

## Academic achievement and self-regulated learning from parent's perspective of student with learning difficulties

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### ABSTRACT

The study was designed to realize the association between academic achievement and self-regulated learning of students presenting learning difficulties. Therefore, the study adopted a quantitative approach and distributed the developed questionnaire to over 384 participants. The results reported underscored worsened achievement of students in distance learning compared to face-to-face setting despite the assistance they received during distance settings. The achievement of students differs due to the category of difficulty. Students presenting learning difficulties exhibited medium acquisition level of self-regulated learning. Elementary stage students exhibited a higher level of self-regulated learning, while female students exhibited a higher level of self-efficacy, metacognitive, micro-strategies, and emotional support. There is a strong association combined between students' achievement and self-regulated learning. Furthermore, the study revealed a difference in self-regulated learning due to students' gender, difficulty categories, and grade. Future studies can opt for specific self-regulated learning strategies according to subjects' particularism, such as mathematic material or specific age groups using the self-assessment tool.

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## 1. INTRODUCTION

Recently, learning was shifted toward distance learning rather than face-to-face learning through utilizing the technical facilities available in each country, particularly in the academic years of 2019 and 2020 [1], [2]. In Jordan, the learning was streamed over television streaming channels to cope with the continued emergence of the health pandemic. Until now, there is no clear picture of how this shift affect students' achievement, dropout rate, or absenteeism rate giving that there is a huge gap in technology using abilities and access all over the country [3] and lack of strategic preparedness to distance learning [4]. A recent study reported the parents of students needing special education established that their children experience difficulties and higher challenges in online learning compared to their typically developing fellows [5]. Furthermore, students prefer face-to-face learning since they can acquire the academic content more easily and teachers further help them overcome their learning difficulties [6]. Moreover, there is a relationship between the shift toward online learning and the decreased academic achievement of students despite their increased efforts in online coursework and their augmented engagement levels [7]. For students presenting learning difficulties, Zhang *et al.* [8] established concerns of gaining worse achievement and being unable to satisfy the academic requirements of online courses. An exploratory study established that distance learning affects students' progression with low academic performance and it does not sound promise for this

population [9]. Putting this in mind, students with learning difficulties are including in the low-performance population. Furthermore, distance learning increases difficulties, anxiety, and fear of studying for students with learning difficulties compared to their typical peers [8]. Cited from previous study [5] participants responses, "This home learning is even harder for students with special learning needs. In the regular face-to-face class, some of them have had difficulty concentrating, even more in online learning like this." Parents in distance learning yet share concerns about their children's academic progression because the learning burden is transited to them. Unfortunately, they do not possess adequate knowledge of content or pedagogy to teach their disabled children materials despite the higher consumption time in the teaching process [10].

In fully distance learning, students presenting learning difficulties rarely experience success compared to their typically developing fellows. Distance learning requires students proportionally to increase their self-dependency in learning concerning objectives defining, problem-solving, problem determination, and take responsibility for their learning. Thus, educators and instructors invoke to enhance the self-regulated learning strategies and skills of students presenting learning difficulties. It is important to cope with new learning setting, and their new role in the learning, decrease their attrition, and cultivate their progress [11]–[13]. However, these particularities of online learning directly contradict with learning specialism of these students (i.e., students with learning difficulties) [12], [13]. For example, the great exploited from distance learning and profoundly immersed in the learning experiences are students who possess rigorous read and write abilities and more likely to have strength in the four learning styles [5]. Taking into considerations, the majority of students with learning difficulties are struggling with reading and writing, which implicated they cannot considerably gain in such learning settings.

Succinctly, prior research scarcely addressed the students' achievement of those students presenting different learning difficulties and how the shift toward online learning affects their achievements from face-to-face learning settings with the absence of remedial programs and support that prior offered in the source classrooms. Furthermore, prior study [14] informed that shift toward online learning influences pupils' studying habits and strategies, while no study has involved their peers who are presenting learning difficulties, as per the best knowledge of the researcher. Thus, the study aimed to reveal the association between students' achievement and self-regulating learning among this population of students.

The study contributes to revealing parents' assessment of change of their children's achievement between face-to-face learning and distance learning and their acquiring level of self-regulated learning strategies. Furthermore, the self-regulated learning of students presenting learning difficulties remains researched in the distance learning setting. Accordingly, the study contributes to these efforts in the distance learning age and revealing the self-regulated learning levels of this population of students, which can be a launch to cultivate these skills for students to prepare them for distance learning.

## 2. LITERATURE REVIEW

Learning difficulties are the highest pace of incidence of disability categories [15]. According to Kreider *et al.* [16], it affects one from each five in a group. However, there is a lack of unanimous on the definition of students with learning difficulties. Hence, the severity of difficulties and the associated attributes varies substantially across educational contexts [17]. There is a conflict between learning difficulties and learning disabilities, and there are educators who used both terms interchangeably [15]. The distinguishing feature between both is identification procedures both terms agreed to express difficulties in language processing and mathematic functioning. But learning disabilities are about having persistent causes of difficulties such as hearing impairments.

The definition of learning difficulties is about having difficulties due to attention and behavior problems [18], [19]. Some definitions distinguish between the causes of the educational difficulty to consider learning difficulties induces a narrower terminology of learning difficulties. For example, the educational conceptualization of students presenting learning difficulties is those students exhibiting a dearth of one or more of processing competencies of knowledge involving lack of using language (written, spoken, reading, and assimilating) and functioning mathematics, which are not imputed to specific disabilities such as mental, developmental, or emotional disabilities [20]. Likewise, the American special education code described the exact narrower definition and distinguished for identification individuals with learning disability as shown in the quotation [21]: "...a disorder in one or more of the basic psychological process involved in understanding or in using language, spoken or written that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculation, including conditions such as perceptual disabilities, brain injury, minimal brain, dysfunction, dyslexia, and developmental aphasia. However, learning disabilities do not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage." Act number 300.7 (c) (10).

From a breadth percept, learning difficulties are those students who have deficits in learning, generally in the field of acquisition and using reading, spelling, writing, spoken, comprehension, and mathematics that may present in different age groups across the life span [18]. In the current study, we adopt the breadth definition of learning difficulties to include any learner whom his/her parent perceives him as a learner with difficulty whatever the causes or diagnoses. Conceptualizing self-regulating learning and self-regulation still a dilemma between scholars, educators, and psychologists [22]. The majority of them approximate the definition of self-regulating to metacognition [23]. Other definitions extend beyond metacognition to consist of emotions and behaviors to achieve personal goals [24], [25].

Regarding the main components of self-regulation, there is a conflict between scholars in this issue [26]. For example, Wang *et al.* [23] adhered to two main components of self-regulated learning, namely, goal setting and self-monitoring. Berkeley and Larsen [24] defined further components according to their review of reading comprehension intervention literature. They involved cognitive modeling and goal-settings, self-monitoring, and reinforcing.

In the current study, the surveyed self-regulating components were the extent group of components that include any potential components of mastering self-regulated learning appropriate with any learning difficulty. The current study is inclined by the extended definition of self-regulated learning that argued three main aspects of learning, namely, associated behavior, environmental conditions, and associated cognitive. These components are [19], [23], [24], [27]–[31]: i) Metacognition component, it is the activities of goal setting and activation of their background knowledge according to the learning contexts. This component presents the learner's ability to recognize their own thinking process. Students experience difficulties in learning such as difficulties in reading imputed to lack of cognitive skills; ii) Motivation, learners must be motivated to be considered self-regulated learners. Self-efficacy, self-reflecting, and attribute productive conveniently induce the intrinsic desire and to achieve feelings (motivation). An extrinsic stimulus such as (appreciation or grades) also induces and maintains motivations. This source of motivation is defined separately as succeeding emotional support; iii) Self-efficacy is the beliefs that students perceive on their own capacities; iv) Attributions are about the ability to imputing productivity either, success or failure; v) Using cognitive strategies and knowledge of learning strategies in which students are able to interchange between strategies according to the relevance of strategy and volitional selecting of effective strategies such as micro strategies, inferring, visualizing, asking, clarifying, and memorizing; vi) Emotional support is the extrinsic motivation including encouragement, positive feedbacks, and enthusiasm and appreciation from teachers and fellows; vii) Learning habits are normal consequences of developing self-regulated learning that why some scholars demonstrated them as self-regulation habits. Students' habits are about applying themselves and coping to persist with difficulties. It is worth mentioning that habits differ from motivation, which is about volition implementation of steps to accomplish goals.

According to the practicalities of students presenting learning difficulties, they share the potential to develop learned assistance since they lack many self-regulated learning attributes. They are more likely to be passive learners than active learners [29]. Students presenting learning difficulties lack self-awareness and develop the poor ability to prose recall strategy [32]. But empirical evidence stated the competence of these students to learn self-regulation learning and changed to be active learners [11], [12], [24], [27]. These can be through explicating strategy instruction interventions with ample opportunities of attempts and numerous modeling efforts by teachers or peers [19]. From disabilities literature, students with learning difficulties aware of strategy components and variables that determine their adopting of the strategy and memorizing knowledge when they aged between 4 to 12 years [32].

However, self-regulated skills are considered a promise explicitly learning strategy since students presenting learning difficulties struggle with the independent learning environment. Because most of them cannot select the appropriate strategy to perform a task rather than performing the strategy on their own to achieve academic task requisites, which hinders and negatively affect their performance [27]. Graham and Berman [29] explicated further teaching a student with learning difficulties scaffolding instructions dropping out the self-master and control learning and evoking ownership and independency in learning will increase their disabilities.

Various prior studies discussed how the concept of self-regulation can interrelate to academic achievements [31]. In which self-regulation strongly correlated to high performance and thus defined as a crucial factor of learning success [23], [24], [26]–[28]. Wang *et al.* [23] constructed the rationale of embedded self-regulating learning in the math intervention due to the correlation between purposes predefined activities involved in self-regulating learning and performance in mathematics and adopted two main components of self-regulated learning, namely, goal setting and self-monitoring. Despite the achieved effect size of the proposed intervention, the authors do not measure the student's pre-skills of self-regulation learning that may threaten the validity of the results, not mentioning the shrink of self-regulating learning activities. Nevertheless, the results allude to the added value of embedding self-regulation learning on the

students' performance with dyscalculia since self-regulation learning encouraged students to work hard on their skills to fulfill predefined challenging goals.

A meta-analysis of 30 years of research for reading comprehension intervention for students with disabilities that addressed strategy instruction-based intervention studies revised the effectiveness of the proposed strategy instruction. It also reported the large effect size of these interventions with a mean effect size of 0.69 for all strategies and established the ability of students presenting learning difficulties to learn a strategy. But it also reported the failure of these students to use taught strategies independently because students did not learn how to regulate their learning on their own that motivated integration of self-regulation learning to increase students' abilities mastering their learning independently and increasing their motivation for learning. Accordingly, scholars are motivated to address the self-regulation learning effectiveness for students with learning difficulties rather than typical students [24]. Likewise, a proposed self-regulation-based math intervention alleviates a positive development in the achievement of students presenting learning difficulties at middle school [33].

These studies explain the relationship between self-regulation and achievement and associated prediction power that the learners when they master their learner and be motivated to learn, concentrate on their learning objectives, and achieved it withstand interruption. As much as these students sustain their independence, they pursue their aims and goals and maintain their motivation until they succeed. This correlation between self-regulation and academic achievement did not erode away with different learning settings (for example, distance learning, blended learning, and face-to-face learning [34]).

Both social cognitive theory and self-efficacy theories support the association between self-regulation and academic performance [13]. According to Sündüs *et al.* [13], the social cognitive theory, individuals measure their agencies according to life aspect significance and thus recruit these agencies to pursuit the high significant aspects. Likewise, self-efficacy theory stated that individuals measure their competencies and abilities and constitute beliefs, then these beliefs transformed into productive actions to satisfy the pre-defined purpose [12]. Information processing theory as opted by previous research [35] that learning is about long-term memorizing the information and conveying information from the instant processing in working memory to permanent preserving in long-term memory. Johnson *et al.* [27] further illustrated the indirect effect of struggling with self-regulated learning by students presenting learning difficulties increases psychological issues such as anxiety since the students cannot master selecting abilities of convenient strategy to deal with their own learning and thus become more anxious and high stress, which creates negative psychological factors causing a negative appraisal of learning experience and significantly hinders their performance.

### 3. RESEARCH METHOD

To carry out the study purposes, the study used a quantitative approach. It concentrated on the students presenting learning difficulties who enrolled in special education schools or public mainstreams. They received their learning online due to the unplanned shift of learning to set toward distance learning imputed to the international health condition.

#### 3.1. Participants

In the quantitative study, we tend to cover different school age groups as well as adopted the breadth definition of learning difficulties to include any learner whom his/her parent perceives him as a learner with difficulty whatever the causes or diagnoses. The participants were those responsible for these students' learning continuity, particularly in the distance learning settings. The sampling technique is a random sampling from 1,000 invitations of participation, 384 responses received. This sample is appropriate for generalization purposes according to previous study [36]. The researchers reached participants via indirect communication settings such as telephone or mail, and some of them through direct communication such as skype meetings or the pre-arranged school administration meetings with the parent. The contact information of parents was obtained by screening students' profiles after obtaining the educational administration consent. All participants were informed that they are willing to engage or withdraw from the study at any instant time.

The study tool was distributed to participants in the online form. All participants were informed that accessing the form and start filling it out consider as consent to participate in the study. The researchers obtained responses from the different geographical areas, in which 50% of respondents were from the middle governorate, 23%, and 27% from north and south governorates, respectively. The study participants were parents of students representing learning difficulties. The majority of them were mothers (60%).

### 3.2. Students profile

Students included in the study were from various educational age groups. According to Table 1, students from 3rd and 4th-grade classrooms were the highest incident compared to other grade classrooms. The table shows that 50% of students were female, 63% of the sample presenting dyslexia, 26% presenting dyscalculia. The rest of them are presenting more than one difficulty such as attention deficient, behavioral deficient, and so forth.

Table 1. Averages of respondents' demographic profile

		n	%
Gender	Male	192	50.0
	Female	192	50.0
Disabilities	Dyslexia	242	63.0
	Dyscalculia	100	26.0
	Multiple difficulties	42	10.9
Grade	First	30	7.8
	Second	60	15.6
	Third	96	25.0
	Forth	79	20.6
	Fifth	67	17.4
	Sixth	34	8.9
	Seventh	6	1.6
	Ninth	6	1.6
	Secondary	6	1.6

Parents reported that 76% of their children receive assistance and help when performing online examinations that 90.6% of them did not receive such assistance in the face-to-face setting. Despite that, their achievement in the distance settings below their scores in the face-to-face settings as presented in Table 2. Furthermore, 76% of parents reported that they assist their children during the online examination while not during the regular examination.

Table 2. Averages of the students with learning disabilities related to direct and distance learning

	N	Minimum	Maximum	Mean	Std. Deviation
Mathematic (face-to-face)	384	40.00	100.00	73.49	12.36
Mathematic distance	384	10.00	100.00	66.26	15.74
Arabic (face-to-face)	384	45.00	100.00	73.99	12.35
Arabic distance	384	10.00	100.00	69.03	14.63
English (face-to-face)	384	20.00	100.00	72.45	14.24
English distance	384	5.00	100.00	66.93	14.75

### 3.3. Instrument

The questionnaire is the data collection tool used in the study. To carry out the differences of students' achievements between distance and face-to-face settings, the first demographic section is integrated with three related questions in the main three learning subjects, namely, language subjects (Arabic, English), and Mathematic. The second section is related to self-regulated learning components. The study developed the self-regulation learning questions according to particularities of students presenting learning difficulties illustrated by previous researchers [12], [13], [29].

The questionnaire consists of three sections. The first section is demographic variables related to the gender, parental relationship with students presenting learning disabilities and residential location (Region), difficulty categories, and students' grade. Section two the average of the students with learning disabilities for facing learning and distance learning related to Mathematic, Arabic, and English. Section three (Self-regulated learning) consisted of six dimensions, first dimension is metacognitive contains of five statements, learning habits contains of five items, micro strategies contain of five items, emotional support contains of five items, and both of self-efficacy and motivation contains of three items for each dimension.

Five Likert scale was used to answer the statements of the questionnaire and the options of answers (Totally correct=5, some extent correct=4, Not sure=3, somewhat incorrect=2, and absolutely incorrect=1). After making the necessary correction, three levels were set as the low level (1.00–2.33), the medium level (2.34–3.67), and the high level (3.68–5.00).

### 3.4. Validity and reliability

The researchers submitted the study tool to fifteen reviewers and experts in the special education in Jordan Universities, to take their opinions, and re-wording of some statement, the reviewers change some of the statements and deletion some of them to reach a high level of clarity and give appropriate meaning to the statements, finally the questionnaire consist of 24 statements after deleted four statements. To investigate the reliability of the dimensions, Cronbach's alpha values measures for each dimension as shown in Table 3. Accordingly, all dimensions were reliable (values more than 0.70).

Table 3. Reliability scores of the developed questionnaire

Facet	Cronbach's Alpha	N of items	Statements
Metacognitive	0.935	5	9, 16, 18, 12, 17
Learning habits	0.954	5	2, 7, 10, 3, 11
Micro strategies	0.890	3	13, 14, 15
Emotional Support	0.939	5	6, 5, 1, 4, 8
Self-efficacy	0.958	3	22, 23, 24
Motivation	0.953	3	19, 20, 21

## 4. RESULTS

According to the study's purposes and rationale, there are three paramount points that emerged to pinpoint: i) First question: what is the student achievement differences between distance and face-to-face settings?; ii) Second questions: what level is the self-regulated learning of students presenting learning difficulties?; and iii) Third question: is there a relationship between achievement and self-regulated learning?

### 4.1. First question related to students' achievement

To carry out differences in the achievement of students presenting learning difficulties between distance and face-to-face settings, we examined the students' achievement differences according to difficulties categories. For students presenting dyslexia, we investigated their differences in the language subjects, namely, English and Arabic languages. While differences in Mathematic were investigated between the achievement of students presenting dyscalculia. To infer statistical differences, paired sample t-test was used as described in Table 4.

The results showed that direct learning was better than distance learning among students with dyslexia in the language subject (Arabic and English), while the averages scores were higher in favor of direct learning in Arabic=72.99, with standard deviation of 12.88, and distance learning in Arabic=69.70, standard deviation of 16.62 with differences=3.29 between them, (t)=3.919 with significant level of (0.05). This applies fully to learning English, direct style scored=70.30 with standard deviation of 15.64 and distance learning scored=66.56 and standard deviation of 16.48, with mean difference 3.74 points, (t) value=5.486, and its significant at level of (0.05). that means the average score of students with dyslexia in the language Arabic and English was in favor of direct learning.

Table 4. Differences in the academic achievement between distance and face-to-face settings

Difficulty	Subject_setting	Mean	N	Std. Deviation	Paired differences	T	df	Sig.
Dyslexia	Arabic_face	72.99	242	12.88	3.29	3.919	241	0.000*
	Arabic_distance	69.70	242	16.62				
	English_face	70.30	242	15.64	3.74	5.486	241	0.000*
	English_distance	66.56	242	16.48				
Dyscalculia	Math_face	69.60	100	9.42	9.49	12.829	99	0.000*
	Math_distance	60.11	100	10.14				

\*significant at level of 0.05

The participants confirmed that the direct learning was better and interested with it more than distance learning according to the Mathematic subject among the students with dyscalculia. The data shows that average score for Mathematic direct=69.60 with standard deviation of 9.42 and the average score for Mathematic distance=60.11 with standard deviation of 10.14, with mean difference value=9.49 between the two scores (t) value was 12.829 with significant level of 0.05.

The study used paired sample T-test to show the difference in the average score of students with multiple difficulties in the academic subjects (Arabic, English, Mathematic) between direct and distance education as shown in Table 5. The result shows that direct learning was better than distance learning among students with Multiple difficulties in the Arabic, English, and Mathematic. The averages scores were higher among direct learning; (t) values were (5.202, 5.546, 4.691) respectively; and it is significant at level of 0.05. The variance was in favor of direct learning.

Table 5. Differences in the academic achievement between distance and face-to-face settings for students presenting multiple learning difficulties

Multiple difficulties	Mean	N	Std. Deviation	Paired differences	T	Df	Sig.
Arabic_face	77.07	42	13.98	6.36	5.202	41	0.000*
Arabic_distance	70.71	42	11.81				
English_face	73.79	42	13.83	6.52	5.546	41	0.000*
English_distance	67.26	42	9.62				
Math_face	75.05	42	14.62	7.57	4.691	41	0.000*
Math_distance	67.48	42	11.76				

\*significant at level of 0.01

#### 4.2. Second question: What level is self-regulated learning of students presenting learning difficulties?

To reveal the self-regulated learning level of students presenting learning difficulties that consider a pre-request to sufficient online learning, the self-regulating components (metacognitive, motivation, self-efficacy, emotional support, micro strategies, and their learning habits) were examined. Furthermore, we examined the difference in self-regulated learning due to receiving parents' assistance, grade, difficulty categories. Thus, different descriptive and inferential statistical tests were implemented. The study used the average score, ranked for the self-regulated learning among students with learning disabilities as revealed in Table 6.

Table 6. Self-regulated learning components' level of the students presenting learning difficulties

	Mean	Std. Deviation	Rank	Level
Motivation	2.79	1.55	1	Medium
Self-efficacy	2.75	1.63	2	Medium
Emotional support	2.68	1.43	3	Medium
Metacognitive	2.66	1.42	4	Medium
Micro strategies	2.60	1.42	5	Medium
Learning habits	2.52	1.41	6	Medium
Self-regulated learning (Total)	2.67	1.43		Medium

According to Table 6, the self-regulated learning was in the medium level among students with learning disabilities. All dimensions are medium level respectively (Motivation=2.79 out of 5.00, then Self efficacy=2.75, followed by emotional support=2.68, and metacognitive with mean value=2.66); then the micro strategies was in medium level with mean=2.60. Finally learning habits ranked last with mean value=2.52. Standard deviation values were more than 1.00. This indicates the existence of outliers, which indicates a difference in the perspectives of the study sample about self-regulated learning.

To reveal differences in the self-regulated learning between students who developed assistance seeking and those who are not seeking assistance during the distance learning, independent sample T-test was employed. It determines the differences in the self-regulated learning between students obtaining assistance and those who do not. The details are shown in Table 7.

Table 7. Self-regulated learning components' level between students developed assistance seeking in online examination and those who are not

Self-regulated components	Assistance	N	Mean	Std. Deviation	Df	t-value	P value
Metacognitive	Yes	291	2.37	1.32	382	-7.477	0.00*
	No	93	3.55	1.34			
Learning habits	Yes	291	2.22	1.26	382	-7.961	0.00*
	No	93	3.46	1.45			
Micro strategies	Yes	291	2.30	1.32	382	-7.913	0.00*
	No	93	3.54	1.32			
Emotional support	Yes	291	2.35	1.25	382	-8.685	0.00*
	No	93	3.70	1.48			
Self-efficacy	Yes	291	2.38	1.52	382	-8.599	0.00*
	No	93	3.91	1.40			
Motivation	Yes	291	2.49	1.44	382	-7.158	0.00*
	No	93	3.73	1.52			
Self-regulated learning (Total)	Yes	291	2.35	1.30	382	-8.271	0.00*
	No	93	3.65	1.36			

\* significant at level of (0.05)

Independent sample T-test resulted that there is a statistically significant differences at level of 0.05 in the level of the self-regulated learning between students obtaining assistance and those who do not (t values=-7.477, -7.961, -7.913, -8.685, -8.599, -7.158, -8.271) respectively. It is significant at level of 0.05. The variance of self-regulated learning was in favor of students with learning disabilities whose do not obtaining assistance.

To reveal differences in the self-regulated learning between different difficulties experienced by students during the distance learning. The study assumed the mean values, Standard deviation and One-Way ANOVA test was used to show the statistically significant differences in the self-regulated learning due to difficulty group among students with learning. The descriptive statistic for self-regulated learning due to difficulty category showed many variances between means values, One-way ANOVA test was used to identifying these variances as shown in Table 8.

Table 8. One-way ANOVA test of self-regulated learning components' level according to difficulty groups

Components		Sum of squares	df	Mean square	F	Sig.
Metacognitive	Between groups	109.915	2	54.958	31.735	.000*
	Within groups	659.802	381	1.732		
	Total	769.717	383			
Learning habits	Between groups	115.686	2	57.843	34.098	.000*
	Within groups	646.324	381	1.696		
	Total	762.010	383			
Micro strategies	Between groups	78.300	2	39.150	21.535	.000*
	Within groups	692.645	381	1.818		
	Total	770.944	383			
Emotional support	Between groups	91.682	2	45.841	25.271	.000*
	Within groups	691.128	381	1.814		
	Total	782.810	383			
Self-efficacy	Between groups	130.312	2	65.156	27.992	.000*
	Within groups	886.852	381	2.328		
	Total	1017.164	383			
Motivation	Between groups	142.229	2	71.115	34.712	.000*
	Within groups	780.544	381	2.049		
	Total	922.773	383			
Total	Between groups	109.700	2	54.850	31.077	.000*
	Within groups	672.464	381	1.765		
	Total	782.165	383			

\*significant at level of (0.05).

The result of One-Way ANOVA test showed that there is a statistically significant differences in the self-regulated learning due to difficulty category (F) values were (31.735, 34.098, 21.535, 25.271, 27.992, 34.712, 31.077) respectively. Scheffe test explicated the source of the variance. Thus, it shows that the source of the differences in the self-regulated learning components (metacognitive, learning habits, micro strategies, emotional support, self-efficacy, motivation, and total degree) were in favor of multiple difficulties. Hence, the variance was in favor of dyslexia difficulty category.

The study assumed the mean values, standard deviation, and One-Way ANOVA test was used to show the statistically significant differences in the self-regulated learning. The study merged the seventh grade with ninth and secondary grades because it is a few frequencies for these grades. The descriptive statistic for self-regulated learning due to the student's grade showed many variances between means values, One Way ANOVA test was used to identifying these variances as shown in Table 9.

The result of One-Way ANOVA test shows that there is a statistically significant differences in the self-regulated learning due to the student's grade (F). The values were 58.103, 43.138, 53.498, 65.378, 55.551, 54.528, 59.965 respectively. The result of Scheffe test shows that the source of the differences in the self-regulated learning with dimensions (metacognitive, learning habits, micro strategies, emotional support, self-efficacy, motivation, and total degree) were in favor of first, then second, followed by third grade. To reveal differences in the self-regulated learning students' gender, Independent Sample T-test was used. The results are shown in Table 10.

The result of Independent Sample T-test showed that there were a statistically significant differences at level of 0.05 in the self-regulated learning dimensions (metacognitive, micro strategies, emotional support, and self-efficacy) according to the gender. The t values were -2.075, -2.095, -2.684, -2.235 respectively. These values were significant at level of (0.05) and the variance was in favor of the females. On the other hand, the results showed that there were no statistically significant differences in the level of learning habits, motivation, and total score according to the gender. The t values were -0.398, -0.876, -1.783, and it is not significant at level of (0.05).



Table 9. One-way ANOVA test of self-regulated learning components' level according to grade classroom groups

Components		Sum of squares	df	Mean square	F	Sig.
Metacognitive	Between groups	369.804	6	61.634	58.103	.000
	Within Groups	399.912	377	1.061		
	Total	769.717	383			
Learning_habits	Between groups	310.192	6	51.699	43.138	.000
	Within Groups	451.818	377	1.198		
	Total	762.010	383			
Microstrategies	Between groups	354.539	6	59.090	53.498	.000
	Within Groups	416.406	377	1.105		
	Total	770.944	383			
Emotional_support	Between groups	399.173	6	66.529	65.378	.000
	Within Groups	383.637	377	1.018		
	Total	782.810	383			
Self_efficacy	Between groups	477.296	6	79.549	55.551	.000
	Within Groups	539.868	377	1.432		
	Total	1017.164	383			
Motivation	Between groups	428.736	6	71.456	54.528	.000
	Within Groups	494.038	377	1.310		
	Total	922.773	383			
Total	Between groups	381.946	6	63.658	59.965	.000
	Within Groups	400.219	377	1.062		
	Total	782.165	383			

Table 10. Self-regulated learning components' level according to students' gender groups

	Gender	N	Mean	Std. Deviation	Df	t-value	P value
Metacognitive	Male	192	2.51	1.32	382	-2.075	.039*
	Female	192	2.81	1.49			
Learning habits	Male	192	2.50	1.48	382	-.398	.691
	Female	192	2.55	1.34			
Micro strategies	Male	192	2.45	1.39	382	-2.095	.037*
	Female	192	2.76	1.43			
Emotional support	Male	192	2.48	1.44	382	-2.684	.008*
	Female	192	2.87	1.39			
Self-efficacy	Male	192	2.56	1.55	382	-2.235	.026*
	Female	192	2.93	1.69			
Motivation	Male	192	2.72	1.56	382	-.876	.381
	Female	192	2.86	1.54			
Self-regulated learning (Total)	Male	192	2.54	1.40	382	-1.783	.075
	Female	192	2.80	1.45			

\*significant at level of 0.05

### 4.3. Third question: Is there a relationship between achievement and self-regulated learning?

The study used Pearson Correlation Coefficient to determine the statistically significant relationship between the distance learning average score of students in the three subjects (Arabic, English, Mathematic) and their self-regulated learning. The results are presented in Table 11. The table shows that there is a positive relationship between the distance learning average score of students in the three subjects (Arabic, English, Mathematic), and their self-regulated learning. All Pearson Correlation values (r) were significant at level of 0.01 and the range of correlations was between 0.225–0.480. It ranges from weak to moderate association power but the significant was strong. It has significant at level of 0.01, indicating a 0.99 confidence level.

Table 11. The association between Self-regulated learning components' and students' achievements in the three subjects (Arabic, English, and Mathematics)

Subject	Metacognitive	Learning_Habits	Micro strategies	Emotional_Support	Self_Efficacy	Motivation	Total
Mathematic	.333**	.327**	.451**	.377**	.385**	.422**	.396**
Arabic	.389**	.406**	.480**	.430**	.430**	.440**	.444**
English	.225**	.251**	.341**	.305**	.303**	.326**	.302**

\*\*significant at level of 0.01

## 5. DISCUSSION

The study revealed a considerable difference between distance learning and face-to-face learning settings, in which students scored higher and better in face-to-face learning. Not surprising, the favorability was for face-to-face learning settings for those students presenting learning difficulties. Despite the effectiveness of distance learning for similar populations, the current dearth of achievement imputed to the unplanned shift to such distance learning settings. This implicates that both students and teachers lack the readiness and skills to accommodate this learning mode. Adding the lack of technological facilities (such as devices and network connection quality) offered at home. Agreed to Zhang *et al.* [8] concerns gaining worse achievement and being unable to satisfy the academic requirements of online courses. It supports Bir [9] expectations that distance learning affects learner progression with low academic performance and it does not sound promise for this population. This may be plausible due to the increased reported level of difficulties, anxiety, and fear of studying for students with learning difficulties compared to their typical peers in the distance learning setting [8]. Adding to these parents claimed that distance learning deficits students' difficulty concentrating [5].

Taking into consideration that through distance learning, students presenting learning difficulties seeking help and assistance from their parents who do not acquire adequate knowledge of content or pedagogy to teach their disabled children materials despite the higher consumption time in the teaching process, and the high level of pressures they exposed due to additional burden of learning in such settings [10]. These results coincide with research established lack of strategic preparedness to distance learning [4] and lack of their self-dependency in learning concerning objectives defining, problem-solving, problem determination, and responsibility for their learning [11]–[13] and mentioning the moderate level of the self-regulated learning strategies they are possessed as in the study, which is inadequate to fully exploited the distance learning benefits [11]–[13]. Thus, self-regulated learning is a prerequisite to increase the likelihood of the great exploitation in distance learning and profoundly immersed in the learning experiences [4].

Putri *et al.* [4] stated that students to gain the benefit of distance learning have possessed rigorous writing and reading skills, taking this into considerations, the majority of students with learning difficulties are struggling with reading and writing, which implicated they cannot considerably gain in such learning settings. Previous researches further explained that students presenting learning difficulties struggle with independent learning environment because most of them cannot select the appropriate strategy to perform a task rather than performing the strategy on their own to achieve academic task requisites, which hinder and negatively affect their performance [27], [33].

The study also revealed a moderate acquisition level of self-regulation presenting by students of this population. However, this is expected due to the lack of preparedness of students for such settings [4], [8]. Surprisingly, students in elementary stages acquired a higher level of self-regulated learning than their peers in higher grade ages. This can be reasonable due to the lack of concerning students presenting learning difficulties in higher grade ages compared to considerations that elementary students gained in source classrooms as per the experience and knowledge of researcher in remedial education for this population in the kingdom, furthermore, the higher attendance and engaged from these age group into remedial and intervention programs compared to those students in higher grades. Another reason can explain this difference is the recent concern of self-regulating instruction in this field thus the higher-grade students may not have the opportunity to engage to such self-regulating based interventions. Graham and Berman [29] explicit teaching student with learning difficulties scaffolding instructions dropping out the self-master and control learning and evoking ownership and independence in learning will increase their disabilities.

Moreover, the statistical correlation established a strong correlation between self-regulating learning and the academic achievement of students presenting learning difficulties. This validates the association between them for this population as the association appeared by their typically developing peers. However, these are consensus to previous studies [23], [24], [27], [28]. Furthermore, the results accommodate social cognitive theory, self-efficacy, and information processing theories that support the association between self-regulation and academic performance [12], [13], [35]. However, the association between academic achievement and both emotional support and motivation is also positive and strong. The emotional and motivational aspect of learning is necessarily initiating self-regulating to advance the academic performance. Emotional aspects are relevant to the reason that we are doing the learning that inspire achieving goals yields better performance.

It is also important to note that the norm of online learning courses significantly demands a metacognitive process. Online task norm is the way that explains this association, in which high performance is synchronized with a more skilled and abled learner, primarily to recognize their own thinking process, and setting their learning goals. Like self-efficacy, the positive association is evident the high self-efficacy students are more flexible and faster to assess their difficulties to overcome. They able to take advantage of sufficient strategies, which yield better self-regulating learning, in turn, higher achievement. High self-efficacy means high confidence to act and make a decision about performing academic tasks.

## 6. CONCLUSION

The study revealed the degradation in academic achievement from face-to-face settings to distance learning settings. Likewise, the study revealed the high developing behavior of help-seeking from parents during online examination, which threatens the students' achievement assessment in such environments. Furthermore, the study explored that student presenting learning difficulties exhibited a moderate level of self-regulating learning components. The results further validated the association between academic achievement and self-regulated learning of students presenting learning difficulties. Also, the study establishes the necessity to target students in higher grade ages for self-regulating learning-based intervention and remedial programs. Future studies can assess self-regulated learning as a predictor for academic achievement for particular learning difficulties and materials or investigate the role of difficulty category in the relationship between academic achievement and self-regulated learning.




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