

## From theory to practice: Constructivist learning practices among Jordanian kindergarten teachers

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### Abstract

The fundamental principle of “constructivist education” is that learning takes place when the learner enthusiastically participates in a process of “knowledge construction”. This study is aimed at exploring kindergarten teachers’ constructivist learning practices in Jordan. The participants of the study consisted of 60 kindergarten teachers; 30 kindergarten teachers taught kindergarten children in public schools and 30 kindergarten teachers taught kindergarten children in private schools in Irbid city of Jordan during the 2018–2019 school year. The study utilised a descriptive quantitative design, with an observation of Jordanian kindergarten teachers to gather data on the constructivist learning practices among Jordanian kindergarten teachers. The researcher designed an observation instrument that consisted of 35 items to collect data about constructivist learning practices. The findings revealed that the constructivist learning practices of kindergarten teachers were not developed to a high level of practice, but they achieved a moderate and low degree. Moreover, the researcher found that there are no “statistically significant” differences at ( $\alpha \leq 0.05$ ) among the sampled Jordanian kindergarten teachers’ implementation of constructivist learning practices based on experience, and their academic qualifications. However, kindergarten teachers utilised constructivist teaching practices in public schools more than in private schools. Professional workshops regarding constructivist learning practices among Jordanian kindergarten teachers are recommended.

Keywords: Instructional practices, kindergarten teachers, constructivist learning, Jordan.

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## 1. Introduction

Today's world is distinguished by social mobility, where teachers are anticipated to have various career paths and participate in re-skilling at different stages during their practice. Educators and institutions are gradually beginning to be more familiar with the fact that the philosophy and the world we inhabit are extremely inconsistent with a culture of control in education, where teacher-designed content and practices are predominant. Today, Early childhood educators are particularly concerned with improving the social, physical, emotional, cognitive, and ethical dimensions of development and learning, as well as what children learn and how they learn (Kostelnik, Soderman & Whiren, 2004). All this culminates in the need to rethink our pedagogy, in order that learners are taught as active learners and co-producers of educational materials rather than as inactive learners in learning processes and content users who are not actively seeking out new information, and ensure that Learning is a social, participatory process. and conducive to achieving needs and private life goals (Brown & Adler, 2008).

There is an apparent necessity for teachers and students to move towards constructivist learning practices as opposed to practices based on the acquisition of pre-packaged facts (Alnafesah, 2019; Al Ryan, 2011; Al Zaaneen, 2015; Mustafeh, 2016; Peters, Le Cornu & Collins, 2003). Providing an opportunity for the learner to create new meaning from their experiences with the educational environment and interpreting relevant material is of primary importance in In any form of instructional strategy based on "constructivist learning theory" (Otto, 2010). The fundamental principle of "constructivist education" is that learning takes place when the learner is dynamically concerned in the practice of building knowledge (Thomas, 2004). This is a significant consideration because cognitive theory states that learning is not restricted to the treatment of presented cognitive constructs, but can create new connections for learners (Grabowski, 1997). Moreover, Grabinger (1996, p. 675) stated that "the concept of generative learning is an extension of the concept of constructive learning. Students cannot construct their learning without generating something through active involvement". Also, Coleman, Perry and Schwen (1997), stated that, by giving learners power over the sequence of instructions, constructivists aim to engage learners in an active experience. And active environments necessitate the instruction of the learner to create, delineate or generate representation of personal meaning (Hannfin, 1992).

Morgado (2010), in her article, 'From Passive to Active Learners: Implementing the Pedagogy of "Learning by Doing in a Large-sized Design Foundation Class"', stated that the execution of pedagogy "learning by doing" seemed significant to accomplish the learning objectives. She examined the strategies and challenges used in endorsing critical thinking and active learning in a (large-sized class). Attempting to incorporate the implementation of constructivist principles into learning practices at primary classrooms elucidates many concerns regarding the design of these learning environments. After evaluation of the basic assumptions concerning alternative viewpoints of perception, corresponding constructivist applications and theoretical perspectives, the fundamental role of constructivist learning practices on student motivation and teachers' success in the schools appears. At the very least, it is hoped that this study will succeed in extending the perception of these systems, such that they are perceived as adaptive, cognitive, 'constructivist learning' environments rather than simply efficient or following traditional instruction methods. While some instructional approaches are useful in teaching and learning children, many educators advocate exploring alternative pedagogical assumptions and constructivist applications that enrich learning environments (Al-Khadery, 2018; Al Zaaneen, 2015; Kingir, Tas, Gok & Vural, 2013; Mustafeh, 2016).

Constructivism proposes that “learners create knowledge as they attempt to understand their experiences” (Driscoll, 2000, p. 376). Behaviourism views knowledge as extrinsic to the learning process and learning as the act of internalising knowledge. Aldridge and Goldman (2007, p. 144) advocated that the crucial role of the school system in student success is: “School systems must be informed of current research and must be provided opportunities to explore and adopt strategies that have the greatest potential of enhancing student development and achievement”. Constructivism presumes that the Learners aren't hollow minds waiting to be filled with knowledge. Learners, on the other hand, actively seek to create meaning. Learners also make decisions about what they want to learn and how they want to learn it. Real learning is elaborate and dynamic, according to constructivist concepts. Thus, classrooms that follow “constructivist learning” will be more efficacious in the preparation of learners for lifelong learning (Kingir et al., 2013).

Constructivism is a worldview or paradigm which assumes that learning is active, where the learner is the creator of the information. In constructivist classrooms, teachers are prepared to accomplish all children’s different needs “Teachers must be prepared to meet the needs of all children in their classrooms and this includes children from diverse backgrounds” (Aldridge & Goldman, 2007, p. 166). People vigorously build or create their own subjective, personal interpretation of objective reality. Rothstein and Jacobsen (2006) argued that teaching social and personal adjustment problems and teaching concepts and facts are not the purposes of schooling. Instead, they mentioned that the central goal of schooling is to encourage the best possible development of thinking abilities that are appropriate to each level of growth. Furthermore, research studies have constantly revealed that when children practice early education and quality care, it benefits their cognitive, social and emotional development in the short term, and success in school and later in life in the long term (OECD, 2001, p. 13).

Examining the constructivist practices in different grade levels and different subjects were conducted by many researchers previously (Al-Ansari, 2016; Al-Assaf, 2017; Al-Khadery, 2018; Alnafesah, 2019; Al Ryan, 2011; Al Zaaneen, 2015; Fast & Hankes, 2010; Kingir et al., 2013; Mustafeh, 2016). To improve the effectiveness of instruction, and mathematics content knowledge, Fast and Hankes (2010) looked at the impact of an educational programme based on the integration of constructivist theory in teaching mathematics content to student teachers at one university in Wisconsin. They divided the sample, consisting of 63 female and male students, into two groups: control and experimental, where the experimental group was taught mathematics according to constructivist theory, using multiple tests and a questionnaire. The findings of the research exhibited important advantages in favour of the students of the “experimental group” in the development of students’ ability to overcome misconceptions and negative experiences with mathematics content. Also, it was found that there were positive attitudes towards learning content and constructively oriented teaching methods.

In Turkey, Kingir et al. (2013) explored the relationships among “constructivist learning” “environment perceptions” and “motivational beliefs”, “science achievement” and “self-regulation”. The sample of the study consisted of (802) Grade (8) students from (14) public middle schools. Motivated Strategies for Learning Questionnaire, Constructivist Learning Environment Survey and Science Achievement Test were used to achieve their study’s purpose. They found that the ‘constructivist learning environment’ correlated with higher students’ goal orientation, self-efficacy, self-regulation, science achievement and intrinsic interest.

Al Zaaneen (2015). Also, conducted a study intended to recognise the extent to which teachers of science employed constructivist instruction in the city of Gaza and its connection with several

variables such as gender, educational stage, qualifications, and experience. The sample consisted of 70 Science teachers who were selected from the north side of Gaza. A teaching observation checklist was employed to monitor the 70 classrooms. The findings showed that the extent of science teachers' constructivist practice was generally low. Additionally, results demonstrated that there were no "statistically significant" differences in the extent of constructivist practice based on qualifications and gender. Lastly, there was a "statistically significant" difference depending on the educational stage in favour of the primary stage and experience in favour of the teachers of science who have 5–10 years of work experience.

Al-Ansari (2016) explored the level of constructivist learning practices of social and national teachers in secondary schools in the (Kingdom of Saudi Arabia). To achieve the purpose of the study, an availability sample of 200 was chosen. The data were collected using the observation checklist. The findings of the study revealed that constructivist learning practices were not promoted to a high level of practice, but they have achieved a moderate degree. Moreover, a "statistically significant" difference at ( $\alpha \leq 0.05$ ) in participants' practices was revealed to be attributed to participants' gender, instructional experiences and his/her partaking in training sessions, while it was found that no significant difference in the constructivist learning practices could be attributed to respondents' educational qualification

Mustafeh (2016) investigated the constructivist learning practices among Islamic education teachers. She observed 30 teachers in Irbid of Jordan in the academic year of 2015–2016. The researcher also designed an observation checklist that consisted of 37 items. She found that the constructivist learning practices of Islamic education teachers were not developed to a high level of practice, but they achieved a moderate and low degree. Moreover, it was found that there was no relationship between constructivist teaching practices and teachers' years of experience, gender or academic qualifications.

Moreover, Al-Assaf (2017) investigated the social studies teachers' degree of the practice of constructivist teaching skills and its relationship to some variables in Amman of Jordan. The study sample consisted of 295 teachers. A survey was designed to measure the degree of practice. The results showed that the extent of constructive practices by social studies teachers was high. Also, there were "statistically significant" differences, due to the educational qualification, gender and work years of experience.

Furthermore, to examine constructivist learning practices in the first three primary grades in reading and learning environments in Jordan, Al-Khadery (2018) designed a study using an observation checklist to observe the constructive practices of 40 female teachers. The findings revealed that constructivist learning practices in reading and learning environments have not been promoted to a high level of practice, but they have achieved a moderate degree. Also, the findings of the study exposed that there were no "significant" differences in the constructivist learning performance due to the variable of female teachers' teaching experience, and scientific qualification. In light of the results, the study recommended the adoption of constructive learning in teaching and learning and in reading and learning environments, especially in improving reading comprehension and its employment in daily life.

Alnafesah (2019) also investigated the degree of "constructivist teaching" among elementary science teachers in (Riyadh) in light of the training programmes attended by science teachers. The participants were (18 male and female science teachers). To attain the study's purpose, checklists were filled. The constructivist teaching indicators were categorized and sorted according to the degree

of their presentation in the classroom after collecting and analyzing the data quantitatively and qualitatively. The results indicated that the science teachers showed some features of constructive education, although they were not at the desired level. Teachers should incorporate the established curricula in ways that are compatible with constructivist practices, with a greater emphasis on learning activities than teaching activities in the classroom, according to the report.

### *1.1. Comments on related studies*

It is clear that the results of the relevant studies have verified the importance and effectiveness of structural models in teaching and multiple disciplines, such as Islamic education (Mustafeh, 2016), Arabic language (Al-Khadery, 2018), social studies (Al-Assaf, 2017), science (Alnafesah, 2019; Al Zaaneen, 2015; Kingir et al., 2013) and mathematics (Fast & Hanks, 2010).

The results of previous studies revealed a positive relationship between theory-based teaching practices and models of constructivism, and between some of the variables, such as the progress of achievement (Kingir et al., 2013), the positive attitudes towards structural theory and the formation of structures' conceptualisation, which was indicated by the Kim (2005).

As this study is an extension of many international studies, what distinguishes it from others is that it was carried out with various variables in mind. It is especially significant that none of the previous studies investigated the level of kindergarten teachers' practice in Jordan of constructive teaching, which affirms the importance of the current study in light of its demographic variables, increases the gravity of its problem and makes it the first in this field, according to the researcher's knowledge.

Based on the above-mentioned previous research, it was shown that studies were conducted on constructivist practices in different grade levels in Jordan but not kindergarten (Al-Khadery, 2018; Al Ryan, 2011; Al Zaaneen, 2015; Mustafeh, 2016). Thus, the main point of this paper is to explore how and to what level do kindergarten teachers in Jordan implement constructivist learning in classroom practice.

### *1.2. Research problem and questions*

Despite the Jordanian government's interest for young children in developing the most effective and proper curricula and practices (Roggemann & Shukri, 2010), research to ascertain the most excellent practices for young children is remained inadequate. Particularly, research on constructivist practices for Jordanian kindergarten students is especially insufficient (Abu Jaber, Al-Shawareb & Gheith, 2010). According to researchers, most of the previous research studies were conducted on constructivist practices in different grade levels in Jordan but not kindergarten (Al-Khadery, 2018; Al Ryan, 2011; Al Zaaneen, 2015; Mustafeh, 2016) Generally, there are arguments about how to employ constructivist learning practices successfully and apply their values in a Jordanian kindergarten classroom (Hegd & Cassidy, 2009). Thus, understanding how kindergarten teachers in Jordan implement constructivist learning practices will assist in enriching the planning process and contributing to the development of the most efficient and best environments for learning and development in young children in Jordan.

Thus, the main research question was "To what extent do kindergarten teachers in Jordan implement constructivist learning in classroom practice?" Based on this question, the following two questions led the study:

1. To what level do Jordanian kindergarten teachers employ constructivist learning practices in their classroom teaching?

2. Is there a “statistically significant difference” at ( $\alpha \leq 0.05$ ) that would be found in the level of constructivist learning practices among Jordanian kindergarten teachers according to the research’s variables: (educational qualification, school’s type, and teaching years of experience).

### *1.3. Theoretical framework*

This study followed the “cognitive development theory” (Piaget, Grize, Szeminska & Bang, 1977; Wittrock, 1979), which viewed children as constructivists who actively construct a new comprehension of the world according to their knowledge and experiences (Shaffer, 2009). Piaget described knowledge as a process of acting, physically and/or mentally, on objects or images through direct experience and memory. This process is filtered by a child’s perception based on past experiences and his current stage of internal maturation. Wittrock (1979, p. 5) also stated that “in this conception the learners are active, responsible and accountable for their role in generative learning”.

According to Piagetian’s theory of child development, as a child interacts with the world, mentally and physically, he continually adapts his schema of the world through assimilation and accommodation (Thomas, 2004). It is through this adaptation and organisation of schema that the child develops intellectually and interacts with the world. Piaget stated that people learn by building logical structure after another one. He also believed that children’s reasoning and thought habits varied greatly from adults at first. So, constructivist education was founded on the insinuation of this philosophy and how he applied it. (Shaffer, 2009).

Dewey also advocated that Shouldn't education be based on real-life experiences. (Aldridge & Goldman, 2007), where inquiry is the main part of “constructivist learning”. Among the philosophers, educators, sociologists, and psychologists who added much to “constructivist learning theory” and practice are Lev Vygotsky, Bruner and David Ausubel (Thomas, 2004).

### *1.4. Importance of the study*

Depending on the above discussion, it is clear that constructivist learning practices in classroom teaching represent significant pillar in the growth of teaching and learning in kindergarten. Furthermore, the findings of the study offered helpful data, implications and propositions that can facilitate the planning of kindergartens’ activities and learning studies, also designing proper expert-designed preparation and development programmes for teachers of kindergarten classrooms. Furthermore, the findings can help kindergarten principals and decision-makers keep constructivist practices in mind when preparing both in- and (pre-service) kindergarten teachers and promoting the professional progress of teachers to refine the execution of constructivist learning practices. Moreover, this study may present examples of efficient constructivist implementation and learning practices. At last, It is anticipated that this research will pave the way for further studies in this area.

### *1.5. Limitations of the research*

The research was limited to only some constructivist learning practices that were included in this research’s checklist, Jordanian kindergarten teachers and teachers who taught in public and private schools of Irbid city of Jordan during the school year of 2018–2019. Data were merely gathered from one Likert scale checklist. Therefore, the range of results can’t be expanded too far and only this specific sample should be taken into account.

### *1.6. Procedural definitions*

#### *1.6.1. Constructivist learning practices*

Constructivism is defined as a theory regarding how humans learn. It declares that humans build their knowledge and understanding of their world by experimenting with things and thinking about those experiences. Thus, it refers to any practices or strategies that a teacher uses in the classroom to engage the students and support them to be active learners in the classroom. To do this, teachers have to ask questions, explore and assess in constructive ways. Moreover, it was measured in this study by the observation checklist according to teachers' constructivist learning practices.

### 1.6.2. Kindergarten teachers

It refers to the teachers who teach in the preschool stage (kindergarten 2 [KG2] for 5-year-old children).

## 2. Method and procedures

This section describes the study design, participants, instruments used in data collection, the procedures to find validity and reliability and the overall procedures followed in this study.

### 2.1. Research design

This research used a “descriptive quantitative” design, with direct structured observation to investigate constructivist learning practices among Jordanian kindergarten teachers. This is because the quantitative observation design is ideal as it allows to collect, organise, visualise and record data on behaviours in a timely manner (Thompson, Flores, Bridier & Whatley, 2014) and measure actual behaviour without a bias report (Bernard, 2000).

### 2.2. Participants

The participants of the study consisted of 60 kindergarten teachers who were selected via convenience sampling: 30 kindergarten teachers taught kindergarten children in public schools and 30 kindergarten teachers taught kindergarten children in private schools in Irbid city of Jordan during the 2018–2019 academic year's second semester. Table 1 reveals the demographics of this study's participants.

Table 1. Kindergarten teachers' demographic characteristics

IV	IV levels	Frequency	Percentage
Teacher's educational qualification	2 years of college	12	20
	BA degree	43	75
	Master's and higher	5	5
	<b>Total</b>	<b>60</b>	<b>100</b>
School's type	Public	30	50
	Private	30	50
	<b>Total</b>	<b>60</b>	<b>100</b>
Teaching years of experience	0 to 5 years	8	10
	5 to 10 years	14	30
	10 years and more	38	60
	<b>Total</b>	<b>60</b>	<b>100</b>

### 2.3. Instrument

The researcher designed an observation checklist which consisted of 39 items to collect data about constructivist learning environments. The checklist was developed following the previously reviewed educational literature (Al-Khadery, 2018; Mustafeh, 2016; Paily, 2013), Jordanian kindergarten curricula standards and national standards for professional teacher development (Ministry of Education, 2013), as well as the experience of the researcher in the field of teaching and supervision.

All ideas were formulated in the form of behavioural clauses that can be observed and measured by observing the teacher in the room. The finalised checklist card consisted of 35 items, expressing the degree of teachers' practice of constructivist learning. Every item used was rated on a "3-point Likert scale" (1 = low, 2 = medium, and 3 = high).

#### 2.4. Validity and reliability of the research

For "face validity", five of the faculty members of the Yarmouk University's College of Education, Department of Curriculum and Teaching Instruction, assessed the checklist scale. Also, feedbacks were applied to explain some items and words. The researcher carried out some of the changes as suggested by the reviewers and deleted the items for which four out of the reviewers were in consensus about the necessity of their deletion.

For reliability, "Cronbach's alpha" method was applied for computing the "internal consistency" for the scale. The internal consistency of the observation instrument was found to be 0.84. This finding shows that the "reliability coefficient" was acceptable for this research (Odeh, 2010).

#### 2.5. Research procedures

After acquiring approval for the classroom observation from the (Ministry of Education), consent from teachers and children's parents were obtained. Then, two classes were observed at a rate of 45 minutes per class for each teacher. The variability of topics was taken into account, by carrying out the observation at different times for the first and second lessons for each teacher. Each class was observed by two observers and two checklists were filled for each class. As a result, the number of observation checklists that were recorded for teaching practices was four for each teacher.

The 'Interclass Correlation Coefficient' (ICC) is an inferential statistic that may be carried out when quantitative dimensions are conducted on units that are prearranged into groups. ICC was utilised to ensure the compatibility between the two observers who filled the checklist card (Yaffee, 1998). The ICC between the observers at the level of each classroom was 0.89–0.86. Also, Cooper's (1981) formula was used to find a correlation coefficient between estimates. The observers were on each of the two groups, and their coefficients were found to be 0.90 and 0.85 for the first and second lesson, respectively.

#### 2.6. Data analysis

IBM SPSS Statistics 21 was used to examine the data from the observation checklist. The maximum score for each practice was scored 3 and the least was scored 1. Arithmetic averages below 1.66 were taken to indicate a low degree of practice. Moreover, arithmetic averages within the range of 1.67–2.33 were taken to be indicative of a moderate degree of practice, and averages of 2.34 and above indicated a high degree of practice. Thus, the average of 2.40, which is equivalent to the 80th percentile, was considered the accepted degree of educational practice.

Means, standard deviations and analysis of variance –ANOVA–, followed by (*post-hoc*) comparison, were used to decide whether kindergarten teachers' practices in Jordan were different concerning



constructivist learning theory due to the following study variables: school's type, education qualification and teachers' years of experience.

### 3. Findings and discussion

The results of the research depended on the study questions are analysed in this section. An alpha level of 0.05 was applied to all findings to obtain significance. Also, the study used means and standard deviations to assess constructivist learning practices among Jordanian kindergarten teachers to find the answer to the study's first question. "To what extent do Jordanian kindergarten teachers apply constructivist learning practices to their classroom teaching?" The scoring and rank for each item are revealed in Table 2.

Table 2. Standard deviations, means and percentages of kindergarten teacher's constructivist learning practices

Rank	Items	M	SD	Degree
1	30. Follows, guides groups and response to individual and group needs	2.80	0.403	High
2	11. The 'learner's previous knowledge constructions', attitudes and beliefs are taken into account during the information construction process	2.65	0.577	High
3	8. Collaborative plus cooperative learning are preferred in exposing alternative perspectives to the learner	2.63	0.688	High
4	9. Learners are offered the chance for apprenticeship learning in which there are tasks, knowledge acquisition and skills of escalating complexity.	2.60	0.673	High
5	13. The focus is on knowledge construction rather than reproduction.	2.59	0.39	High
6	14. Mistakes give Students' previous awareness constructions.	2.58	0.534	High
7	10. The importance of higher-order thinking skills, problem-solving, and deep comprehension is emphasized.	2.50	0.699	High
8	4. Offers activities which connect the mind and the hands	2.48	0.77	High
9	16. Various representations and perspectives of concepts and content are obtainable and supported.	2.45	0.504	High
10	28. Provides various opportunities for learners to self-assess their learning	2.40	0.503	High
11	5. Provides a hands-on experience that is necessary for learning	2.39	0.699	High
12	26. Learners' performance is evaluated through real situations rather than remembering and memorising knowledge	2.38	0.759	High
13	1. Encourages the learners to use sensory input and construct meaning out of it.	2.37	0.698	High
14	29. Provides opportunities for learners to engage in activities related to daily life	2.36	0.494	High
15	25. Instructs learners to invest in the local environment as a source of learning	2.35	0.764	High
16	7. Appraisal is genuine and linked with teaching.	2.31	0.666	Moderate
17	12. This construction occurs in personalised contexts and through experience, social negotiation, and collaboration.	2.31	0.633	Moderate
18	27. Uses a variety of assessment strategies and tools.	2.31	0.51	Moderate
19	32. Focuses on raising a variety of life issues that help learners express their thoughts	2.30	0.504	Moderate
20	2. provides the learner with a route into the subject that is based on the learner's prior knowledge	2.30	0.591	Moderate

20.	Opportunities, activities, environments, and tools are provided to support self-analysis, meta-cognition, regulation, awareness, and reflection.	2.28	0.454	Moderate
21				
22	33. Keen to link what students have learned in any subject to other topics of the study (horizontal integration)	2.28	0.555	Moderate
23	31. Asks questions that raise learners' higher thinking skills.	2.27	0.446	Moderate
24	19. The student plays an essential role in controlling and mediating learning.	2.27	0.482	Moderate
25	18. Teachers play the role of monitors, guides, tutors, coaches, and facilitators.	2.27	0.446	Moderate
26	21. Stimulates learners' motivation	2.27	0.446	Moderate
27	6. Scaffolding is used to assist the performance of students just beyond the limits of their capability.	2.27	0.607	Moderate
28	35. Learners are encouraged to exchange opinions and accept constructive criticism.	2.23	0.427	Moderate
29	3. Acknowledge the social facet of learning and uses interaction, conversation with others and the use of knowledge as an essential aspect of learning	1.65	0.647	Low
30	22. Gives time for learners to think about the questions they are asked	1.65	0.415	Low
31	34. Encourages learners to invest in the local environment as a source of learning	1.64	0.605	Low
32	15. Exploration is a preferred method to support students to search for knowledge on their own and to manage the achievement of their goals	1.64	0.5	Low
33	23. Offers individual assignments during the class and encourages individual work	1.63	0.712	Low
34	24. Encourages research outside the classroom environment to implement learning activities.	1.62	0.723	Low
35	17. Objectives and goals are obtained by the student or in cooperation with the educator or system.	1.60	0.698	Low
Total		2.30	0.560	Moderate

As seen in Table 2, overall, constructivist learning practices among Jordanian kindergarten teachers had an average score of 2.30, with a (standard deviation) of 0.560, representing a moderate rate.

These results show evidence of the lack of constructive learning in the implementation of lessons and their use in the community in practice. This may be because educational reform and development efforts are still oscillating between behavioural school ideas on the one hand, and constructivism on the other hand, which requires more courses and workshops, and effective encouragement to direct teachers' practices towards constructivist ideas in learning (Al-Assaf, 2017). Moreover, with regard to the Jordanian educational reality, although the Ministry of Education emphasises the importance of the development of teachers' constructivist learning practices based on the principles of constructivism theory, there are still weaknesses in teacher preparation programmes before and during service, regarding the development of constructive practices (Al-Ansari, 2016).

These findings are in agreement with previous research studies (Al-Khadery, 2018; Alnafesah, 2019; Al Ryan, 2011; Al Zaaneen, 2015; Al-Ansari, 2016; Mustafeh, 2016), which found that constructivist learning practices have not been promoted to a high level of practice, but they have achieved a moderate degree. Al Zaaneen (2015) even found, in general, that the extent of science teachers' constructivist practice has been low.

However, item number 30 obtained the highest mean (2.80), which indicated that teachers follow, guide groups and respond to individual and group needs. Followed by item number 11 with a mean of 2.65, which indicated that kindergarten teachers considered the knowledge construction process that involves the learner's previous values, knowledge constructions, and attitudes. Followed by item number 8 with a mean of 2.63, which referred to the utilisation of cooperative and collaborative learning where the learner is exposed to alternative perspectives

On the other hand, items 3, 22, 34, 15, 23, 24 and 17 obtained the lowest means and indicated that the kindergarten teachers neither negotiated with nor engaged students in planning for goals and objectives. Also, teachers may have difficulties with acknowledging the social aspect of learning and the use of conversation. Also, they may not have offered enough individual assignments or individual work during the class. These may be due to the class size with no extra help available in the classroom.

Next, for the second research question (Is there a “statistically significant difference” at  $(\alpha \leq 0.05)$  that would be found in the level of constructivist learning practices among Jordanian kindergarten teachers depending on the research’s variables: (educational qualification, school type and teaching experience)), the mean and standard deviation of the study’s variables were computed at table 3.

Table 3. (Mean and standard deviation) of constructivist learning practices based the study’s variables

IV	IV levels	Mean	N	SD
Teacher’s educational qualification	2 years of college	2.23	12	0.14490
	BA degree	2.31	43	0.25712
	Postgraduate	2.36	5	0.16951
	Total	2.30	60	0.23021
School’s type	Private	2.10	30	0.20031
	Public	2.50	30	0.15038
	Total	2.30	60	0.23021
Teaching years of experience	Less than 5 years	2.27	8	0.23902
	5 to 10 years	2.29	14	0.26605
	10 years and more	2.33	38	0.21645
	Total	2.30	60	0.23021

Table 3 shows that there are ostensible differences in mean scores of constructivist learning practices among Jordanian kindergarten teachers according to the study’s variables. Next, all the mean scores were evaluated within each category to decide if any ‘statistically significant difference’ might be found, which was verified through the three-way ANOVA (Table 4).

Table 4. (Three-way ANOVA) of constructive learning practices in kindergarten teachers

Variables	Sum of Squares	df	Mean Square	F	Sig
School’s type	1.307	1	1.307	41.681	0.000
Qualification	0.004	2	0.002	0.039	0.962
Experiences	0.073	2	0.037	0.684	0.509
Error	57.860	76	0.740		
Total	66.520	79			

As shown in (Table 4), no “statistically significant differences” ( $\alpha \leq 0.05$ ) were found in the sampled Jordanian kindergarten teachers’ implementation of constructivist learning practices based on qualifications and experience. This may be attributed to the fact that the practice of constructive teaching requires updated experiences and a continuous transition towards these practices. Besides, teachers may have influenced and imitated each other through the application of patterns and behaviours of a traditional nature, inspired by behavioural school ideas, which neutralises the impact of teaching experience and makes it useless in transferring constructive ideas to the classroom environment. This finding is in agreement with other studies (Al-Khadery, 2018; Al-Ansari, 2016; Al Zaaneen, 2015; Mustafeh, 2016) which signified that there was no “significant difference” in the constructivist learning practices attributed to the respondent’s educational qualifications and work experience years. However, this result differed from Al-Assaf’s (2017) study, which found a difference in the degree of the constructive practices carried out by social studies teachers due to the educational qualification, gender and work years of experience.

On the other hand, a “significant difference” ( $\alpha \leq 0.05$ ) was confirmed based on the school’s type in favour of public schools. This result indicated that kindergarten teachers utilised more constructivist teaching practices in public schools than in private schools. These may be because the “professional development opportunities” that were presented differed between the two school types (Rababah, 2012). Al-Rousan, Al-Khawalda, Al-Makaneen and Al-Omari (2019) found that there were “significant differences” in the professional competencies of kindergarten teachers based on the school’s type, with public schools having the advantage. This result can be explained by the interest of the Ministry of Education in Jordan in developing the capacities of kindergarten teachers of public schools concerning teaching competencies by holding many training courses, such as the ‘Kindergarten Curriculum’ course, the ‘How to Deal with Young Children’ course and the “How to Use Technology in The Teaching Process” course (Rababah, 2012). This may in turn be positively reflected in the development of teachers’ skills and competencies (Wenche & Sadownik, 2019).

Moreover, all “professional development opportunities” in public schools were obligatory. All were obtainable in all educational departments for every kindergarten’s teacher in Jordan. Furthermore, the public schools presented additional opportunities intended for teachers where teachers can attend “professional development opportunities”, contribute and be present at workshops and conferences or other kinds of professional programme. Therefore, “professional development opportunities” for kindergarten’s teachers in public schools were better and more wide-ranging than in private schools.

In light of the current educational trends in preparing teachers, educational studies and research have shown interest in preparing teachers, but that the teacher’s teaching performance could lead to fruitful outcomes in the case of training in constructive learning practices. Also, training teachers on the principles of constructivist theory and its practice could help them see the value of teaching according to the philosophy of constructionist teaching (Altahat & Atan, 2018; Mustafeh, 2016).

#### **4. Conclusion and recommendations**

The overall objective of this research was to examine the constructivist learning practices among Jordanian kindergarten teachers. The findings revealed that the constructivist learning practices of kindergarten teachers were not developed to a high level of practice, but they achieved a moderate and low degree. Moreover, it was found that there is no relationship between constructivist teaching practices and teachers’ experience or their academic qualifications. However, kindergarten teachers utilised more constructivist teaching practices in public schools than in private schools.

Inside the classroom, the constructivist perspective of learning can refer to some diverse teaching practices. Most generally, it typically means kindergarten teachers have to encourage students to use active approaches, experiments and problem-solving in the real world; to generate more information; and to think about and talk about what they're doing and how their views are shifting, and children will be able to construct their knowledge through hands-on interactions because they are important for their development and learning. The kindergarten teachers have to be certain they understand students' pre-existing concepts and guide them to address them and also build on them.

Many interesting implications arise from these findings, including the following: school managers must take into account the numerous forces in addition to extrinsic factors that affect teachers's implementation of constructivist learning practices; teachers need "professional development opportunities" concerning the stability of constructivist learning practices and curriculum principles; professional workshops regarding constructivist learning practices among Jordanian kindergarten teachers are needed for teachers and parents; and "child developmental theory" courses at the university level are expected to focus on the application of theory in the classroom.

In light of the results, this study recommends the following: conduct more studies including research that reveals the "professional development opportunities" presented to teachers and how "professional development opportunities" help teachers understand the appropriateness and application of "constructivist learning practices" in teaching children in their early years; and research into pre-service teachers' knowledge, practices and beliefs of constructivist learning.

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