

Skills of Clinical Teaching for Learning Disabilities Students and The Possession Level of These Skills by Secondary Stage Teachers of Physics in Jordan from Their Point of View

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Abstract

The current study aimed to define skills of clinical teaching for learning disabilities (LD) students and the possession level of these skills that secondary stage teachers of physics in Jordan should possess from their point of view. The study sample consisted of (80) female and male secondary stage teachers of physics in Irbid Governorate. The study results revealed (28) clinical teaching skills that teachers of physics should possess, but the results indicated that their possession level of these skills was medium, and there were statistically significant differences ($\alpha=0.05$) in the possession level of these skills and for female teachers, higher scientific degree and more teaching experiences.

Keywords: Learning disabilities, teachers of physics, skills of clinical teaching.

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1. Introduction

In most schools all over the world if not all of them including the Jordanian schools, there is a group of students who suffer from their poor of abilities in academic achievement. These LD students' problems increase in scientific subjects especially in physics because its learning requires high mental abilities and skills such as deduction, experimentation, analysis, observation, classification, understanding and others.

Brigham, Scruggs & Mastropieri (2011); She (2002) think that these LD students have no handicaps or mental disorders but they suffer from disorders in attention, realization and recall which lead to low academic achievement. These students level intelligence is often medium.

Yoon (2009); Agran et al. (2002); Al Khateeb (2009) confirm that LD students particularly in learning physics are normal students, while their weaknesses overcome strengths. Thus, the successful teacher role emerges to discover LD students and help them to change their academic achievement weaknesses to strengths through offering them a proper learning environment which depends on using different styles of teaching skills and strategies based on that the student is the core of the learning-teaching process. Therefore, the teacher should adopt the active individual teaching, cooperative, inductive methods, mission analysis, role-play and self- control and others, and use proper clinical programs based on avoiding contempt and rebuke, praise these students and encourage them to participate and interact in class, and avoid any factors that may cause weakness in their academic achievement. Burris (2009) thinks that strategies of clinical diagnostic teaching which are main parts of the education mastery theory are of the major strategies which should be adopted and practiced when teaching LD students. Through this perspective we can identify clinical teaching that it is the style of teaching directed to LD students in order to help them overcome problems they suffer from during the learning process and reach an achievement level similar to other peers in the classroom.

Zayyat (2007) confirms that it isn't necessary for LD students to have problems in understanding school subjects they learn or their intelligence level is low. Their intelligence may be high or medium, and they don't provide the teacher with the required feedback, but at the same time they listen to the teacher and interact with him. In all cases the teacher should find the suitable strategies to attract these students' attention and confirm to evaluate them socially, skillfully and emotionally in addition to find coefficients of their intelligence.

Hashimi (2011) thinks that the teacher should shift from concrete to formal, easy to difficult while teaching LD students and observe their progress range in the learning-teaching process which indicates a kind of teaching methods used with them to identify weaknesses so as to overcome by defining the alternative clinical teaching method.

Kowalik-Olubinska(2012); Allington(1980) think that this role can't be adopted only for a successful teacher who has the ability to identify LD students through diagnosing learning mistakes and treat them by using modern skills and strategies in teaching based that the student is the core of learning-teaching process. This requires that the teacher should have proper clinical teaching skills depend on active, investigation, cooperative and narrative learning strategies. Thus, the importance of preparing a successful teacher in a way that he can possess the proper ability to deal with all levels of students including LD ones and work to increase their academic achievement and learn in a better way.

The learning process in general and physics particularly should be directed to all students' categories whether they are intelligent or LD. This responsibility of this relies on all those in charge of learning-teaching process with the forefront of a teacher and his capabilities to deal with all students' categories and particularly LD ones since there were no resources centers in schools which considered to be the base for learning. Hence, the current study emerged as an attempt to identify clinical teaching skills of LD students and the possession level of these skills among the secondary stage teachers of physics in Irbid Governorate in Jordan.

2. Related Studies

Many studies have dealt with the possession and usage level of science teachers of clinical teaching strategies. A study by Saadeh (2018) aimed to show the possession degree of the medium basic stage teachers of science in Amman Governorate in Jordan of the skills of clinical teaching strategies usage and its relation to variables of sex, teaching experience and scientific degree. The study results indicated that the teachers of science possession level of skills of clinical teaching strategies usage was medium, and there were statistically significant differences of these skills possession among female and male teachers and for female teachers, and among male teachers who hold an educational degree and who don't, and also among male teachers according to their long experiences.

Aydiniz, Cihak, Graham & Retinger (2012) conducted a study aimed to test the effectiveness of learning science by investigation through (Kit-based curriculum materials) for five LD students in the basic stage. The study results indicated the effectiveness of the investigation strategy in understanding scientific concepts assigned by all these students and in improving their attitudes towards science.

A study by Kinniburgh & Baxter (2012) which its results pointed to the effectiveness of question-answer strategy of teaching science in increasing reading comprehension among LD students. Gaddy, Bakken & Fulk (2008) conducted a study aimed to identify the effect of specific strategies in teaching LD students after secondary stage a content in science on improving their abilities to understand and interpret what they read in this content. The study results indicated the effectiveness of these strategies.

Zaidan (2005) conducted a study on a sample of biology department students in Al-Quds University aimed to identify the role of clinical teaching in improving skills of telescope usage among these students. The study results indicated that clinical teaching has a statistical significant role in improving these skills. A study by Al-Mashagbeh (2000) aimed to identify the effect of learning according to clinical diagnostic evaluation method on the seventh grade students' achievement in Al-Mafraq Governorate in Jordan in the unit of chemical union. The study results pointed to the effectiveness of this method in students' learning.

3. Study Questions

This study attempted to answer the following questions:

1. What are the clinical teaching skills for LD students that secondary stage teachers of physics in Jordan should possess?
2. What is the possession level of clinical teaching skills for LD students by the secondary stage teachers of physics in Jordan from their point of view?
3. Does the possession level of clinical teaching skills for LD students by the secondary stage teachers of physics in Jordan differ according to their scientific degrees, teaching experiences and sex?

4. Methodology

4.1 Population and sample

The study population consisted of (416) male and female teachers of physics in Irbid governorate (193 male teachers, 223 female teachers) in the first semester of 2019/2020. The study sample consisted of (80) male and female teachers selected by the intentional method. Table (1) shows the sample distribution according to the variables of scientific degree, teaching experience and sex.

Table 1. Distribution of study sample members according variables of scientific degree, years of experience and sex

Variable	Scientific degree		Teaching Experience			Sex	
	bachelor of physics	bachelor of physics +high diploma or above	5 years and less	more than 5 years to 10 years	more than 10 years	male	female
Number	40	40	24	26	30	40	40
Total	80		80			80	

4.2 Instrument

To achieve the study objectives a questionnaire was prepared to define clinical teaching skills for LD students that the secondary stage teachers of physics should possess. The instrument was prepared according to the personal researcher's experience, educational literature and related studies (Saadeh,2018; Al Sahari,2018; Vavougiou et al.,2016; Aydeniz et al.,2012; Al Kareem, Ashour and Obaid, 2011 Zaiton,2003;).

The questionnaire contained in its final form (28) skills distributed equally to two main domains: the first domain which its items related to skills of diagnosing learning mistakes of LD students. The second domain that its items related to skills of clinical of previous learning mistakes.

The reliability and validity of the instrument were verified by the popular methods which became clear it was of a high degree of reliability and validity.

4.3 Study Instrument Design

The study instrument was designed where the member responds to it according to (Five- Likert Type Scale): (very high, high, medium, low, very low), where the answers were given these marks (5,4,3,2,1) respectively. Therefore, the lowest limit of each item mark is (1) and the highest limit is (5). For the questionnaire as a whole, the lowest limit of the mark was (28) and the highest limit was (140), while the lowest limit of the total mark for each of both domains of the questionnaire was (14) and the highest limit was (70). These marks and arithmetic means were converted to be from (5) to go with Likert Scale. The arithmetic means of all study sample members' responses on each of both domains of the study instrument and the study as a whole were treated as used in most of the studies as follow:

- (1.00 – 2.33) a low level of clinical teaching skills possession, and these represent the lower one third of the study sample members' responses.
- (2.34 – 3.67) a medium level of clinical teaching skills possession, and these represent the medium one third of the study sample members' responses.
- (3.68 – 5.00) a high level of clinical teaching skills possession, and these represent the higher one third of the study sample members' responses.

After correcting the study sample members' responses and converting them to be out of (5), then entered to computer memory and analyzing them by (SPSS) program in order to answer the study questions.

4.4 Study Methodology

To achieve the goals of the study, the analytic descriptive method was adopted. It was used first to define clinical teaching skills for LD students that the secondary stage teachers of physics should possess, then define the degree of these teachers' possession of these skills from their point of view.

4.5 Variables of the study

Independent Variables: there are two independent variables:

- Scientific degree which has two levels: (bachelor of physics, bachelor of physics + high diploma or above).
- Teaching experience which has three levels (5) years or less, more than (5) years to (10) years, more than (10) years. This classification harmonizes with what the Ministry of Education in Jordan adopts in promoting teachers (teacher, first teacher, expert teacher) respectively.
- Sex which has two levels: (male, female).

Dependent Variable: there is only one variable (level of clinical teaching skills possession for LD students among the study sample).

4.6 Statistical Treatment

To answer the first question of the study, the researcher relied on his own personal experience, referred to the related studies and researches. In the light of this, (28) clinical teaching skills of LD students were defined that the secondary stage teachers of physics should possess.

To answer the second question, the means and standard deviations of the study sample members' responses marks on the prepared study instrument were counted.

To answer the third question, the means and standard deviations of the study sample members' responses marks on the study instrument were counted according to the variables of scientific degree, experience and sex. Triple variance analysis was also used to determine whether the differences among these arithmetic means are statistically significant ($\alpha=0.05$) or not.

5. Results and Discussions

5.1 Results related to the first study question and their discussion:

What are the clinical teaching skills for LD students that secondary stage teachers of physics in Jordan should possess?

To answer this question, the researcher relied on his own personal experience, referred to the educational literature and related studies (Saadeh,2018; Al Sahari,2018; Vavougious,2016; Aydeniz et al.,2012; Al Kareem, Ashour and Obaid,2011; Zaiton,2003; Zaiton, 1999).

The number of these skills was in final form (28) equally distributed between two main domains:

- The first domain: It has (14) items from (1 – 14) related to skills that a teacher of physics should possess to diagnose learning mistakes among his LD students. These skills deal with identifying these students through their behaviors, actions, answers, interaction and activities during the learning-teaching process in the classroom where these students characterized by a medium level of intelligence, low academic achievement, unstable emotion, rush in behavior, normal excessive activity, mental disperse and a need to access the ambience of the lesson more than their peers.
- The second domain: it has (14) items from (15-28) related to skills that a teacher of physics should possess so that he can treat previous learning mistakes. These skills depend on clinical teaching strategies that a teacher of physics can use to overcome learning mistakes among his LD students. They rely on basically on that the student is the core of the learning-teaching process. Therefore, the teacher should work to involve the student effectively in this process by using strategies of investigation, cooperative, and narrative teaching, mission analysis (means the student divides homework into parts and receives a proper reinforcement after finishing each part and the complete homework), role-play and others.

These skills can be discussed by observing that the secondary stage teachers of physics must possess, so that he can deal properly with LD students and lead them to a closed level of learning to their normal peers. This suits the general principle which based on that learning is a right to all students whether they are normal or LD. A teacher of physics through going over these skills can identify the skills that he highly possesses, so he can perfect them in a higher form, and what he possesses in a medium and low form, so he works to improve them.

This list of skills can also spread out awareness among teachers of physics to the need for taking care of LD students, identifying and helping them and choosing the suitable teaching methods for them, and working to lead them to a level of learning similar to their peers'.

5.2 Results related to the second study question and their discussion

What is the possession level of clinical teaching skills for LD students by the secondary stage teachers of physics in Jordan from their point of view?

To answer this question, the means and standard deviations of the sample study members' responses' marks were counted on both domains of the study instrument and items of the instrument as a whole. Table (2) shows these statistics.

Table 2. the means and standard deviations of the sample study members' marks on the study instrument and its two domains

Domain	Number of items	Arithmetic Mean	Standard Deviation
Diagnostic skills of learning mistakes	14	2.69	0.76
Clinical Skills of learning mistakes	14	2.87	0.98
The instrument as a whole	28	2.78	0.87

It is clear that the possession level of skills of diagnosing learning mistakes by the study sample was medium with a mean (2.69) and standard deviation (0.76) according to table (2). Their possession level of clinical skills of these mistakes was also medium with a mean (2.87) and standard deviation (0.98). Therefore, their possession level of clinical teaching skills from their point of view themselves was medium with a mean (2.78) and standard deviation (0.87).

These results may be due to that these teachers may be with a proper level in their preparation (since they hold a bachelor degree of physics as minimum, some of them holds a high diploma in education or a master degree in physics), but this preparation isn't enough to enable these teachers to deal with a high level with the LD students, since dealing with these students needs a special preparation, training and habilitation to pre-service and in-service teachers where this is unavailable widely according to the researcher's knowledge. Programs of teachers of physics preparation pre-service, training and habilitation them in-service directed in general towards normal students, and few of them were directed for LD students.

Therefore, people who are in charge of teaching science in Jordan whether they are in universities or the Ministry of Education have to work to provide physics graduates with enough experience of how to deal with LD students by making proper modifications in the university academic plans and also through continuous training in-service on programs and clinical teaching skills for LD students to work hard to reach these students to the level of their peers in their academic achievement in physics since they are in the secondary stage and about to enter the university, and their average in the secondary stage determines their acceptance in a university and defining the specialization to be accepted. In addition, this helps to achieve the general principle which calls that learning is a right for all normal and LD students. The results of this study agree with the results of study of (Saadeh,2018, Aydeniz et al., 2012, Kinniburgh & baxter,2012, Gaddy et al.,2008 Zaidan,2005, Al Mashaqbeh,2000) through pay more attention in preparing, habilitating and training teachers of science in order to possess clinical teaching skills of LD students with a high level which is reflected positively on the academic achievement of these students.

5.3 Results related to third study question and their discussion

Does the possession level of clinical teaching skills for LD students by the secondary stage teachers of physics in Jordan differ according to their scientific degrees, teaching experiences and sex?

To answer this question, the means and standard deviations of the sample study members' responses' marks on the items of the study instrument were counted according to the variables of scientific degree, teaching experience and the examinee sex. Table (3) explains that.

Table 3. means and standard deviations of the sample study members responses' marks on the study instrument according to the variables of scientific degree, experience and sex

Variable	Level	Number	arithmet ic mean	Standard Deviation
Teaching Experience	5 years or less	24	2.45	0.88
	more than 5 years to 10 years	26	2.80	0.81
	More than 10 years	30	3.03	0.85
Scientific degree	bachelor of physics	40	2.41	0.75
	Bachelor of physics+ high diploma or above	40	3.15	0.89
Sex	Male	40	2.29	0.68
	Female	40	3.27	0.72
Total		80	2.78	0.87

It is clear from table (3) that there are apparent differences between the means of the sample study members' responses' marks on the study instrument according to the variables of scientific degree, experience and sex. To know if these differences are statistically significant at ($\alpha= 0.05$), triple variance analysis was done. Table (4) shows the results of this analysis.

Table 4. triple variance analysis of the effect of teaching experience, scientific degree and sex on the sample study members' responses on the study instrument

Variable	SS	DF	MS	F	Indication Level
Teaching Experience	3.86	2	1.93	5.85	*0.006
Scientific degree	1.34	1	1.34	4.06	*0.043
Sex	21.16	1	21.16	64.12	*0.000
Error	24.75	75	0.33		
Total	51.11	79			

*statistically significant at ($\alpha= 0.05$)

Table(4) shows statistically significant differences ($\alpha= 0.05$) possession level of clinical teaching skills by the teachers of physics due to the variable of experience, and since this variable has three levels there was need to use Scheffe Test for post comparisons to define directions of these differences and this is explained in table (5).

Table 5. results of Scheffe Test for post comparisons of the variable of experience

Teaching Experience	5 years or less	More than 5 years to 10 years	More than 10 years
5 years or less	-	*0.406	*0.391
More than 5 years to 10 years	-	-	*0.384
More than 10 years	-	-	-

It is clear from table (5) that there were statistically significant differences at ($\alpha= 0.05$) in the degree of the teachers of physics possession of clinical teaching skills due to the variable of experience; this means that as the experience of the teacher of physics increases, his possession degree of clinical teaching skills also increases.

This result may due to that as the experience of a teacher of physics increases, his experiences in dealing with his students also increase including LD ones. The teacher of physics often shares with training courses related to scientific content, teaching methods, interaction, classroom management and others in every semester under the supervision of supervisors of physics. Therefore, as his teaching experience increases, his participation in courses also increases. In addition, as a teacher of physics experiences increase, he gets more chances to obtain a higher scientific degree.

Regarding the variable of scientific degree, it is shown from table (4) that there was a statistically significant difference at ($\alpha= 0.05$) between average of the study sample members' marks on the study instrument due to the variable of scientific degree for the higher educational scientific degree (bachelor of physics+ high diploma or above). This result may be expected since as the scientific degree of a teacher of physics increases, he gets more new knowledge which enables him to have a mastery of the scientific subject he teaches, and if the higher degree is in education, this gives him more ability to use different teaching methods that suit all levels of his student with effective interaction with them and the effective classroom management.

As for the variable of sex, it is shown from table(4) that there was a statistically significant difference at ($\alpha= 0.05$) between means of the study sample members' marks on the study instrument and for the female teachers. This result may due to that female teachers are more tendency, acceptance and desire for educational professions from male teachers which make them work well and be more committed and distinguished in the learning-teaching process. It can be also said that in our eastern societies the responsibility of raising children lies on females which makes them more communicative and knowledge with their children problems from their husbands, and if we know that most of teachers of physics if not all of them- within the study sample- are married and have children, and so the nature of their relations with their children will be positively reflected on their relations with their students and knowledge of their problems particularly the LD ones, and work to help them to be at the same level

of the normal students in the academic achievement level.

These results agree with the results of the study of (Saadeh,2018; Gaddy et al.,2008; Struggs & Matropieri,2007 Al Mashagbeh, 2000).

6. Conclusion

After analyzing the data and testing the questions of the study, the following major conclusions were reached:

1. Secondary stage teachers of physics in Jordan must identify their LD students in order to treat them properly.
2. Secondary stage teachers of physics in Jordan must possess skills of clinical teaching which are (28) so as to deal properly with LD students and help them to improve their academic achievement to reach their peers level.
3. The possession level of clinical teaching skills by the secondary stage teachers of physics is medium. Therefore, work should be taken to raise this level by adjusting university academic programs, hold special courses for these teachers in-service and training them on how to identify and teach LD students.
4. There are differences in the possession level of clinical teaching skills by these teachers due to variables of scientific degree, sex and teaching experience.

7. Recommendations

According to the results of this study, it can be recommended the following:

- Training the teachers of physics in-service to provide and train them on clinical teaching skills for LD students.
- Inclusion programs of educational degrees of the teachers of physics in universities whether in the high diploma stage in education or the master of education some courses related to skills and strategies of clinical teaching for LD students.
- Adapting classrooms in schools that suit active learning strategies, investigation and cooperative learning in order to help a teacher of physics to use clinical teaching skills effectively.
- Conducting more studies on clinical teaching skills.

References

- Agran, M.; Blanchard, C.; Wehmeyer, M.& Hughes, C. (2002). Increasing the problem-solving skills of students with developmental disabilities participating in general education. *Remedial and Special Education*, 23, 279- 288.
- Al -Kareem, M., Ashour, M. and Obaid,K. (2011). Extent of effectiveness of applying teaching strategies from the point view of students. *Al Fath Journal*, Baghdad University, Iss.(47).
- Al -Khateeb, A. (2009). *The resource center room as an educational alternative of LD students (A practical guide for learning disabilities teachers)*, A'lam Al kutub Al Hadith, Irbid, Jordan.
- Allington, R.L. (1980). Teaching reading in compensatory classes: a descriptive summary. *Reading Teacher*, 34, 178-183.
- Al -Mashagbeh, S. (2000). *Impact of teaching using clinical diagnostic evaluation on seventh grade students' achievement in Al-Mafraq Governorate in scientific knowledge of chemical union unit*, unpublished M. A. Thesis, Yarmouk University, Jordan.
- Al -Sahari.M.A.(2018). The effectiveness of using the diagnostic and curative teaching of the treatment of attainment difficulties of jurisprudence and develop of attitude of third grade preparatory students. *International Journal for Research in Education*, UAEU, 42(1),149-189.
- Aydeniz,Z.M., Cihak, D.F., Graham, S.C. & Retinger, L.(2012). Using inquiry-based instruction for teaching science to students with learning disabilities. *International Journal of special Education*,27(2), 189-206.
- Brigham,F.J. Scruggs, T.E. & Mastropieri, M.A.(2011). Science education and students with learning disabilities. *Learning Disabilities Research and Practice*, 26(4), 223-232.
- Burris, A. (2009). Research Reports/ Theorist paper: *Marie Clay Education*, 2010.
- Gaddy, S.A., Bakken,J.P. & Fulk, B.M.(2008). The effects of teaching text- structure strategies to postsecondary students with learning disabilities to improve their reading comprehension on expository science text passage. *Journal of Postsecondary Education and Disability*, 20(2), 100-117.
- Hashimi,W.(2011). *Clinical Teaching*, Faculty of education, Sultan Qaboos University, Oman.
- Kinniburgh, L.H., Baxter, A. (2012). Using questions answer relationship in science instruction to increase the reading achievement of struggling readers and students with reading disabilities. *Current Issues in Education*,15(2), 1-9.
- Kowalik-Olubinska, Malgorzata (2012). Education of children with learning disabilities from the social and cultural perspective. *Procedia-Social and Behavioral Sciences*, 55, 1243-1249.
- Saadeh, A.E. (2018). *The degree of intermediate basic science stage teachers' possession in Amman Province, the Skills of Using the Clinical Teaching*. Unpublished M.A. Thesis, Al-Albait University, Al-Mafraq, Jordan.

- Scruggs, T.E. Mastropieri, M.A. (2007). Science learning in special education: The case for constructed versus instructed learning. *Exceptionality*, 15, 57- 74.
- She, H.C. (2002). Concepts of a higher hierarchical level require more dual situated learning events for conceptual changes: a study of air pressure and buoyancy. *International Journal of Science Education*, 24(9), 981-996.
- Vavougiou, D., Verevi, A., Papalexopoulos, P.F., Verevi, C. & Panagopoulou, A. (2016). Teaching science to students with learning and other disabilities: a review of topics and subtopics appearing in experimental research 1991-2015. *International Journal of Higher Education*, 5(4), 268-280.
- Yoon, C.H. (2009). Self-regulated learning and instructional factors in the scientific inquiry of scientifically gifted Korean middle school students. *Gifted Child Quarterly*, 53, 203-216.
- Zaidan, A. (2005). Role of clinical teaching in improving skills of using telescope among biology department students in Al-Quds university. *Journal of Islamic University*, Al-Quds university, 13(1), 221-238.
- Zaiton, H. (1999). *Teaching evaluation systematic vision*. A'lam Al Kutub, Cairo, Egypt.
- Zaiton, K. (2003). *Teaching for LD people*. 1st ed., A'lam Al Kutub, Publishing, Distribution and Press, Cairo, Egypt.
- Zayyat, F. (2007). *The psychology of learning between correlation and cognitive perspective*, 4th edition, University Publishing House, Cairo, Egypt.