predict reflective thinking among female

elementary school teachers, though studies have investigated the importance of reflective thinking awareness among teachers in order to help them improve their teaching and learn how to improve students' reflective thinking (Boody, 2008; Yildirim, 2017). The present study follows the methodology of a study conducted by Choy et al. (2017) that aimed to assess four variables as predictors of reflective thinking among elementary teachers in Malaysia, and apply the same on female elementary teachers in Riyadh public schools. To that end, this study used a questionnaire on teachers' reflective thinking and on their reflective thinking model developed by Choy et al. (2017).

1.1. Aim of the Study

The aim of this study was to investigate the reflective thinking levels of Saudi female elementary teachers, using the four-measure scale developed by Choy et al. (2017). This scale was translated from the original English and results were compared with those of existing studies on Western and Asian population. The research questions were as follows:

- What is the reflective thinking level among female elementary school teachers in Riyadh, Saudi Arabia?
- What is the influence of lifelong learning, self-assessment ability, self-belief, and teaching awareness on the reflective thinking of female elementary school teachers in Riyadh, Saudi Arabia?
- What are the relationships among these variables that could predict female elementary school teachers' levels of reflective thinking?

2. LITERATURE REVIEW

Students' efforts to learn and understand a subject are limited by the context and the place in which the learning takes place, such as a classroom. Therefore, teachers must lead students to use reflective thinking in order to deduce knowledge from contexts as well (Dewey, 1963). The function of reflective thinking is to seek meaning by integrating the learning experience with other experiences to create continuity, which is an important step toward critical thinking (Rodgers, 2002). Some countries have already attempted to reform their education systems to enhance reflective thinking methods among students, such as the educational reforms in Saudi Arabia's Vision 2030 launched in 2017. This initiative seeks to prepare students with a wide range of knowledge related to life (Saudi Vision, 2017) and give special attention to empowering women through training and employment plans. Vision 2030 emphasizes upon acquiring skills such as reflective thinking skills that will be necessary for the youth as well as future generations and thus attempt to make these skills a part of elementary education (Smith, 2011).

Many studies have explained that teachers should adopt different techniques and approaches to reflect on their teaching—for example, writing reflective diaries about daily teaching activities, reviewing samples of student work, or creating digital or paper portfolios (Almotawi, 2015; Fyrenius, Wirell, & Silén, 2007). For example, according to Smith (2011), reflective diaries involve recording one's own understanding, judgments, reactions, and behaviors related to an issue or practice. This type of reflection deals with concerns like the impact of subjectivity and how to recognize and face personal thoughts and actions. Another personal approach is interpersonal reflection, which means paying attention to the relationships between oneself and one's students. Using this approach, teachers can get feedback about the curriculum through students' reflective writings in the class. Such approaches help teachers establish more appropriate teaching and learning activities for students (Rodgers, 2002). Such interactive forms of reflection include peer group discussion and critical feedback from colleagues and peers. According to Hung and Yeh (2013), in-service teachers can hold bi-weekly group meetings with the aid of a facilitator, and these group discussions allow teachers to review their practical knowledge with each other, collaborate on different teaching techniques, and take part in self-assessments of their classroom teaching.

In their study on reflective thinking among teachers during training, Choy et al. (2017) used the concept of active learning to argue that a teacher's constant reflection upon his or her actions inside the classroom is a form of

active learning. However, they argue that the distinction between reflection-in-action and reflection-on-action has until now been ignored. These terms were introduced by Schon (1991): The term “reflection-in-action” refers to approaches (such as self-monitoring) that take place during teaching, while “reflection-on-action” refers to approaches (such as group discussions) that are feasible only after a teaching session is over (Schon, 1991). According to Farrell (2015), reflection-in-action starts with testing one’s observable actions while one is teaching, as well as students’ responses (or non-responses) during the class. This is intended to promote teachers’ achievement, and necessitates that they should be skilled at monitoring their teaching. When teachers participate in reflection-in-action, they deliberately try to be objective during their teaching, as they observe and adapt to varied situations that take place when teaching a lesson. Schon (1987) indicated that the ability to reflect on one’s actions is to take part in a constant learning process and is one of the features of active learning. Both reflection-in-action and reflection-on-action are important, and teachers can maintain active learning by asking themselves questions that guarantee continuous reflection Choy et al. (2017).

3. METHODOLOGY

The current study used a translated version of a questionnaire employed by Choy et al. (2017). After receiving permission from the authors to use the questionnaire, the researcher translated it into Arabic. In order to test the instrument validity, the translated version was revised by three bi-lingual faculty members, proficient in both Arabic and English. The questionnaire contained 28 items divided into five scales. Lifelong Learning Items 1–8 (LL1–LL8) measured lifelong learning, which dealt with teachers’ continuous learning of better teaching skills; Self-Assessment Items 1–7 (SA1–SA7) which dealt with teachers’ ability to evaluate their strengths and weaknesses; Self-Belief Items 1–4 (SB1–SB4) which measured how teachers defined their own beliefs and how they communicated with their students; Teaching Awareness Items (T1–T4) which measured teachers’ own awareness of their teaching and how it affected their students; and finally Reflective Thinking Items 1–5 (RT1–RT5) which measured teachers’ reflective thinking skills. The present study used Structural Equation Modeling to present the relationship between these five scales.

The four variables of this study, lifelong learning, self-awareness, self-belief, and teaching awareness, thus have been proven to have a significant relationship with reflective thinking (Barromi, 2016; Chesnut & Burley, 2015; Farrell, 2016; Peters, 2015). However, they have never been examined in terms of reflective thinking among Saudi Arabian in-service teachers.

3.1. Participants

The researcher received permission from XXX Institutional Review Board (IRB) to conduct a survey. This IRB permission allowed the researcher to formally contact the Ministry of Education research center, which provided the information necessary to conduct this research. It was revealed that there are 13,000 female elementary teachers in Riyadh. The researcher randomly selected schools and sent an electronic Arabic version of the survey via email and WhatsApp to 1,000 female teachers in elementary public schools in Riyadh, using the contact information provided by the Ministry of Education. A total of 469 participants responded to the scale, equaling 46.9% response rate. It should be noted that the research targeted only female public-school teachers with teaching experience of 3–15 years. All hold a single degree in a single field.

4. RESULTS

4.1. Descriptive Analysis

The mean and standard deviation (SD) of each item were used as descriptive statistics tools to explore the dataset and outline its characteristics. Table 1 shows that the mean was mostly above 4.00, indicating that Saudi elementary teachers agreed with the items. The SD indicates a normal distribution of the means.

Table 1. Detailed descriptive statistics.

Item	Mean	Median	Min	Max	Standard Deviation
LL1	4.115	4	1	5	1.012
LL2	4.729	5	1	5	0.486
LL3	4.434	5	1	5	0.678
LL4	4.476	5	1	5	0.681
LL5	4.534	5	1	5	0.645
LL6	4.547	5	1	5	0.617
LL7	4.28	4	1	5	0.86
LL8	4.511	5	1	5	0.635
SA1	4.427	5	1	5	0.686
SA2	4.457	5	1	5	0.673
SA3	4.397	4	1	5	0.676
SA4	4.408	4	3	5	0.636
SA5	4.315	4	1	5	0.756
SA6	4.38	4	1	5	0.677
SA7	4.229	4	1	5	0.72
SB1	4.299	4	1	5	0.776
SB2	4.412	4	1	5	0.609
SB3	4.141	4	1	5	0.973
SB4	3.327	3	1	5	1.192
T1	4.342	4	1	5	0.666
T2	4.299	4	1	5	0.748
T3	4.205	4	1	5	0.817
T4	4.124	4	1	5	0.846
R1	4.113	4	1	5	0.888
R2	3.474	4	1	5	1.177
R3	3.173	3	1	5	1.231
R4	3.107	3	1	5	1.1
R5	2.481	2	1	5	1.039

Note: Items were divided into the categories of Lifelong Learning (LL), Self-Assessment (SA), Self-Belief (SB), Teaching (T), and Reflective Thinking (R).

The above table shows the descriptive statistics for all five variables. Each item was measured on a scale of 1–5, where 5 reflects a participant's highest agreement with a specific statement. The statistics reveal the highest agreement with the items about lifelong learning, followed by the items about self-assessment. However, participants tended to agree the least with items about reflective thinking. The five items that framed the reflective thinking constructs negatively examined teachers' attitudes towards reflective thinking. This explains the low statistical scores that this construct produced.

4.2. Structural Equation Modeling

The study applied Structural Equation Modeling (SEM) to determine the relationships between the constructs. SEM is a tool to analyze structural relationships (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014), and in this case, it analyzed the impact of our four variables.

The Figure 1 shows different statistics for factor loadings (see Table 2 for more detail), standardized regression weights (showing effects), and the r-square value. The regression weights, or path coefficients determined possible causal relationships in SEM. All four variables had positive direct influence on reflective thinking.

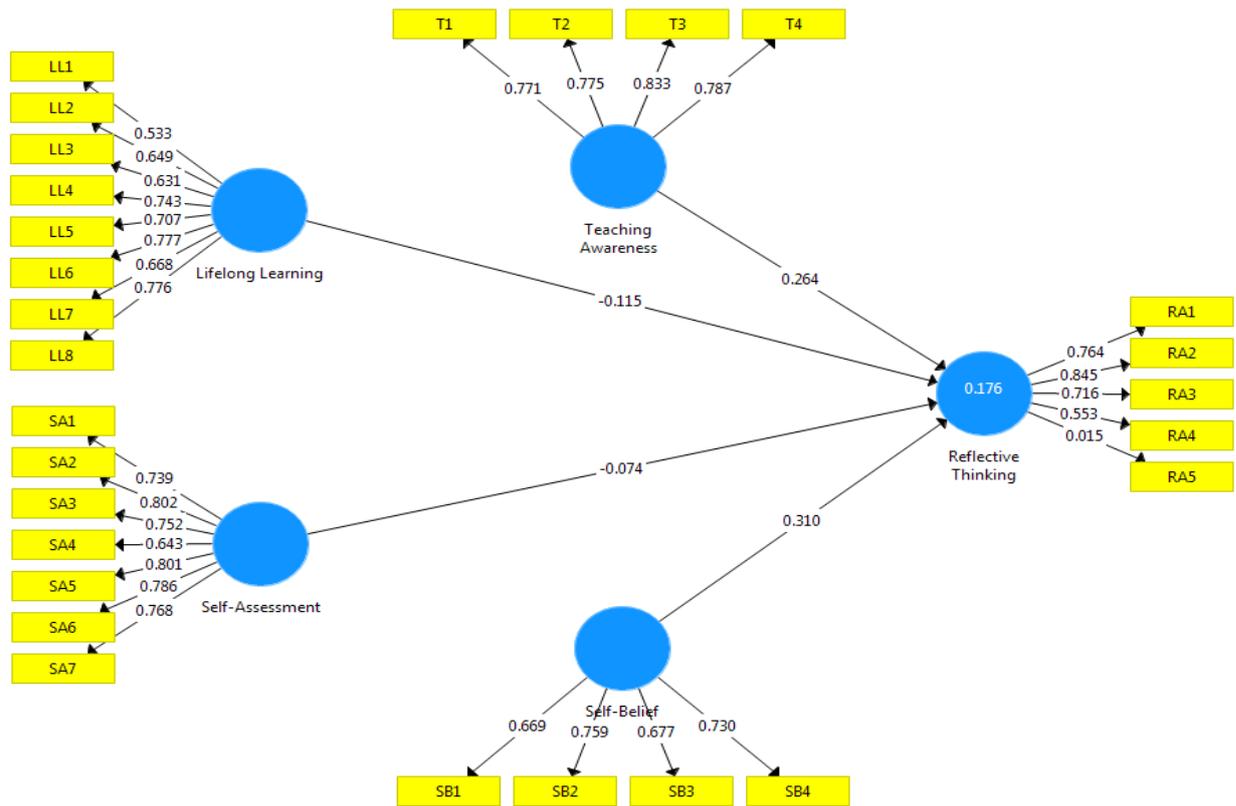


Figure-1. Path Coefficients shows the different statistics for factor loadings

Note: Items were divided into the categories of Lifelong Learning (LL), Self-Assessment (SA), Self-Belief (SB), Teaching (T), and Reflective Thinking (R).

Table 2. Factor loadings.

Item	Lifelong Learning	Reflective Thinking	Self-Assessment	Self-Belief	Teaching Awareness
LL1	0.533				
LL2	0.649				
LL3	0.631				
LL4	0.743				
LL5	0.707				
LL6	0.777				
LL7	0.668				
LL8	0.776				
R1		0.764			
R2		0.845			
R3		0.716			
R4		0.553			
R5		0.015			
SA1			0.739		
SA2			0.802		
SA3			0.752		
SA4			0.643		
SA5			0.801		
SA6			0.786		
SA7			0.768		
SB1				0.669	
SB2				0.759	
SB3				0.677	
SB4				0.73	
T1					0.771
T2					0.775
T3					0.833
T4					0.787

Note: Items were divided into the categories of Lifelong Learning (LL), Self-Assessment (SA), Self-Belief (SB), Teaching (T), and Reflective Thinking (R).

Factor loadings are defined as the correlation coefficients between the factors and the individual items, i.e., between the latent and observed variables (Salkind, 2010). A higher coefficient value suggests a better relationship. In this case, correlated factors and items helped in data reduction and forming latent constructs for lifelong learning, self-assessment, self-belief, teaching, and reflective thinking.

As shown in Table 3, the path coefficient between self-belief and reflective thinking is the highest (0.31), followed by teaching and reflective thinking (0.264). The square value for reflective thinking is equal to 0.176, suggesting that the amount of variance explained by the dependent variable in the model is 17.6%. The statistical significance of the relationships between the variables can be evaluated via p-values and t-statistics, as shown in Table 4.

Table 3. Path coefficients.

Relationships	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
Lifelong Learning -> Reflective Thinking	-0.115	-0.079	0.074	1.557	0.120
Self-Assessment -> Reflective Thinking	-0.074	-0.088	0.087	0.845	0.398
Self-Belief -> Reflective Thinking	0.31	0.315	0.078	3.982	0.000
Teaching Awareness -> Reflective Thinking	0.264	0.255	0.092	2.861	0.004

Table 4. Relationships between variables and reflective thinking.

Independent Variables	Path Coefficient
Lifelong Learning	-0.115
Self-Assessment	-0.074
Self-Belief	0.31
Teaching Awareness	0.264

Results suggest that the causal relationships between self-belief and reflective thinking, as well as between teaching awareness and reflective thinking, are statistically significant at 0.01 (C.R.=.31, m=-78, p=.000). The impact of the other two variables (lifelong learning and self-awareness) is statistically insignificant. The fact that two out of these four variables predict reflective thinking among female elementary school teachers in Riyadh, Saudi Arabia, is also significant. Moreover, the coefficient signs, as observed earlier, are positive, which means that an increase in self-belief and teaching awareness among female elementary school teachers in Riyadh will enhance their reflective thinking.

5. DISCUSSION

The present study tested the factors that affect reflective thinking levels of Saudi female elementary teachers in Riyadh. The results demonstrate that lifelong learning, self-assessment ability, self-belief, and teaching awareness have a positive direct influence on reflective thinking. However, only the relationships of self-belief and teaching awareness with reflective thinking were statistically significant. This indicates that both self-belief and teaching awareness are predictors of reflective thinking among Saudi female elementary teachers.

Self-belief in this study focused on teachers' ability to evaluate their own strengths and weaknesses and their ability to communicate effectively with their students (Choy et al., 2017). The four survey items related to self-belief questioned teachers' understanding of the influence they might have on their students' lives, and the relevant results agree with the findings of Moradkhani, Raygan, and Moein (2017), which showed that teachers who value feedback from their students and their colleagues are more likely to improve their reflective thinking. Choy et al. (2017) also reported on studies (Barroni, 2016; Clara, 2015; Lindroth, 2015; Pfitzner-Eden, 2016)) with similar results which correlate the improvement of reflective thinking with the practice of self-belief.

Most studies on reflective thinking connect the influence of reflective thinking to teachers' self-belief and self-efficacy in improving teaching, though studies conducted in Arab countries tend to focus on examining students'

level of reflective thinking rather than teachers' reflective thinking. For example, a study by [Almogawasi \(2019\)](#) found that the use of reflective thinking skills among Islamic Studies teachers was high, using five cognitive thinking skills as measures. These skills are progressive, and include observation, recognizing mistakes, reaching conclusions, and giving logical explanations. Such studies show that when teachers utilize reflective thinking skills, their students' reflective thinking will also improve. As the first comparable research on Saudi female teachers, our study suggests that Saudi Arabia's Vision 2030 is right to invest in teacher education.

Teaching awareness also has a significant relationship with reflective thinking. Teaching awareness refers to teachers' ability to recognize their own biased teaching practices, routines, and interactions with students, and how these things affect their students. Our findings about teaching awareness are supported by the research of [Tajik and Pakzad \(2016\)](#), [Farrell \(2016\)](#), [Lindh and Thorgren \(2016\)](#), and [Shavit and Anat \(2019\)](#). For example, [Shavit and Anat \(2019\)](#) revealed that first year teachers' self-awareness was improved through writing journals or diaries. [Zulfikar and Mujiburrahman \(2018\)](#) also examined the improvement of English teachers' reflective teaching through journal writings, demonstrating the importance of practicing reflective teaching using writing or other means of reflection such as discussion with a colleague.

In addition, using a Teacher Work Sample (TWS) has been proven to improve teachers' reflective thinking. It is a strategy that enables teachers to document seven basic daily teaching practices in a narrative way: context, learning objectives, assessment, instructional design, classroom management, evaluation of students' performance, and reflection and self-evaluation. A TWS allows teachers to reflect on daily practices, explaining their reasons for selecting certain teaching pedagogy over others, types of assessment, or analysis of their students' results. This type of writing provides teachers with self-feedback on their own teaching choices. A study by [Alzubari \(2014\)](#) showed that the use of TWS by prospective special education teachers for 15 weeks improved their reflective teaching compared to a control group. Saudi education must therefore recognize the need to use similar means to improve the teaching awareness of current and future teachers.

Self-assessment was found to have no significant relationship with reflective thinking. This contradicts the findings of several studies (i.e., [Choy et al., 2017](#); [Pazhoman & Sarkhosh, 2019](#); [Pfitzner-Eden, 2016](#)) that showed that self-assessment is positively correlated with reflective thinking, and indicates that female elementary teachers do not use the feedback from their students and colleagues to improve their teaching. This shows that there is a need to design reflective thinking experiences and contexts for Saudi female teachers to develop their reflection skills.

Lifelong learning and reflective thinking were also found to have no significant relationship. This is in accordance with [Choy et al. \(2017\)](#). That study explained that the lack of lifelong learning skills in Malaysia might be due to the lack of specific practices during teacher preparation programs. Lifelong learning is defined in this study as teachers' consciousness of their teaching, what they think of their students' feedback and their influence on their students, and their willingness to develop themselves to become better teachers through direct instruction and listening to the feedback of students and colleagues. Further, the fact that this study's participants were elementary school teachers explains the lack of lifelong learning (because of their busy schedules and lack of time for training and workshops). The results of this study show that the connection between reflective thinking and lifelong learning in Saudi female teachers is weak. Teachers do not use lifelong learning to reflect on their own teaching. However, the fact that the other variables were found to be related to reflective thinking indicates that some lifelong learning practices, such as journal writing, can potentially improve reflective thinking.

6. CONCLUSION

This study aimed to provide information about the reflective thinking of female Saudi public elementary teachers in Riyadh, and contribute to the understanding of all aspects that influence reflective teaching among such teachers. It found that only two of the studied variables, teaching awareness and self-awareness, have a significant

relationship with reflective thinking. Self-belief and lifelong learning were found to have no significant relationship with reflective thinking.

Several implications are suggested by the findings of the present study:

1. Educators and administrators should work with the Vision 2030 teacher and teacher development centers to provide instruction on reflective teaching and incorporate these skills into the teacher preparation curriculum.
2. In accordance with the assertion of Vision 2030 that reflective thinking is an important educational objective, the Ministry of Education should invest in training future teachers to be reflective thinkers.
3. It is necessary to incorporate activities and practices that can foster reflective thinking into teacher preparation programs.

However, further research is needed on factors that influence reflective thinking as the present study was confined to elementary school teachers in public schools in Riyadh. Additional research on samples from secondary and high school teachers in Riyadh would be helpful.

Overall, the findings suggest that there is a need to invest in developing self-awareness and lifelong learning among current and future elementary school teachers in Saudi Arabia. Reflective thinking among teachers has an important role in improving teaching practices: namely, it affects their understanding of themselves, understanding of their students, and awareness of their strengths and weaknesses. It is also important for teacher education programs to revise teacher preparation curriculums to incorporate reflective thinking skills into program objectives.

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