Relationship between the Perceived Academic Self-efficacy, Self-rating Achievement and Academic Achievement among Primary School Students

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Abstract

Background: The good academic achievement of the students' primary school is a crucial requirement in every system of education and present as worthy of constant concern. Academic self-efficacy means the students' judgments about own ability to successfully attain educational goals. ***Aim:*** The current study aimed to explore the relationship between the perceived academic self-efficacy, self-rating achievement and academic achievement among primary school students in Mansoura city. ***Method:*** Descriptive cross-sectional design was utilized. The study subjects comprised 764 students as randomized sample of the fourth, fifth and sixth grades from the four randomly selected primary schools in Mansoura city. ***Tools:*** Structured Interview Questionnaire, Academic Self-Efficacy Scale and List of Initial Required Studying Skills were used to collect data. ***Results:*** A statistical significant variation was found in the studied students' self-efficacy, self-rating achievement and academic achievement total mean scores as $p=$ (0.001,0.001and 0.04), respectively. A positive correlation between the students' total mean scores of self-efficacy, self-rating achievement and academic achievement was found, as r=(0.642 and 0.642), respectively, with a statistical significant variation p ($\leq$0.001 and $\leq$0.001) respectively. ***Conclusion:*** A statistical significant difference is present in the studied students' self-efficacy, self-rating achievement and academic achievement total mean scores. A positive correlation between the students' total mean scores of self-efficacy, self-rating achievement and academic achievement was found. ***Recommendations:*** The study recommends conducting further research studies regarding the primary school students' self-rating achievement and academic achievement in Egypt.

Keywords: Academic achievement, Primary school students, Self-efficacy, Self-rating.

Introduction

Human capitals mainly relay on education, education investment is positively associated with rapid economic growth and enhanced human capital, particularly for developing countries. High concern for primary education is a necessity to reflect success in adult life's education, occupation, and socialization. Nations and governments have a significant role in accessing primary education to improve the education quality**,** the government planned for its improvement through various Pre-University Education National Strategic Plans Reform, such as the 2007-2012 plan and the 2014-2030 plan (World Bank, 2018; Lim et al., 2018, Ministry of Education, 2018).

The education in Egypt in the pre-university stage is compulsory until the secondary stage and is divided into four stages: pre-primary (kindergarten at age four years), primary (lasts for six years and serves students' age group from six to eleven years old), preparatory (lasts for three years) and secondary (also, lasts for three years). Both the primary and preparatory stages combined together make up basic education. During the pre-university stages as an introductory phase, students may enroll at state, religious or private schools by choice. In parallel, children are allowed to attend community schools or one-class schools for those who left school or even those missing the official age of primary school entrance (eight years) (Elbadawy, 2014; The Egyptian Constitution, 2014; UNICEF, 2014).

Six articles from Egypt's 2014 constitution are directly related to education (articles 19-25), while articles No. 80-82 are indirectly related to it. Compulsory education, the allocated budget, and teachers as the steering members of the educational process were addressed in these articles. Article 19 stated that "Education is a right to every citizen" and stated that "Compulsory education is a must up

to final of the secondary stage or its equivalent" in addition to that at least 4% (that would gradually be higher to be compatible with internationally accepted standards) of the Gross National Product should be allocated to education (The Egyptian Constitution, 2014).

Academic self-efficacy refers to students' beliefs and attitudes toward their abilities for achieving academic success and fulfilling academic tasks (Bai et al., 2020). According to Bandura, (1986) and Self-Efficacy Theory proponents (Schunk et al., 2013); students' self-efficacy is the students' beliefs regarding a specific situation toward which their abilities are directed to organize and execute the required actions for mastering tasks, assignments and learning at a level that can be considered satisfactory.

Primary school students with high Self-Efficacy (SE), who are highly motivated to learn and utilize more effective study methods would have higher academic achievement in their later academic stages, because of their high sense of trust in their capabilities. As, students having higher SE, perceive difficult tasks a challenging, globally, they are successful and view the eventual failures being temporary or accidental, utilize the cognitive processes at a higher level, and work (more accurately, harder, more consciously and longer) on their educational tasks, than students having lower levels of SE; who having doubts about their competences, experiencing obstacles in obtaining higher educational levels and attributing own successes to sheer luck (Moyano et al., 2020; Tirsoreanu, 2020).

Schools focused mainly on either the cognitive goals in form of (critical thinking and knowledge) or on the intellectual domain in form of (literacy, history, numeracy, and science), while academic achievement has more various learning domains, as the academic achievement is defined as a process of recognizing the students' level of learning activities, working, and knowledge. It is an outcome of the students' performance that has been achieved at school and indicates the overall predetermined educational goals of the students, teachers, curriculum, and the educational institution (York et al., 2015; Muijs and Reynolds, 2017).

The quality of the primary school students' academic achievement is influenced by several elements (Nazir et al., 2022); some are associated with the students themselves as (age, gender, developmental level, nutritional status, and level of intelligence) (Hossain et al., 2021; Chaddock-Heyman et al., 2018; Abebe et al., 2017; Haile et al., 2016; Roth et al., 2015) others related to the students' families as (parents' educational levels, occupational status, socioeconomic status, and maternity nutritional factors during pregnancy) (Liu et al., 2019; Shoaga and Rasheed, 2019; Ali et al., 2017).

Furthermore, the quality of the primary school students' academic achievement is affected by, peers' attitudes; school factors involving (school types, schooling years, and curriculum) in addition to teachers' awareness of the students' truancy. Moreover, psychological aspects comprising (attitudes, confidence, motivations, perceptions, learning abilities, and emotions) (Mustapha and Benjamin, 2021; Correlating, 2018) and provision of meals, practical laboratories, and accessibility and availability of libraries and textbooks are essential scholastic elements that affecting the students' academic achievement (Gottfried, 2019; Adu, 2018; Brookfield, 2017; Gasvevic et al., 2017; Rubin, 2017; Mallett, 2016).

Academic self-efficacy has several effects on the students' academic achievement as SE beliefs provide a route to the students' achievement at an excellent level by means of raising perseverance, endeavor, and commitment. The students with higher levels of SE don't attribute their failures to lower abilities but to lower attempts, while students with lower SE assign their lower abilities as the main reason for their failures, as they are more likely to be afraid of performing, avoiding, and delaying tasks. Academic success is a multimodal concept consisting of (learning objectives' attainment, persistence, desired skills acquisition, skills competencies, academic achievement, school satisfaction, and career success). The students' motivation, self-evaluation, academic performance, and self-efficacy are strongly connected to academic achievement/success (Moyano et al., 2020; Roman, 2014). Students' assessments give an

interpretation of curriculum effectiveness, teaching, and the educational programs either through students' self-rating achievement (the academic achievement autonomous evaluation) or by Grade Point Average (GPA) (the academic achievement heteronomous evaluation). Both autonomous and heteronomous evaluations are influenced by the students' SE beliefs that motivate students to learn using strategies (Correlating, 2018; Organization for Economic Co-operation and Development (OECD, 2015).

Self-Rating Achievement is robustly related to academic success; it is self-assessment\ an evaluation from the inside so-called, the academic achievement autonomous evaluation which is considered as a comparison between assumed objectives made by students themselves and their achieved results. School satisfaction and psychological well-being among students can be measured via the autonomous evaluation; the autonomous evaluation has an important role in the development of students' self-perceptions and motivation for being knowledgeable and skills competent (Wride 2017; Konstantopoulou et al., 2016). Self-assessment is a cyclical process which composed of self-monitoring, self-evaluation, and recognizing and implementing instructional correctives as required. Academic achievement and self-rating enhance the internal controlled effort, intrinsic motivation, goal orientation, mastery, and learning meaningfulness (Demore, 2017; Keane and Griffin, 2016).

Academic achievement, also is measured through heteronomous evaluation which is contradicting to academic achievement autonomous evaluation; teachers continuously give students feedback regarding their school performance during the study term and school years, which differ in every country and even school. The main goals of evaluations are academic success and obtaining good grades, representing positive outcomes for both the students and educational systems (Allal, 2021).

Significance of the study:

Egypt Vision 2030 has put a target to raise Egypt's rank; which was in 2016 (141) to (30) in 2030 in the Index of Global Competitiveness regarding the quality of primary education (Taraman, 2019). Egypt is trying to enhance its educational system by participating in and committing to international treaties and agreements. In addition to signing the Human Rights Universal Declaration in 1948, Egypt has committed to both Educations for All goals, the United Nations Educational, Scientific and Cultural Organization, the global movement leader, as well as the UN's Millennium Development Goals (MDGs). In light of these commitments to improve education, the children number who enrolled in primary education grew by 1.5% per year in Egypt from 2008-2013 (UNICEF, 2014).

Academic difficulties rooted throughout the teaching-learning early stages, don't appear suddenly, don't go smoothly and numerous obstacles may stand in their way until accomplishing a good academic achievement level (Garon-Carrier et al., 2018). Harvey & Miller, 2017; Serpell & Esposito, 2016; Brown et al., 2015, emphasized that the later academic ability, can be predicted robustly through the early academic performance. So, the researchers in the current research paper focus on exploring the relationship between the studied students' academic self-efficacy, self-rating, and their academic achievement (heteronomous and autonomous academic achievement evaluation).

Aim of the study:

This study aimed to explore the relationship between the perceived academic self-efficacy, self-rating achievement and academic achievement among primary school students in Mansoura city, Egypt.

Specific objectives:
1. Assess the studied students' perceived academic self-efficacy, self-rating achievement, and academic achievement scores.

2. Explore the relationship between the studied students' perceived academic self-efficacy, self-rating achievement, and their academic achievement scores.

3. Identify the common variables predicting the studied students' academic achievement.

Research Questions:

1. Is there a relationship between the primary school students' perceived academic self-efficacy and self-rating achievement?

2. Is there a relationship between the primary school students' perceived academic self-efficacy and academic achievement scores?

3. Is there a relationship between the primary school students' self-rating achievement and academic achievement scores?

Study design: Descriptive cross-sectional design was utilized in the current study; cross-sectional study design is a type of observational study design, in which, the researchers measure the outcome and the exposures in the study subjects at the same time. Cross-sectional design differ from case-control studies as (the study subjects are selected on the basis of the outcome status); also, cross-sectional design differ from or cohort studies as (the study subjects are selected on the basis of the exposure status); the study subjects in a cross-sectional study are just selected on the basis of the inclusion and exclusion criteria has been set. Once the study subjects have been selected, the researchers follow the study to assess the exposure and the outcomes (Setia, 2016).

Settings: The present study was carried out in four primary schools in Mansoura city in Dkahalia governorate, Egypt. The four schools were randomly chosen from the East and West Educational Administrations. Two schools were selected randomly from each Educational Administration, these were namely; Meet Hadar Combined Primary School and Elmohamadya Islamic Combined School representing East Educational Administration, Qism 2. While, Abo Bakr El Sedek Islamic Private School and Imam Muhammad Metwally Al Shaarawy Primary School representing West Educational Administration, Qism 1.

Sample: The study subjects as a stratified random sample, comprised 764 students, who were selected from the previously mentioned study settings. The studied students were chosen based on the following criteria:

1- From the fourth, fifth, and sixth academic grades.
2- Aged between 9 to 12 years.
3- Willing to participate in the study.
4- Both gender.

Sampling technique:

A stratified random sampling within clusters technique, was followed to select the studied sample, according to the (WHO, 1997) recommendations; given that the pupils are clustered in classrooms

Sample size: the following equation was utilized to calculate the study sample size (Thompsons, 2012):

$$n = \frac{N \times p(1-p)}{\left[\left[N - 1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Where: n: is "the donate sample size" "Z*a/2": reliability coefficient of standard error at 5% level of significance with Z=1.96 P: the estimated proportion of an attribute (Assumptions: self-efficacy of 50%, since there is no similar study conducted in the study setting on the same topic, half percent of population proportion have been considered), d: Margin of error (5% is a greed) and N: denotes total population size. The sample size was calculated separately for every academic level of the three selected primary levels (fourth, fifth, and sixth levels). As the total population size was different for each level, as the fourth level included 782 students, whereas the fifth and sixth levels involved 729 and 748 students respectively. After sample size calculation, 258 fourth level students, 252 fifth level, and 254 sixth level students were selected randomly from the four schools.

Tools for data collection: three tools were used to collect data in the current study, as the following:

Tool I: A Structured Interview Questionnaire for the studied students was developed by the researchers in an Arabic language, comprising **three parts** as the following:

Part I: Socio demographic Characteristics of the Studied Students: as age, gender, educational grade, birth order and number of siblings.

Part II: Socio demographic Characteristics of the Studied Students' Parents: as parents' age, marital status, educational level, occupation, income, residence, and chronic illness.

Part III: The Studied Students' Actual Academic Grades in each subject, such as Arabic, Math, English, Social Studies, and Science, by the end of the first Semester\term; It was rated by the Egyptian ministry of education as excellent, very good, good, fair and poor. The studied students' total academic achievement mean scores were considered unsatisfactory if it was below 50%, while it was considered satisfactory if it was equal or ore than 50%.

Tool II: Academic Self-Efficacy (ASE) Scale:

The Arabic version of the Academic Self-Efficacy (ASE) Scale was adopted from El Sokrat. (2017) and utilized to measure the level of the studied students' ASE. The scale composed of 30 items such as (I work hard in school, I could get the best grades in class if I tried enough, I'm reading well, most of my class mates like me help them in doing the math homework, I'm good in science subject, I'm intelligent and active, my teachers think that I'm intelligent and active, I have a lot of friends in the school, I can reach the university easily because I'm clever, I'm satisfied about my school, ……..etc).

For the scoring system, responses of the studied students were monitored using a four-point Likert scale; extended from completely agree to completely disagree. The responses were scored 4, 3, 2, and 1 for responses (completely agree, agree to some extent, disagree to some extent, and completely disagree), respectively for all items except items No. (5, 15, 19, 20, 22, 23, and 24); as the scores were reversed as completely agree, agree to some extent, disagree to some extent, and completely disagree were scored 1, 2, 3, and 4, respectively. A mean score was determined by the scores of the items being summed up and the total was divided by the number of items.

The obtained scores vary from (30) as a minimum obtained score to (120) as a maximum obtained score, if the studied students obtained (> 75), it means that they have academic self-efficacy in the school. The total mean score of the studied students' ASE was considered unsatisfactory if it was below 62.5%, while it was considered satisfactory if it was equal or more than 62.5%.

Tool III: List of Initial Required Studying Skills: adopted from (Cottrell, 1999), composed of 10 items such as (managing and dealing with the delayed scholastic duties, the ability to bear the difficult responsibilities, being self-confident, extracting the knowledge from variety of resources, comparing the different opinions and selecting the best opinion, the ability to summarize, the ability to converse, ……etc); the responses were applicable or not applicable.

For the scoring system: the applicable response was scored one, while the not applicable response was scored zero, and the total obtained scores were ranging from zero to ten, in case of having more than five scores; it means that the studied students have suitable skills for studying. The studied students' total self- rating mean score was considered unsatisfactory if it was below 50%, while it was considered satisfactory if it was equal or more than 50%.

Pilot study: a pilot study was implemented on 10 % of the studied students (No.77) who were selected randomly, as a form of preparation for the actual study. It was done to evaluate the study tools' feasibility, clarity, and applicability and recognize the possible obstacles that may hinder data collection and overcome measures, also, to calculate the required time for the study tools completion. The studied students whom involved in the pilot study were included in the study sample because there were no significant modifications required in the study tools.

Procedure: After the Faculty of Nursing Dean, Mansoura University sending the official letter to the Undersecretary of the Directorate of Education in Dakahlia, requesting his agreement

and cooperation to conduct the study, after clarification of the study purpose. After that, official letters were directed from the undersecretary of the Directorate of Education in Dakahlia to the four selected schools to conduct the study.

Data collection continued for three months from the beginning of October, 2021 to the final of December, 2021. In each school, the researcher attended by rotation; two days weekly from 8.00 A.M to 1.00 P.M. The researcher met the studied students in their classrooms and clarified to them the study purpose, nature, and how to fill the study tools. The time required for filling the study tools was ranging from 10 to 15 minutes.

Ethical Considerations:

The researchers obtained an approval from the Faculty of Nursing Research Ethics Committee, Mansoura University to carry out the study. An oral informed consent of each participant was obtained after explanation of the study purpose and nature.

Confidentiality and anonymity of the collected data were strictly considered through giving a affixed code number to each studied students' questionnaire. The researchers assured voluntary participation of the studied students as the students were well-reported that they had the right to withdraw from the study at any stage freely without any responsibilities. Finally, the process of data collection wasn't confusing the harmony of the study work in the previously-mentioned settings; as the researchers met the studied students during the play session or during the break.

Statistical analysis:

Coding and entrance of the collected data into the statistical package of social sciences (SPSS) version 24 was done. After the complete entrance of the collected data, data were explored for detecting any error and analyzed through developing specific objectives related themes (self-efficacy, self-rating achievement, and total academic achievement score) for presenting frequency tables with percentages. Numbers and percentages were used for Qualitative data presentation, while the Quantitative data were described as arithmetic mean±standard deviation.

Each participant was assigned scores regarding self-efficacy, self-rating achievement, and total academic achievement. The scores then analyzed using linear regression analysis to determine the independent effects of explanatory variables or predictors for the three main study variables. Preliminary analyses were done to ensure that the assumptions of linear regression as linearity, normality, multicollinearity, and homoscedasticity were not violated. Explanatory variables included both the studied students' and their parents' socio-demographic characteristics. The Linear regression model is used to model the relationship between scalar response and explanatory variables. The resulting associations were reported as regression coefficients β. To check the goodness of fit of the models, the adjusted R^2 and the study of the statistical significance of the overall model were evaluated. $p < 0.05$ considered statistically significant for all analyses.

Limitation of the study:

A fewer number of studies regarding primary education was found in comparison to secondary education studies at the national and international levels, especially the studies examining students' self-rating achievement and its success factors.

Results:

Table (1) revealed that about two thirds of the studied students (65.1%) aged between 10 to less than 12 years with a mean age 10.4 ± 0.96 years. More than one half of them (55%) were boys. Concerning the studied students' birth order, about two fifths of them (41.6%) were the second among their siblings and about two fifths of them (41.6%) had two siblings.

Table (2) declared the total means scores of the studied students' academic achievement scores in Arabic, Math, Social studies, Science and English were (95.28 ± 6.44, 74.94 ± 6.92, 37.87 ± 4.63, 38.03 ± 2.95 and 36.27 ± 4.06) respectively.

Table (3) explained that, a statistical significant difference in the studied students' self- efficacy, self- rating achievement and academic achievement total means scores was found, as p = (0.001, 0.001 and 0.04) respectively.

Table (4) described that, a positive correlation between the studied students' age,

self-efficacy and academic achievement total means scores was found, r= (0.099 and 0.017) respectively, with a statistical significant difference p = (0.006 and 0.004) respectively. Regarding the studied students' gender; a positive correlation was found between the students' gender and their self-efficacy and self- rating achievement total means scores r= (0.079), with statistically significant difference p = (0.028).

Table (5) clarified that, less than one half of the studied students' fathers (46.7%) and more than two thirds of their mothers (69.1%) were in the age group ranging from 30 to less than 40 years old, with mean age of 40.21 ± 4.91 years for their fathers and 34.84 ± 4.55 years for their mothers. Furthermore, slightly less than two fifths of the studied students' fathers (39.4%) had university education, and more than two fifth of their mothers (43.6%) had technical education. More than one half of their mothers (58.4%) were housewives, while more than half of their fathers (58.4%) were workers. The majority of the studied students' fathers (89.1%) and the vast majority of their mothers (94%) hadn't any chronic illnesses. Whereas, most of the studied students' parents (99%) were married, (83.1%) reside in urban areas and (91.8%) had enough income.

Table (6) a positive correlation was shown between the studied students' self-efficacy, academic achievement total means scores and their fathers and mothers educational level r= (0.283, 0.277, 0.282 and 0.319) respectively, with statistically significant variation p= (0.000). While, a negative correlation between the studied students' self-efficacy, academic achievement total means scores and their fathers and mothers occupation was found, r= (- 0.242, - 0.186, - 0.206 and – 0.175), respectively, with statistically significant difference p= (0.000).

Moreover, a positive correlation was found between the studied students' self-efficacy, academic achievement total means scores, their residence and their parents income r= (0.129, 0.119) respectively, with a statistical significant variation p= (0.000 and 0.001) respectively. Finally, there was a negative correlation between the studied students' residence and their self-rating achievement; r= (- 0.080), with statistically significant difference p= (0.026).

Table (7) showed a positive correlation between the studied students' total mean score of self-efficacy and their self-rating achievement and their academic achievement r= (0.642), with highly statistically significant difference p (≤0.001). In addition, there was a positive correlation between the studied students' total mean score of self-rating achievement and their self-efficacy and their academic achievement r= (0.624 and 0.827) respectively, with a high statistical significant variation p (≤0.001). As well as, a positive correlation was found between the studied students' total mean score of academic achievement and their self-efficacy and their self- rating achievement r= (0.729 and 0.827) respectively, with a high statistical significant difference p (≤0.001).

As for results displayed in table (8), Self-efficacy made significant contribution to the prediction of total academic achievement score (B=1.145, t = 29.36; $p < 0.001$). The model explains 53.1% of the variation in total academic achievement score was determined by the students' self-efficacy as a predictor.

Table (9), shows that the students' self-efficacy made significant contribution to the prediction of self-rated academic achievement score (B=0.095, t = 23.08; $p < 0.001$). The model account for 41% of the variation in total self-rated academic achievement score was determined by the studied students' self-efficacy as a predictor.

Table (10), revealed that the studied students' self-rated academic achievement score statistically predict their total academic achievement score (B=8.79, t = 40.65; $p < 0.001$). The model account for 68.4%of the variation in total academic achievement score was determined by the studied students' self-rated academic achievement as a predictor.

As explained in table (11), the multiple regression model statistically predicts total academic achievement score at (F=1147.32, p<0.001), and the above model predictors explained 75.1% of the total variance. The both model predictors which are the studied students' self-rated academic achievement (B=6.50, t = 25.93; $p < 0.001$), and their self-efficacy (B=0.52, t =14.25; $p < 0.001$) are

meaningful to the model as illustrated by the unstandardized regression coefficient.

Table (1): Distribution of the studied students according to their socio-demographic characteristics (n=764):

Socio –demographic characteristics of the studied students	Fourth level N=(258)		Fifth level N= (252)		Sixth level N=(254)		Total N= (764)	
	No.	%	No.	%	No.	%	No.	%
Age in years:								
8-<10	162	62.8	-----	-----	-----	-----	162	21.2
10-<12	96	37.2	231	91.7	170	66.9	497	65.1
≥12	-----	-----	21	8.3	84	33.1	105	13.7
Mean ±SD	9.37 ± 0.48		10.51 ± 0.64		11.33 ± 0.47		10.4 ± 0.96	
Gender:								
Boy	129	50	142	56.3	149	58.7	420	55
Girl	129	50	110	43.7	105	41.3	344	45
Birth order:								
First and alone	9	3.5	11	4.4	16	6.3	36	4.7
First	83	32.2	93	36.9	121	47.6	297	38.9
Second	127	49.2	108	42.9	83	32.7	318	41.6
Third and more	39	15.1	40	15.9	34	13.4	113	14.8
Number of siblings:								
None	9	3.5	11	4.4	16	6.3	36	4.7
One sibling	58	22.5	48	19	21	8.3	127	16.6
Two siblings	96	37.2	113	44.8	109	42.9	318	41.6
Three siblings and more	95	36.8	80	31.8	108	42.6	283	37.1

Table (2): Total means scores of the studied students' academic achievement in their subjects (n=764):

Subjects	Fourth level N=(258)	Fifth level N= (252)	Sixth level N=(254)	Total N= (764)
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Arabic	95.12 ± 5.98	95.12 ± 5.89	95.58 ± 7.35	**95.28 ± 6.44**
Math	76.11 ± 5.09	74.84 ± 7.11	73.85 ± 8.09	**74.94 ± 6.92**
Social Studies	37.63 ± 3.86	38.30 ± 4.58	37.67 ± 5.34	**37.87 ± 4.63**
Science	38.57 ± 2.77	38.10 ± 2.84	37.42 ± 3.11	**38.03 ± 2.95**
English	36.94 ± 3.23	36.96 ± 4.10	34.89 ± 4.42	**36.27 ± 4.06**
Total score	**284.43 ± 17.04**	**282.60 ± 24.55**	**279.42 ± 25.95**	**282.16 ± 22.88**

Table (3): Total means scores of the studied students' Self- efficacy, Self- rating achievement and Academic achievement (n=764):

Items	Fourth level N=(258)		Fifth level N= (252)		Sixth level N=(254)		Test	p value
	No.	%	No.	%	No.	%		
Total Self-efficacy								
Unsatisfactory	23	8.9	25	9.9	30	11.8	$\chi2=1.20$	0.54*
Satisfactory	235	91.1	227	90.1	224	88.2		
Mean ± SD	100.55 ± 12.05		105.26 ±14.50		104.25 ±16.46		F=7.56	0.001*
Total Self-rating achievement								
Unsatisfactory	26	10.1	22	8.7	30	11.8	$\chi2=1.31$	0.51*
Satisfactory	232	89.9	230	91.3	224	88.2		
Mean ± SD	7.77 ± 1.84		8.12 ± 2.16		7.43 ± 2.37		F=6.56	0.001*
Total Academic achievement								
Unsatisfactory	-----	-----	1	0.4	-----	-----	$\chi2=2.03$	0.36*
Satisfactory	258	100	251	99.6	254	100		
Mean ± SD	284.43 ± 17.04		282.60 ± 24.55		297.42 ±25.95		F=3.15	0.04*

F: A one-way ANOVA test, **χ2:** Chi square test, (*) statistically significant at $p \leq 0.05$

Table (4): Correlation between the studied students' socio demographic characteristics and their Self-efficacy, Self- rating achievement and Academic achievement (n=764):

Students' characteristics	Self- efficacy		Self-rating achievement		Academic achievement	
	R	**p**	**r**	**p**	**r**	**p**
Age	0.099	**0.006***	- 0.105	0.633	0.017	**0.004***
Gender	0.079	**0.028***	0.079	**0.028***	0.040	0.269
Birth order	- 0.018	0.616	- 0.11	0.760	- 0.019	0.592
Number of siblings	- 0.41	0.258	- 0.052	0.148	- 0.038	0.298

r: Pearson's correlation coefficient.

Table (5): Distribution of the studied students' parents according to their socio-demographic characteristics (n=764):

Socio -demographic characteristics of the studied students' parents	Fathers		Mothers	
	No.	%	No.	%
Age:				
<30	2	0.3	89	11.6
30- <40	357	46.7	528	69.1
40-<50	346	45.3	144	18.8
≥50	59	7.7	3	0.4
Mean ± SD	40.21 ± 4.91		34.84 ± 4.55	
Educational level:				
Illiterate	13	1.7	27	3.5
Read and write	46	6	14	1.8
Primary	6	0.8	8	1
Preparatory	8	1	11	1.4
Secondary	94	12.3	78	10.2
Technical	296	38.7	333	43.6
University	301	39.4	293	38.4
Occupation:				
Employee	318	41.6	227	29.7
Worker	446	58.4	91	11.9
House wife	--------		446	58.4
Chronic physical illness:				
No	681	89.1	718	94
Yes	83	10.9	46	6
Marital status:				
Married	756		99	
Divorced	8		1	
Residence:				
Urban	635		83.1	
Rural	129		16.9	
Income:				
Enough	701		91.8	
Not enough	63		8.2	

Table (6): Correlation between the studied students' Self-efficacy, Self- rating achievement and Academic achievement total means scores and their parents' socio-demographic characteristics (n=764):

Items	Marital status		Age		Educational Level		Occupation		Residence		Income		Presence of chronic illness	
	r	**p**	**r**	**p**	**r**	**p**	**r**	**p**	**r**	**p**	**r**	**p**	**r**	**p**
Self- efficacy:														
Fathers	0.035	0.338	0.014	0.728	0.283	**0.000**	-0.242	**0.000**	0.129	**0.000**	0.119	**0.001**	0.062	0.086
Mothers	0.035	0.338	0.007	0.840	0.277	**0.000**	-0.186	**0.000**	0.129	**0.000**	0.119	**0.001**	0.013	0.727
Self-rating achievement:														
Fathers	0.035	0.338	0.044	0.223	0.028	0.436	0.011	0.765	-0.080	**0.026**	0.011	0.765	0.062	0.086
Mothers	0.035	0.338	- 0.023	0.520	0.028	0.447	-0.025	0.493	-0.080	**0.026**	0.011	0.765	0.013	0.727
Academic achievement:														
Fathers	0.004	0.918	0.007	0.874	0.282	**0.000**	-0.206	**0.000**	0.129	**0.000**	0.119	**0.001**	0.013	0.727
Mothers	0.004	0.918	0.003	0.929	0.319	**0.000**	-0.175	**0.000**	0.129	**0.000**	0.119	**0.001**	0.009	0.800

r: Pearson's correlation coefficient.

Table (7): Correlation between the studied students' Self-efficacy, Self- rating achievement and their Academic achievement total means scores (n=764):

CItems	Total self- efficacy mean score		Total self-rating achievement mean score		Total academic achievement mean score	
	r	p	r	P	r	p
Self-efficacy	1	-----	0.642	≤0.001**	0.729	≤0.001**
Self-rating achievement	0.642	≤0.001**	1	-----	0.827	≤0.001**
Academic achievement	0.642	≤0.001**	0.827	≤0.001**	1	-----

r: Pearson's correlation coefficient.
** Highly statistically significant at $p \leq 0.001$

Table (8): Results of simple linear regression analysis for self-efficacy, predicting expected academic achievement of students (n=764):

Criterion (dependent)Variable	Predictor Variables	Constant	Unstandardized coefficient B	Standardized coefficient Beta	t	P-value
Academic achievement score	Self-Efficacy	153.86	1.145	0.729	29.36	≤0.001**

$R^2=53.1\%, F=862, p \leq 0.001**$

Table (9): Results of simple linear regression analysis for self-efficacy predicting self-rating of academic achievement of the studied students (n=764):

Criterion (dependent)Variable	Predictor Variables	Constant	Unstandardized coefficient B	Standardized coefficient Beta	t	P-value
Self-rating of academic achievement	Self-Efficacy	-2.02	0.095	0.64	23.08	≤0.001**

$R^2=41\%, F=533, p \leq 0.001**$

Table (10): Results of simple linear regression analysis for the studied students' self-rating of academic achievement predicting total academic achievement score (n=764):

Criterion (dependent)Variable	Predictor Variables	Constant	Unstandardized coefficient B	Standardized coefficient Beta	t	P-value
Academic achievement score	Self-rating of academic achievement	213.78	8.79	0.827	40.65	≤0.001**

$R^2=68.4\%, F=1652, p \leq 0.001**$

Table (11): Results of multiple linear regression analysis for the studied students' self-rating of academic achievement predicting total academic achievement score (n=764):

Criterion (dependent) Variable	Predictor Variables	Constant	Unstandardized coefficient B	Standardized coefficient Beta	t	P-value
Academic achievement score	Self-Efficacy	177.01	0.52	0.336	14.25	≤0.001**
	Self-rating of academic achievement		6.50	0.612	25.93	≤0.001**

$R^2=75.1\%, F=1147.32, p \leq 0.001**$

Discussion

Self-efficacy has a significant role in the learning outcomes of the students, representing an important predictor of children's development lifespan and a crucial direct success predictor in academic assignments, evaluations, and academic achievement, so, it is an interesting topic to be studied (Rakhmawati & Mustadi, 2019). Academic achievement is mainly based on the students' active engagement and self-efficacy in school as the most motivational influential factors.

Many studies found that the more praise and respect provided to students, the better academic achievement accomplished, while the poorer the students' achievement is, the more criticism and peer rejection experienced (Olivier et al., 2018).

Academic achievement is the achieved level at which the student is exerting in school tasks and measured through the earned school marks and grades as shown in **table (2)**; which declared that the total means scores of the studied students' academic achievement in Arabic, Social studies, Science and English indicate an excellent score in the 4th, 5th and 6th grades, and their total means scores of Math was ranging between very good and good in the 4th, 5th and 6th grades.

The findings of the current study contradicted with World Bank, (2014), declaring that, in Cameroon, a significant number of primary school students were unable to read, and write and their performance in mathematics wasn't well; as, the Ministry of Basic Education in Cameroon reported that nearly half (49%) of the third year primary school Cameroonian children, struggled to read, while slightly more than one quarter (27%) could not read at all, demonstrating the urgent need for Cameroon to improve the education quality. Also, the literacy level and mathematics achievement in primary schools are generally low, as pointed out in the findings from a study conducted in the English-speaking subsystem of education in Cameroon (Nalova, 2017). The findings of the current study also contradicted with Organization for Economic Co-operation and Development (OECD), (2015), reporting that, Indonesia in 2015, was ranked in the competencies of Science, Math, and Reading as 62, 63, and 64 among 70 countries. The researchers interpret the finding of the current study as an indicator of the quality of primary school education; as the educational process can be considered successful and integrated beginning with the school administrators, teachers, and parents and ending with the student themselves.

The current study clarified that a statistically significant variation in the studied students' self-efficacy, self-rating achievement and academic achievement total means scores was found as $p =$ (0.001, 0.001, and 0.04) respectively as shown in **table (3)**. The finding of the current study is in the same line with Rakhmawati, & Mustadi, (2019), whose study entitled "Self-efficacy in primary

schools students as potential characters: From the perspective of students' self-ability and interest", and found that the indicators of self-efficacy had been presented among primary school students who enrolled in the fifth-grade. From the point of researchers' view, this may be due to students' achievements based on numerous factors that are invisible as, academic self-concept, SE, performance expectancy and motivation. Self-efficacy has several impacts on students' thinking, feeling, motivation, and action. Students having a high level of SE believe that they can effectively affect their life events and expect more success than those having lower self-efficacy.

The current study results described that there was a positive correlation between the studied students' age and their self-efficacy total mean score with a statistical significant variation $p =$ (0.006) **Table (4)**. The finding of the current study contradicted with Rady et al., (2016), whose study entitled "Relationship between academic self-concept and students' performance among school age children", who found that a negative significant statistical correlation between students' age and their academic self-concept. The researchers view that the ASE begins in early school and still upto the mature age, therefore age and maturity by extension is an important determinant of students' self- efficacy and success in school; as supported by Piaget who identified the childhood cognitive four developmental stages namely; sensorimotor, preoperational, concrete operational and formal operational stages; which explain how children learn matching their ages (Andrew, 2014).

Moreover, **table (4)** pointed to the existence of a positive correlation between the studied students' age and their academic achievement total mean score with a statistically significant difference $p =$ (0.004). This result is agreed with Nalova, & Etomes, (2019) who found in their study about "The effect of age on pupils' academic achievement: A comparative analysis of private and public primary school children in Fako Division, South West Region of Cameroon" that, students' achievement was found to significantly differ by their age and a relationship between students' age and academic achievement is found; in the same grade, performance among the older children better than younger children. Age has a considerable influence on achievement and it could be a predictor of success.

Table (4), showed the presence of a positive correlation between the studied students' age and their self-rating total mean score. Although the shortage of self-assessment ability among students has been referred to in such studies (Paleczek et al., 2015), other studies supporting that students have the ability to self-assess\self-rate and highlight the importance of self-assessment guidance and training by 10 years old (Wong et al., 2018), where other studies underlining that the higher prior attained literacy and the advanced developmental stages, the more accurate significantly children's self-assessments (Keane & Griffin, 2018). The researchers view that the students who are participating in assessment acquire the information usage, learning management, understanding how they learn better, recognizing where they are regarding the defined learning goals, planning, and taking the next steps to learn.

Regarding the studied students' gender; a positive correlation between the students' gender and their self-efficacy and self- rating achievement total means scores was found r= (0.079), with statistical significant variation $p =$ (0.028). The finding of the current study comes in agreement with Kostova & Atasoy, (2009), who reported that, self-assessment ability is affected by gender, as girls tend to underestimate and overestimate their academic achievements.

Moreover, the present study found that there was a positive correlation between the students' gender, self-efficacy, and self-rating achievement total means scores, with a statistically significant difference $p =$ (0.028) **(Table 4).** This result is consistent with the study result of Anam & Susanto, (2018), who conducted a study about "A closer look into primary school students' self-efficacy in l2 learning across gender and school location, Nigeria" and stated that, gender influences self-efficacy; the results imply that there was a significant main effect of gender on the combined scores of the two self-efficacy beliefs. Girls had firmer self-efficacy than boys; they perceive themselves as having more capabilities for achieving tasks and regulating their own learning than boys. While, the finding of the present study is inconsistent with the result of Liu et al., (2020), who accomplished a study about "The effects of children's self-educational aspiration and self-efficacy on mathematics achievement: A moderated chained mediation

model" and announced that, gender had no significant influence on academic achievement.

The existing study results referred to a positive correlation between the studied students' self-efficacy, academic achievement total means scores, and their parental level of education, with a statistically significant difference $p=$ (0.000) **(Table 6)**. This result is congruent with Terfassa, (2018), who performed a study about "The relationship between parental education and children's academic performance: The case of Genda Tesfa primary school, Dire Dawa, Ethiopia" and found that a positive relationship between the parental level of education and their children's academic achievement was found (r=0.73) and a statistical significance variation was found between children of illiterate and literate parents on their academic performance.

The researchers think that parents are the most significant individuals in the children's life who strengthen and shape their inborn potentialities as self-efficacy. Parents literally are the children's initial teachers, programmers, and controllers. Consequently, the higher knowledge regarding the children's schooling appears to be among the educated parents, enabling their children from studying hard, time arrangement, adjusting study place, homework checking, and answering ambiguous questions during studying. As well as, educated parents have more contact and communication with the school, manage the absence and risky behaviors of their children, discuss school issues, aware of their children's achievements, and monitor their progress. Thus, enhanced learning, more positive beliefs ability, a stronger orientation, more effective learning strategies usage, and achieving better academic achievement are present among children whom parents have higher educational levels than children of parents with lower educational levels.

On the other hand, **table (6)**, illustrated a positive correlation between the studied students' academic achievement total means scores and their residence, with a statistically significant difference $p=$ (0.001). This result is congruent with Li & Qiu, (2018) who implemented a study about "How does family background affect children's educational achievement? Evidence from contemporary China" and stated that, found that, urban children's academic achievement scores are higher than those in rural areas. The

researcher returns this result to the fact that; urban and rural households have quite varied lifestyles, socioeconomic statuses, and education patterns. Further, the same table explained the negative correlation between the studied students' academic achievement total means scores and their parents' occupation, with a statistical difference at $p=$ (0.000). From the researchers' point of view, parents' occupation increases and affects the family income and there is a relationship between parents' income and their occupation, as, the employed parents have a fixed monthly income other than the working parents.

On top of that, **table (6)** illustrated that there was a positive correlation between the studied students' self-efficacy, academic achievement total means scores, and their parents' income with a statistically significant difference at $p=$ (0.001). This result is congruent with Li & Qiu, (2018) who stated that, the better children's academic achievement was found among the higher family's socioeconomic status. In addition, this result is in the same line with Pant, (2020) who carried out a study about "Influences of parental socio-economic status on academic achievement: A case study of rural communities in Kailali, Nepal, India" and reported that, the children academic achievement is positively influenced by their parental economic status. The researchers commented that, parents' higher economic status, continuous interaction, prediction, and feedback support their children's self-efficacy development and provide higher levels of psychological support to them, which are necessary for their academic success and achievement. In contrast, parents with low economic status fail to create a priority for the educational environment in their homes, and they are unable to support their children's education adequately in relation to providing them with time, attention, and energy as they are engaged in multi work because of the long working hours to earn a living. Beside, they have difficulties in purchasing school dresses, books, copies and teaching materials due to the lack of resources.

The actual study results indicated that the studied students' self-efficacy, self-rating achievement, and academic achievement were positively correlated to each other with a highly statistically significant difference p ($\leq$0.001) **Table (7)**. This result is in harmony with the study result of Liu et al., (2020) who recognized that,

self-efficacy and mathematics achievement were positively related to each other ($p<0.01$). Individual behavior is codetermined by outcome expectation and efficacy expectation, according to self-efficacy theory (Bandura, 1977). Similarly, the finding of the current study is in the same line with Correlating, (2018), whose study entitled "Correlating self-esteem and academic outcome" revealed that, academic SE help students enhance the performance of their academic tasks successfully and students' academic achievement positively influenced by their self-efficacy. While in another study, Corkett et al., (2011), revealed no significant correlations between the students' reported reading and writing SE and their actual abilities.

From the researchers' point of view, this result is due to students having higher levels of SE being more likely to believe that they can succeed if they want; as well they are more likely to have high self-rating achievements and motivations which will affect and enhance their academic performances. On the other hand, students having SE high levels perceive bad situations as an opportunity for exercising their personal abilities and making progress. When the situation gets worse, they will strengthen and sustain their efforts. On the contrary, students with lower SE levels always disbelieve in their abilities and are more likely to give up when encountering any difficulties.

The present study explores the relationship between self-efficacy, self-rating scores, and academic achievement among primary school students by presenting a predictive model of the interrelationship between these three constructs. The results revealed that self-efficacy impacts students' achievement and there is a highly statistically significant positive relationship between students' self-efficacy and their self-rating scores; between self-rating scores and academic achievement; in addition, a powerful significant relationship was found between self-efficacy and students' academic scores. The result is highly compatible with various studies in different countries (Bai et al., 2020; Namaziandost, & Çakmak, 2020; Saito, 2020; Wang & Sun, 2020; Noorollahi, 2021) which illustrate a meaningful significant association between the three variables.

The findings of the current study are in the same line with Kalaycioglu & Bakan, (2015), whose study named "The influence of socioeconomic status, self-efficacy and anxiety on mathematics achievement in England, Greece, Hong Kong, the Netherlands, Turkey, and the USA" and reported that self-efficacy could also predict academic performance; and Ahuja & Amit (2016), whose study entitled "A study of self-efficacy among secondary school students in relation to educational aspiration and academic achievement", believes that self-efficacy together with self-educational aspiration significantly and positively predict academic achievement. This result is in harmony with the study result of Liu et al., (2020) who recognized that, self-efficacy can positively predict mathematics achievement.

By the investigation of the predictive capability of the above-mentioned simple regression models as indicated in **tables 8, 9, &10, table (10)** revealed the highest predictive capability of the self-rating score model, as about 68.4% of the variation in total academic achievement score is explained by the self-rating score as a predictor followed by a simple regression model of the self-efficacy score that explained nearly 53% of the total variation of academic achievement score. This finding is agreed with Nwosu & Okoye, (2014) who interpreted a highly predictive capability of the self-rating score on academic achievement score.

As regards, the findings of the multiple regression models revealed that self-efficacy and self-rating scores accounted for 75% of the variation in academic achievement, as shown in **table (11)**. To test the research hypothesis, the unique contribution results concluded that the proposed self-rating score had a higher effect and was a better predictor of total academic score than the self-efficacy score. The model had a perfect fit with the empirical data. As indicated in the model, both self-efficacy (β=0.52, t=14.25, p≤0.001), and self-rating (β=6.50, t=25.93, p≤0.001) are significant positive predictors of students' achievement. This finding isn't in tandem with different studies, as little has been done, more especially in Egypt, to establish the predictive power of self-efficacy and self-rating as a function of score predictions on students' academic achievement. Additionally, there are different studies that studied the two predictors separately as Noorollahi, (2021), who stated that self-

efficacy was a better predictor of GPA (β=.57, p<.05). However, this finding is incompatible with the result of Nwosu, and Okoye, (2014) who concluded that the self-efficacy and self-rating scores, when combined together using multiple regressions, could not predict significantly students' academic achievement.

Conclusion:

A statistical significant difference is present in the studied students' self-efficacy, self-rating achievement and academic achievement total mean scores. A positive correlation between the students' total mean scores of self-efficacy, self-rating achievement and academic achievement was found.

Recommendations:

The study recommends conducting further research studies regarding the primary school students' self-rating achievement and academic achievement in Egypt.

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